CURRICULUM VITAE

Kim Leslie O'Neill, Ph.D.

3142 LSB Department of Microbiology and Molecular Biology, Brigham Young University Provo, UT 84602 USA
| (801) 422-2449 (Work) | 801 367 5007 (Mobile) | kim_oneill@byu.edu

Profile

Date of birth:	12 October 1958
Marital status:	Married
Sex:	Male
Nationality:	Irish/British
	US Citizen 2024
Current position:	Professor of Microbiology and Molecular Biology Brigham Young University

Experience

- ***Professor of Microbiology and Molecular Biology*** Brigham Young University (2000-Present)
- ***Associate Professor of Microbiology*** Brigham Young University (1995-2000)
- ***Assistant Professor of Microbiology*** Brigham Young University (1992-1995)
- ***Senior Research Officer*** Biomedical Sciences Research Center University of Ulster Coleraine, N. Ireland (1989-1992)
- ***Research Officer*** Biomedical Sciences Research Center. University of Ulster Coleraine, N. Ireland (1986-1989)
- ***Research Assistant*** Biomedical Sciences Research Center, University of Ulster, Coleraine, N. Ireland (1983-1986)
- ***Postgraduate Research Studentship*** Department of Agriculture and Fisheries (Research Grant Award) N. Ireland (1980-1983)
- ***Summer Research Internship*** Movanagher Fish Farm, Kilrea, N. Ireland

Education

- Doctor of Philosophy in Biomedical Sciences (Oncology)
  University of Ulster, Coleraine N. Ireland (1983-1986)
- Bachelor of Science in Biology (Hons)
- New University of Ulster, Coleraine, N. Ireland (1977-1980)

Teaching/Mentoring

- Sam and Aline Skaggs Distinguished Mentoring Fellowship, 2020
- Alumni Professorship Award (2016-2019) Awarded to one professor each year by the Alumni Association in recognition of meritorious service in teaching.
- Teacher of The Year Award from the Students in the Department of Microbiology at Brigham Young University (1994 and 1996)
- The Karl G. Maeser 'Distinguished Teaching Award' from the university recognizes excellence in teaching. This is one of three annual awards presented by the President of the University. It is the highest teaching award given by Brigham Young University (1998)
- College of Life Science Outstanding Mentor Award (2000)
- Vanice Reid Award with funding for three undergraduate stipends for mentorship of undergraduate students in the Biology of Cancer (2004)
- Cancer Research mentorship award from the Brigham Young University Cancer Research Center for mentorship of cancer research fellows (2014)
- Select and mentor undergraduate researchers in my laboratory. These students often present their findings at national and international conferences
- Mentored 880 undergraduate students (1998-2023) as researchers in my laboratory
- Successfully supervised over 800 undergraduate research projects, 46 Masters projects, and 11 Doctoral projects.
- Mentored 21 university honors students (1993-2013). 12 of these students went on to medical school, and 5 went on to a PhD program.

- **The following Undergraduate Research Students from my laboratory were awarded the AACR Thomas J. Bardos Science Education Scholar Award**
- **(The highest Award given by the American Association for Cancer Research (AACR) to undergraduates in the field of cancer research).**

- Nyall R London Jr. 2004-2005
- Kristie I. Aamodt 2007-2008
- Daniel W. Sharp 2011-2012
- Connor Peck 2016-2017
- Zachary Z. Reinstein 2017-2018
- Eric Olsen 2018-2020

TEACHING

At Brigham Young University there is a great emphasis placed on teaching, particularly undergraduates. Each class is independently evaluated by each student, who anonymously completes a questionnaire. These evaluations are then scored electronically before they are returned to the Department Head and then (after the grades are handed in) to the instructor. A summary sheet is provided for each class, and the completed evaluation form, with the student's comments, is returned to the instructor. The highest score possible is 8.0. Individual categories are scored, and then an overall grade is given for the instructor and the course. In most of the instructor evaluations, the scores are ranked excellent to exceptional; some of the course evaluations are lower because some of the courses were team-taught. My scores have always been exceptional.

In all the classes I have taught, I have consistently scored above the department, college, and university mean in student evaluations. The classes I teach are challenging, having lower GPAs than most other classes, but they push the students and are designed to get them excited about the subject, to open their minds to scientific possibilities. I also teach several graduate courses focused on the recent literature in a particular field. These courses have also received top ratings from the graduates.

- I have taught the following university courses and consistently receive "exceptional" ratings.
    - Micro 130 General biology (Approximately 250 students a semester)
    - Micro 101 Research Interests (approximately 100 students each semester)
    - MMBio 121 General Biology: Health and Disease, (approximately 200 freshmen students).
    - Micro 230 General Molecular Biology (approximately 100 students each semester)
    - MMBio 240 Introduction to Molecular Biology (200+ students per year)
    - Micro 291 Readings in Science (average of 75 students per semester)
    - MMBio 352 Immunology (100+)
    - MMBio 399R Internship (Student number varies)
    - Micro 402 Immunology (approximately 50+students each semester)
    - MMBio 452 Immunology II (approximately 50+students each semester)
    - MMbio 463 Advanced Immunology (approximately 50+students each semester)
    - Micro 495R Special Problems (approximately 50 students each (semester)
    - Micro 499R Honors Thesis (1-3 students a year)
    - Mol B 490R Molecular Biology Seminar (approximately 100 students per year)
    - Mol B 495R Undergraduate Research (approximately 50 students per year)
    - MMbio 557 Genes and Cancer (15-20 Graduate students and senior Undergraduates)
    - MMBio 624 Microbial Pathogenesis (Joint teaching class 15 Students)
    - MMBio 623 Advanced Graduate Immunology (15-20 Graduate students)

- Micro 691R Graduate seminar (20-30 Students per year)
- Micro 651 Graduate Immunology (8 graduate students)
- Micro 651 Graduate Apoptosis (12 graduate students)
- Micro 651 Graduate Cancer Biology (15 graduate students)
- Micro 617 Graduate Reviews in Microbiology (12 graduate students)
- Micro 699R Master's Thesis
- Micro 799R Dissertation
- Micro 695R Special problems in research

STUDENT MENTORING:

A major part of teaching is mentoring, making the students reach beyond their comfort zone and produce their hidden potential. Each year, I focus on mentoring undergraduates in research and have set up a network in which the students can be selected and then become involved in research. This network has worked well, and as a result, I encourage undergraduate students to publish in peer-reviewed journals and present at local, national, and international conferences. I also encourage my students to seek out summer research internship opportunities. Since joining BYU in 1992, I have encouraged many students to become involved in quality research projects. Students from my research laboratories presented over 900 presentations at national and international meetings. In 2008, at the American Society for Microbiology branch meeting, my student's presentations took first and second place in one session and first in another session. Also, that year I had thirteen undergraduates serving summer research internships at various top universities throughout the States: two at Harvard, three at Baylor School of Medicine, one at UCLA, one at the University of Arizona, one at the Moffitt Cancer Center in Florida, one at the Huntsman Cancer Center, and several in the industry.

Each year, students from my research laboratory get accepted into the top research and MD programs in the United States, including Johns Hopkins, Harvard, Baylor, and MD Anderson. Alabama, Mayo, UCLA, Stanford, etc.

STUDY ABROAD MENTOR:

Oversaw coursework for students who have completed a field study or internship abroad.
In Canada, USA, Romania, France, Germany, Ireland, Scotland, England and Africa.

GRADUATE STUDENTS MENTORED:

While at the University of Ulster, I successfully mentored the following PhD students to completion.
Christine Best (Current position unknown)
Shirley Anne Richardson (unknown)
Brian Armstrong (Unknown)
Paul Mullan (Paul is now a Professor, Queens University Belfast **School of Medicine, Dentistry and Biomedical Sciences**, Patrick G Johnston Centre for Cancer Research)
Steven Easton (Unknown)

Goudarz Mazdia (MD in London)
Shannin Rhangbar (Works for the World Health Organization (WHO) studying AIDs)
Valerie McKelvey (Professor of Biomedical Sciences)
Yvonne Wilkinson (Professor University of Nottingham)
Christopher Thompson (Unknown)
Lillian Cromie (Patent Attorney)
Francis Amara (Unknown)
Oonagh McNally (Professor of Nursing UUC)

BYU GRADUATE STUDENTS MENTORED**:**

I have been the chair of the graduate committee for the following graduate students: PhD

1996 Daryl William Fairbairn (Patent law)
1998 Xiaowen Shao (Pharmaceutical company)
1999 John Steven Griffith (Professor BYUI)
2000 Fan Zhang (Pharmaceutical company)
2013 Melissa Alegre (homemaker)
2017 Evita Weagel (Head of a Biotech company)
2018 Michelle Townsend (Lab supervisor UVU)
2021 Edwin Velazquez Espinoza Ceder Sinai Hospital)
2022-present Abigail (Johnson) Cheever

Masters Students.

1993 Richard Van Grisgby
2001 Chris Hintze
1999 Richard Bowden
2000 Kaedi Garvin
1997 Kirk Ward
1999 Micah Smith
1994 Xiaowen Shao
2002 Lana Fort
2003 Mathew Buckwalter
2003 Iyas Masannat
2003 David Tomer
2005 Olivia Bare
2004 Lee McLeman
2006 Adrianne Clifford
2006 Amy Clement
2007 Daniel Fuja
2011 Andrew Garrett
2012 Gaytri Gupta Elera
2012 Bo Marcus Gustafsson
2014 Ryan Steck
2015 Justin Livingstone
2019- Eliza Lawrence

NON-ACADEMIC LECTURES:

For many years I was actively involved in the Brigham Young University Speaker's Bureau. Through this program, I have given talks on science and non-science issues across the United States as well as to the local community. These are generally not research presentations but are to a lay audience and can be on various topics, mainly health-related. In May 1999, I gave a one-hour BYU televised forum presentation to a lay audience on my research. This forum was broadcast live on KBYU TV, which covers many US states. In May 2000, I was asked by the BYU Emeritus Association to present "Advances in Cancer Research' during Campus Education Week. I also presented a seminar to the Food Science and Nutrition Department for their faculty and graduate students in September 2000. In September 2000, I gave a presentation during BYU's Parent's Weekend about "Advances in Cancer Research." I was a guest lecturer to some of our Freshman Academy Students in October 2000, 2001 and 2002; and also for several years, I have been the invited speaker to

the University's Hinckley scholars. These are the top high school scholars in the USA and are highly recruited by the best universities. I have been selected and invited for several years to present and talk to these scholars, to help them see the benefits of attending and choosing Brigham Young University over other offers.

Research and Scholarship Summary (Cancer Research)

Research Foci:

1st Foci: Prevention through education. How do fruits and vegetables protect against cancer?

2nd Foci: Enhancing the body's own defense systems. Developing novel immunotherapies

3Rd Foci: Early Detection of disease. Identifying the molecular changes in a normal cell that leads it to become malignant and using this knowledge to develop early diagnosis, prognosis, and possible therapies for cancer.
4th Foci: Developing MOTO CARs (Macrophage CARs) to treat cancer.

- Given over 1,800 national and international research presentations
- Keynote Speaker at the World Congress on Breast Cancer 2019, London
- Invited speaker at numerous National and International venues.
- I have 157 peer-reviewed publications (most as a senior author) on various aspects of cancer including several academic review papers (Thymidine Kinase and Comet Assay)
- Co-authored "Power Plants: New Evidence that Nature's Phyto Fighters are Your Best Medicine" (2002), Woodland Publishing 1-58054-351-0)
- Developed and established the Comet Assay to measure single-strand DNA breaks
- Developed and successfully patented new scientific procedures related to cancer research.

LECTURES:

I have given many major national and international presentations (see presentations). In 2001, I toured Europe lecturing on technology I had developed in my research laboratory. I spoke in France, Holland, Switzerland, Germany, and England (London). In 2001, I also completed three separate tours of Asia, where I was the invited speaker, speaking at the major hospitals and research centers in Hong Kong (Prince of Wales Hospital), Philippines, Malaysia (Institute of Medical Research), Taiwan (Cardinal Tien Hospital) and Singapore. In 2002, I was interviewed (20+) on national radio regarding the publication of a book, "Power Plants" that I co-authored. I also gave many presentations at national and international meetings (see Presentations).

In recent years I have given lectures and presentations across the United States and the local community. I gave a talk to the Marriott School of Management National Advisory Council at Brigham Young University and several presentations to the Alumni Association. I have also lectured to the Biology and Agriculture National Advisory Council regarding my research. Recently, I spoke

at the Huntsman Cancer Center and the University of Utah. I was also invited to give a presentation on my research to the leaders of Intermountain Health Care.

I was invited to be the keynote speaker at the World Congress on Breast Cancer in April 2019 in London, England.

Invited presenter at the American Association for Cancer Research annual meeting 2019/2020/2021 and 2024.

OFFICE OF RESEARCH AND CREATIVE ACHIEVEMENT AWARDS:

Each year the university presents awards to the students who excel at research. These are monetary awards and are given for excellence in research. Students throughout the university community competitively seek the awards. My Research team has earned at least one of these awards every year.

The following students obtained ORCA research scholarships:

1. **Edward Harris investigating,** 'The genotoxicity of 1.4-Dioxane using the single cell gel assay.'
2. **David Wallburger investigating,** 'A Comparative study of the efficacy of a new immunoassay of deoxythymidine kinase.'
3. **Robert Durham investigating, '**The Potential for Grape Seed Extract as an Antioxidant in Human Cells
4. **Brain Laddle investigating,** 'Bax Over-expression Coupled With Bcl-2 Suppression Under The Control of The Cancer-specific Thymidine Kinase Promoter.'
5. **Brian Poe investigating,** 'Caffeine inhibits the rate of nucleotide excision repair in multiple human cell lines.
6. **Janet Hart Investigating, '**The Effects of Concurrent Treatment of Caffeine and Various Apoptotic-Inducing Drugs in the Molt-4 Cell Line
7. **Jeremy McBride investigating, '**Epigallocatechin Gallate, a Green Tea Polyphenol, causes Direct DNA Damage at Physiological Concentrations
8. **Rick Whitehead investigating, '**Herceptin (Trastazumab) Causes Cardiotoxicity in Breast Cancer Patients with Prior Cardiac Trauma,'
9. **Mark Eliason investigating, '**The Potential for Grape Seed Extract as an Antioxidant in Human Cells.'
10. **Heather Aamodt investigating**, 'Tumor-associated Macrophage Interaction with the Tumor Microenvironment.'
11. **Jeremy McBride investigating, '**Investigation Into the Anti-Angiogenic Activities of Convolvulus arvensis Extract
12. **Janet Hart Investigating, '**The Effects of Concurrent Treatment of Caffeine and Various Apoptotic-Inducing Drugs in the Molt-4 Cell Line
13. **Jon Alhstrom investigating, '**The Inhibitory Affects of Phytochemicals against a Carcinogen by the Modulation of Xenobiotic Enzymes in HepG2 Cells.'
14. **Corey Speers investigating, '**Antigenotoxic Effects of Diallyl Disulfide and Allyl Disulfide on Benzo (a) pyrene induced DNA Damage in HepG2 Cells

as measured by the Single Cell Gel Electrophoresis Assay.'

15. **Rachelle R Olsen investigating, '**Investigation Into the Anti-Angiogenic Activities of Convolvulus arvensis Extract.'
16. **Janet Hart investigating, '**Concomitant Treatment of Non-Steroidal Anti-Inflammatory Drugs and Chemotherapeutics on Human Acute T Lymphocytes.'
17. **Rachelle R Olsen investigating, '**Investigation into the Mechanisms Associated with Angiogenesis and Metastasis.'
18. **Katherine Secrest investigating, '**Comparative Study of Total Antioxidant Activity between the Fruit Momordica Cochinchinensis (gac) and its' Major Carotenoid Constituents.'
19. **Loni Lichfield investigating '**Antigenotoxic Effects of N-acetylcysteine on Benzo[a]pyrene induced DNA Damage in HepG2 Cells as measured by the Alkaline Comet Assay.'
20. **Todd O'Neil investigating, '**Antigenotoxic Effects of N-acetylcysteine on Benzo[a]pyrene induced DNA Damage in HepG2 Cells as measured by the Alkaline Comet Assay
21. **Amanda Stevens investigating, '**An Exploration of the Genotoxic Effects of Ellagic Acid on Human HepG2 Cells and Its Potential Impact on Cancer Prevention.'
22. **Nyall Robert London Jr investigating, '**A Novel Approach to Assessing the Metastatic Potential of Cancer Cells.'
23. **Meredith Bergin investigating, '**The Effect of p53 and Resveratrol on Cell Growth and Repair
24. **John Welling investigating, '**Development of a Novel Human Vestibular Schwannoma Xenograft Model in SCID Mice.'
25. **Devin Twitchell investigating, '**Stromal-cell Derived Factor-1α and Macrophages Increased Invasive Potential of Breast Cancer Cells.'
26. **Jason D Kinyon,**
27. **Daniel Gale Fuja investigating, '**Loss of Scribble Tumor Suppressor in Human Cancers: Atypical hScrib Expression and Localization in Malignant Breast Cancer.'
28. **Matthew Crook investigating, '**Critical Parameters influencing Chemical-induced Apoptosis in Human Lymphoid Cell Lines.'
29. **Geoff Wood investigating, '**Thymidine Kinase-1 Activity of UV Induced B Lymphocytes. 'Phillip Scherer investigating, 'Mononuclear Leukocyte and Breast Cancer Cell Interaction Affects Angiogenic Activity.'
30. **Keith Wells investigating, '**Melanoma and Metastasis in a Mafia Mouse Model.'
31. **Kendal Jensen investigating, '**Thymidine Kinase 1 Immunostaining for Marking the Progression of Skin Cancer.'
32. **Kristie Aamodt investigating, '**Finding a Correlation Between Aggressivity of Cancer and DNA Repair Capacity.'
33. **Malia Anderson investigating, 'Sandwich Enzyme-Linked ImmunoSorbent Assay (ELISA) that will allow the detection of**

Thymidine Kinase (TK).'

34. **Kendall Jensen investigating**, 'Targeting Cancer Cells for Destruction Using Endocytosis of a Monoclonal Antibody Against TK1
35. **Daniel Sharp investigating, '**Diagnostic and Therapeutic Potential of the Over-expression of Nucleotide Salvage Pathway Enzymes to the Plasma Membrane of Solid, Cancerous Tumors.'
36. **Darin Allred Investigating, '**Susceptibility Of S49 Lymphoma Cell Membranes To Hydrolysis By Secretory Phospholipase A2 During Early Phase Of Apoptosis.'
37. **David Wallburger investigating,** 'A Comparative study of the efficacy of a new immunoassay of deoxythymidine kinase.'
38. **Bryan Swanson investigating, '**Inflammation: A Key Component of the Immunosuppression Observed in Aggressive Breast Cancer?'
39. **Karl Kirby investigating,** 'Acetaminophen induced DNA damage evaluated with the single cell gel assay.
40. **Amanda Enz investigating, '**Cancer's Red Light to the Immune System?'
41. **Joshua Holm investigating, '**Abundance of Thymidine Kinase in Cancer Cells.'
42. **Ryley Enz investigating, '**The Metastatic Role of Macrophages.'
43. **Charles Knechel investigating, '**Cancer and the Immune System: A Study of Cytokine Communication with Macrophages.'
44. **Kylie Measom investigating, '**How 'bout them Apples?: A Study on Antioxidants.'
45. **Alan Lee investigating**, 'Resveratrol: A Naturally Occurring Potential Anti-Cancer Drug.'
46. **Eric Olsen, investigating '**TK1 as a Biomarker of Chemosensetivity and Metastatic Potential in Breast Tumors.'
47. **Roman Kovtun, investigating '**Could TK1 Suppress the Immune System and Promote Tumor Development?'
48. **Brianne Kingery, investigating '**Could TK1 Suppress the Immune System and Promote Tumor Development?'
49. **Joshua Keller, investigating '**Could TK1 Suppress the Immune System and Promote Tumor Development?'
50. **Charles (Danny) Knechtel**, **investigating** Studying Communication Signals between Macrophages and Cancer.
51. **Thomas Dayne Anderson**, investigating, 'Cancer Prevention Through Protein Markers'
52. **Joshua Foster**, **investigating,** 'Mapping of the Thymidine Kinase pathway to the cell membrane of cancer cells.'
53. **Morgan Hardy**, **investigating,** 'Understanding the Role of Thymidine Kinase 1 in Cancer Cells.'
54. **Jacob Jensen, investigating, '**Evaluating and Comparing the Antioxidant Capacity between Organic and Conventional Blueberries.'
55. **Trevor Bluemel, investigating,** 'Whose serum can most effectively battle cancer-causing radicals? The elderly, youthful, or those afflicted with cancer?'
56. **Michael Sanderson, investigating,** 'A Defensive Attack - Antioxidant Status in

Cancerous Lymphocytes.'

57. **Erin Langlois, investigating,** 'An Apple a Day Keeps the Radicals Away.'
58. **Pradip Bajgain, investigating,** 'Physically Induced Apoptosis in Lymphoma Cells and its correlation to thymidine kinase 1 expression.'
59. **Ryan Quinton, investigating,** 'Effects of Lung Cancer on Macrophage Engulfment Ability.'
60. **Morgan Hardy, investigating,** 'Immunogold labeling transmission electron microscopy: a novel approach to localizing thymidine kinase 1 in tumor cells.'
61. **Daniel Sharp, investigating,** 'Diagnostic and Therapeutic potential of the over-expression of Nucleotide Salvage Pathway Enzymes to the Plasma Membrane of solid, cancerous tumors.'
62. **Dagoberto Estevez, investigating,** 'Analyzing The Potential of Thymidine Kinase 1 as a Molecular Target for Cancer Diagnosis and Immunotherapy.'
63. **Taylor Abegg-Lawrence, investigating,** 'Detection of Salvage Pathway Enzymes and Autoantibodies in Serum TK1.'
64. **Anthony Brown, investigating,** 'Changes in Regulation of U937 Macrophage Engulfment by Co-incubation with Apoptotic Leukemia.'
65. **Brigitte DeLashmette, investigating,** 'Macrophages Expedite Tumor Proliferation and Metastasis.'
66. **Brit Germann, investigating,** 'Treating Cancer: The Effects of Doxorubicin on Cell Viability and Salvage Pathway DNA Synthesis via Thymidine Kinase in Cancer.'
67. **Evita Giraldez Chavez, investigating,** 'Macrophage Migration.'
68. **Wesley LaPorte, investigating,** 'Development of a Blood Test for Early Cancer Diagnosis.'
69. **Timothy Michaelis, investigating, '**Exposure to UV light promotes antioxidant uptake of Resveratrol in Raji model.'
70. **David Griffin, investigating,** 'Understanding the Effects of Tumor Microenvironments on Macrophages.'
71. **Paul Montoya**, **investigating**, 'Cancer Immunology: The Effects of Apoptosis and Necrosis on Macrophage Polarization.'
72. **Kylie Measom, investigating,** 'How 'Bout Them Apples?'
73. **Adam Chavez, investigating, '**Vitamin D and its co-factors, understanding how vitamin D fights cancer in the body by treating WTK1 and TK6 cells with calcitriol and magnesium.'
74. **Ryan Kraus. Investigating,** 'Conventional Cancer Prevention.'
75. **Shannon Browning, investigating,** 'Effects of Vitamin E on Oxidative DNA Damage and DNA Repair.'
76. **Brit Germann investigating,** 'Translating the Language of Cancer: Understanding How TK1 is Released from Cancer Cells.'
77. **Trevor Memmott, investigating,** 'Macrophages and Metastasis: A Comparative Analysis of Breast and Colon Cancers.'
78. **Sean Derenthal, investigating,** 'Novel Thymidine Kinase 1 Assay as a Tool for Early Tumor Detection.'
79. **Christopher Hamilton,** 'Thymidine Kinase 1, a controller mutation in Cancer?'
80. **Lucas Aidukaitis, investigating,** 'Early Cancer Detection through Thymidine Kinase 1 and its Binding Partners.'

81. **Steven Cummock, investigating,** 'Vitamin D and the Greater Light to Rule the Day.'
82. **Ryan Steck, investigating,** 'Caffeine and Macrophage Phagocytosis.'
83. **Eugene Lee, investigating,** 'Apoptotic and Necrotic Signals Modulate Macrophage Activation.'
84. **Michael Boswell, investigating,** 'Gene Mutations in Thymidine Kinase 1: Understanding Which Saves Lives.'
85. **Sean Burton, investigating,** 'Immuno Transmission Electron Microscopy of Thymidine Kinases Movement Throughout the Cell During the Cell Cycle.'
86. **Steven Cummock, investigating,** 'Vitamin D -Kryptonite of the Sun.'
87. **Wei Meng, investigating,** 'Tumor Microenvironment Effects on Macrophage Polarization.'
88. **Sean Derenthal, investigating,** 'Establishing Cell Surface Proteomic Profiles.'
89. **Wei Meng, investigating,** 'Exploring Mutations On Human Thymidine Kinase 1 Gene In Cancer Cells.'
90. **Rachel Brog, investigating,** 'TK Expression in Cancer Cells.'
91. **Wei Meng**, **investigating,** 'Cellular Mechanism of Thymidine Kinase 1 Secretion.'
92. **Rachel Brog, investigating,** 'Thymidine Kinase 1: the Key to Predicting Cancer Recurrence.'
93. **Connor Peck, investigating,** 'Chemotherapeutic Potential of Resveratrol-Based Treatments.'
94. **Anne Dunn, investigating,** 'TUNEL Assay as a replacement for the Comet Assay.'
95. **Roger Chu, investigating,** 'Cancer Immunotoxin Therapy Using Thymidine Kinase 1 and Saporin'.
96. **Taylor Nicholls, investigating,** 'The Reparative Mechanisms of EGCG.'
97. **Alex Cummock, investigating,** 'Biomarking Colon Cancer.'
98. **Zachary Reinstein, investigating,** 'Targeting a Novel Neoantigen with an "Off-the-Shelf" NK-92 CAR Cancer Immunotherapy.'
99. **Weston Burrup, investigating,** 'TK1; Journey from the Cytoplasm to the Cell Membrane.'
100. **Weston Burrup, investigating** 'TK1; Journey from the Cytoplasm to the Cell Membrane.' (obtained award for two years)
101. **Abi Felsted, investigating,** 'Upregulation of humanized HPRT housekeeping gene in malignant tumors hinders use as an endogenous control.'
102. **Eric Christian Olsen, investigating,** 'TK1 as a Biomarker of Chemosensetivity and Metastatic Potential in Breast Tumors.'
103. **Zac Ewell, investigating,** 'TK1 in breast cancer.'
104. **Carolyn Allen, investigating,** 'Antioxidant research'
105. **Jordan Cress, investigating,** 'MOTO CAR production.

HONORS THESIS SUPERVISOR:

Honors education provides a path through the University's general education requirements (36-50 credit hours) and an enhanced experience in the major. It offers a more challenging and rigorous academic experience and, consequently, a more substantial quality of learning. In addition, it leads to the highest academic distinction the University bestows on its students: graduation with "University Honors."

The average GPA for incoming Honors freshmen is about 3.80; the average ACT is about 29. As part of this program, some honors students participate in undergraduate research programs that are innovative, well mentored, and lead to publications and presentations. They are expected to write and defend a thesis.

Honors students from my laboratory who completed their research project and defended their honors thesis:

1993	Daniel Meyers (Completed MD)
1994	Mike Rogers (Completed a PhD at Mayo Clinic now employed as a professor at Harvard).
1996	David Walburger (Unknown).
1997	Suzann Adams (PhD at Uof U).
1997	Jaren Nimtz, (Worked for a pharmaceutical company then entered an MD/PhD program)
1998	Brenda Lewis (Obtained PhD in Biostatistics).
1999	Bryan Shepherd (Obtained PhD in Biostatistics).
1999	Brian Laddle (Obtained an MD from John's Hopkins).
2000	Joshua David Stubblefield, (MD)
2001	Steve Standage, (MD from at Rochester NY).
2002	Jon Ahlstrom (obtained a PhD from UC Davis).
2002	John Young (MD).
2003	John Welling (Obtained an MD from The Ohio State).
2003	Brad Green (MD Maryland).
2005	Heather Aamodt (MD/PhD)
2006	Jessica Mae Bentley (MD).
2008	Kristie Aamodt. (MD/PhD.).
2009	Brock Hansen (MD).
2013	Ryan Quinton (MD/PhD)
2013	Dagoberto Estevez Ordonez (MD)

FELLOWSHIPS AND AWARDS

Simmons Center for Cancer Research Summer Fellowship – May -August 2018
The research funded by this fellowship was to evaluate the expression of HPRT in malignant and normal tissue to assess its use as a standard endogenous control for cancer related studies.

Simmons Center for Cancer Research Summer Fellowship – May -August 2017
I received this fellowship to support research on the application of HPRT surface expression in CAR therapy.

Simmons Center for Cancer Research Summer Fellowship – May -August 2016
This fellowship provided financial funding to support research over the summer in the field of cancer research. This fellowship resulted in data acquisition to support multiple publications.

Chen Scholarship. Nutritional Immunology - $3,000
Awarded to students studying nutritional immunology. Funded project analyzing the effects of HPRT overexpression on immune cell infiltration into the tumor microenvironment.

Simmons Center for Cancer Research Travel Award - $1,000
This grant was given to provide funding to attend a cancer conference to present my research. These funds were allocated to attend the 2018 American Association for Cancer Research annual meeting in Chicago Illinois. This award is for travel support to a major cancer conference.

Simmons Center for Cancer Research Travel Award - $1,000
This award is for travel support to a major cancer conference. This particular award was given for the attendance and presentation at the annual American Association for Cancer Research conference held in Washington D.C.

Technology Transfer Grant - $6,000
This grant was written to support research with a translational focus. This award was written to provide funding to produce a CAR T cell against a novel immunotherapy cancer target discovered in our lab.

Teaching Enhancement Grant - $6,600
This grant was written to support research involving novel pedagogy techniques in a college classroom. Think Pair Share was the technique of focus for the grant and involved evaluation of data from 3 separate semesters of freshman students in an introductory molecular biology course.

GRANT FUNDING:

I obtained my first grant funding while an undergraduate at the University of Ulster. I wrote and obtained a funded internship from the Department of Agriculture and Fisheries to study fish farm management at the Department's fish farm.

After completing my B.Sc degree (with Hons) in Biology, I wrote a grant and obtained further funding for three years to research genetic engineering in trout. This was a novel project funded by the Department of Agriculture and Fisheries. This was only one of two government awards of this nature given out in 1983, and it allowed me to research the possible production of genetically engineered 'Super-trout'. The project was carried out at the University of Ulster in a PhD program at the Biomedical Sciences Research Center. During this research, we made a discovery relevant to the field of cancer. As a result, another grant was written and successfully funded by the Ulster Cancer Foundation to investigate the role of the nucleotide salvage pathway enzyme thymidine kinase in cancer. This grant totaled over £60,000, and the research became the basis of my PhD dissertation. I

graduated in 1986 with a PhD from the Biomedical Science Research Center of the University of Ulster with an emphasis in Oncology. I received several grants from the Ulster Cancer Foundation to continue my research in biomarkers for cancer. I was employed as a Research Officer and then Senior Research Officer by the Ulster Cancer Foundation. During my research, I wrote another grant (£70,000), which was again funded by the Ulster Cancer Foundation to investigate the role of retroviruses in breast tumors. This project involved measuring the activity of the retroviral enzyme, reverse transcriptase in cultured breast tumor tissue and monocytes from cancer patients and tissue and monocytes from control patients. In the second year of this grant (1992), I was recruited to Brigham Young University to strengthen the Cancer Research Center.

While in Ireland, I also received two grants of £3,000 each from the Department of Health and Social Services to research bladder cancer. I was a co-investigator on several large MRC grants and a Welcome grant. I was co-author on several other grants including a grant from Nestle to investigate the role of folic acid in human embryo development. Other funding was also obtained from private sources. For several years (1986-1992), I was one of the highest-funded Research Officers in the Biomedical Science Research Center and, at the time, the only Senior Research Officer in the center. The center had the highest ranking possible by the independent Medical Research Council, 5/5, for research productivity and innovative thinking.

Since arriving at Brigham Young University (1992), I built up an extensive research program successfully funded by several grants from private and public sources. My lab is well-published; we have given many presentations at national and international conferences through posters and talks. I have received three grants from the Cancer Research Center and one from the Women's Research Center, totaling $7,000. I have also received a research award from the Bireley Foundation totaling over $100,000. I received funding totaling over $200,000 from E.Excel International for my research on tumor markers in cancer. I have also received $15,000 from Natural Alternatives and $10,000 from TheraPro Technologies, a grant from Pharmanex for $30,000, and a grant from Redmond Clay for $25,000. I have also received several minor grants from local organizations and companies.

The US and Canadian licensing rights of the monoclonal technology I developed in my laboratory were sold to a company for $800,000. The Asian licensing rights were sold for $200,000.

In 1999, in collaboration with some colleagues, we received a $30,000 grant from the AVP Research Awards for "Program for the Study of Molecular Mechanisms in Apoptosis."

I have also received several Undergraduate Mentoring grants totaling over $30,000. I have successfully obtained private funding from companies and individuals to help finance my laboratory.

Grant from 'The Gift of Life and Breath' $30,000
Grant in collaboration with the University of Colorado Health Sciences $28,000 and $18,000
Grant funding for CAR T cell research $150,000 (2017)

2025 NIH Grant (NOH R15) obtained entitled

Characterization of a novel chimeric autoantigen receptor (CAAR) treatment for Graves' disease, 11115191, R15AI183096, 1855747 S. Weber, A Cheever, and K. L. O'Neill

Citizenship

MEMBERSHIP OF SOCIETIES:

- Member of the Life Sciences Advisory Council (Mentoring)
- Member of the Brigham Young University Microscopy committee
- Member of the American Association for Cancer Research Career Development Committee 2013-2021
- Member of the American Association for Cancer Research Science Education Committee 2014-2021
- Associate Chair of the Department of Microbiology and Molecular Biology, Brigham Young University 2014-2019
- Member of the College Faculty Development Committee 2010-2016
- Chair of the College Faculty Development Committee 2016-2019
- Member of the College Faculty Development Committee 2023-present
- Microbiology and Molecular Biology Internship Coordinator
- Chairman of the Undergraduate Student Development Committee in the Department of Microbiology at Brigham Young University
- Graduate Coordinator in the Department of Microbiology at Brigham Young University
- President of the Intermountain Branch of the American Society for Microbiology
- Associate Director of the Brigham Young University Cancer Research Center (1994-2002)
- Chairman of the Board of American Cancer Society (Utah County)
- Active member of the American Cancer Society and Chairman of the local group (1993)
- Member of the American Society for Microbiology
- Member of the American Society for Cell Biology
- Chairman of the Board of a local Cancer group in Ulster, Ireland (1987-1992)
- British Genetical Society
- United Kingdom Environmental Mutagen Society
- Founder member of the UUC Genetical Society
- UUC Biomedical Sciences Society
- Chairperson of UUC Genetical Society
- Treasurer of UUC Genetical Society

- Postgraduate Representative to meet the University Grants Committee
- Committee member of Coleraine Combat Cancer Group
- Member of A.S.H. (Action on Smoking and Health)
- Invited Judge to represent the AACR at the 2020 Nokia Bell North Jersey Regional Science Fair

CHARITY WORK AND FUNDRAISING:

While serving as the Chairman of the Combat Cancer Group (1986-1992), I was heavily involved in fundraising. I organized many concerts and charity shows, including the Combat Cancer Classic, which raised thousands of pounds for the Ulster Cancer Foundation. Part of this fundraising project is a day nominated as "Daffodil Day," held throughout the province to raise money for the organization. With the help of the local group, I raised the most funds of any Combat Cancer Group, three years in succession, until I had to resign to take up a position in the United States. As a result of this work with the Combat Cancer Group, I was awarded the Ulster Cancer Foundation Award for Special Endeavor. This is the most prestigious award that the Ulster Cancer Foundation confers upon any individual. I also started the above-mentioned Combat Cancer Classic, which involved organizing 150 volunteers, closing off a road circuit around my local town to all traffic, and racing bicycles, strollers, and beds to raise funds to fight cancer. This event was heralded by the local populous as an outstanding effort, for which I received a *second* Special Endeavor Award from the Ulster Cancer Foundation. This was the first time in the history of the Ulster Cancer Foundation that anyone had been awarded two Special Endeavor awards.

The Combat Cancer Classic involved contacting the local council, the police, the cycling organizations, runners, and companies and coordinating all the fundraising efforts to make the day successful and safe. I communicated with the police, the council, shopkeepers, and the public to ensure that we received their support for the Classic. The Combat Cancer Classic involved many of the business owners in the area and generally brought the whole community together on one day in July, not only to have fun but also to raise money for a good cause. The Combat Cancer Classic received the support of all the news media and all the local businesses as they entered strollers, beds, and wheelchairs to be raced around the province. I was also heavily committed to cancer education, and I gave many talks on behalf of the foundation.

I have also been involved in raising money for local causes. I worked with PHAB (The Physically Handicapped Abled Bodied) program to raise money for wheelchairs and a bus to take disabled people on trips. As part of the fundraising for this effort, we pushed wheelchairs around three local towns (about thirty miles), ran exceptional discos and parties and held music concerts. We finally presented the organization with a new bus after many miles of walking and pushing, raising money for this worthy cause. I also raised money by organizing concerts for medical equipment for the local hospitals and health clinics. Through these efforts, we provided thousands of pounds worth of equipment for local hospitals and several syringe drivers for the local health clinics to use with the terminally ill.

I also organized the "Children in Need" charity program. We drove a forklift truck around Northern Ireland for a week for two consecutive years. We ended up at the Ulster Television Studio and raised thousands of pounds for this charity with this venture.

I was also involved in the Royal National Lifeboat Institute and helped to raise money for this volunteer organization. In addition, I was a Red Cross volunteer, working at local sporting events to provide first aid.

I also coached soccer, Pre-K, 4th, 5th 6, and 7th grade kids

Administration

In 1989, I became Chairman of the Board of a local cancer group. I did voluntary work, giving talks and lectures and working to raise money on behalf of the Ulster Cancer Foundation. I was the foundation's top fund-raiser for three consecutive years until I moved to the United States. I was heavily involved in organizing major fundraisers and the day-to-day running of the Combat Cancer Group. I was awarded two awards for Special Endeavour from the Ulster Cancer Foundation.

When I arrived in Utah, I became involved with the American Cancer Society; I became the Chairman of the local group in 1993-1995.

I have also served on university and academic committees, including the Awards and Scholarship Committee and the Biology-Agriculture Symposium Committee. I also served as Associate Director of the Brigham Young University Cancer Research Center (BYUCRC). The BYUCRC is an independent organization with over 28 faculty members from the Colleges of Physical and Mathematical Sciences, Life Sciences, and Engineering. A primary goal of the CRC is to provide a rigorous research-training program for students. Over 100 undergraduate and graduate students annually pursue various aspects of cancer research with the members of the BYUCRC.

I served three years as the Graduate Coordinator in the Department of Microbiology. I then served as the Chair of the Undergraduate Student Development Committee; this committee has responsibility for all issues involving undergraduates, including career development, graduate school information, employment information, internships, teaching, undergraduate curriculum, student progress, graduation clearance, mentoring, scholarships, and research awards. I currently continue to serve as the department's internship coordinator. There are over 700 undergraduates in the Department of Microbiology and Molecular Biology. I have also been a member of the college Faculty Development Committee and was appointed chair of that committee for three years. This committee has responsibility for all issues involving faculty promotion and continuing faculty status. The committee is also involved in advising the college on approving sabbatical leaves. I currently serve as the department's internship coordinator and have been reappointed to the Faculty Development Committee for the college.

I am an active full-time member of the American Association for Cancer Research and served as a member of the AACR Science Education Committee. I was appointed to the board of this committee. This originally was a two-year appointment that lasted from 2013-

2022. The committee is responsible for assisting the organization with programs and initiatives dedicated to science education and outreach intended to help foster the next generation of cancer researchers. Members work with representatives from the AACRs Associate Member Council to identify and address the needs of high school, undergraduate, and post-baccalaureate students, graduate students, medical students, postdoctoral and clinical research fellows, Assistant Professors, and early career investigators.

I also served as the President of the Intermountain Branch of the American Society for Microbiology

GRADUATE COORDINATOR:

I was the graduate coordinator for the Department of Microbiology for three years, and I was responsible for over 20+ graduate students. This involved all graduate issues, including advisement, stipends, curriculum, employment opportunities, annual reviews, teaching assignments, thesis, dissertations, and coursework exams. It also involved coordination with the university on many issues, such as funding, recruitment, progress reports, and clearance for graduation.

ASSOCIATE DIRECTOR OF BRIGHAM YOUNG UNIVERSITY CANCER CENTER:

I served in the capacity of associate director of the University's Cancer Research Center from 1994-2002 This position involved all aspects of the day-to-day running of the center, staff, recruitment, donor liaison, progress reports, grant submission, summer internships, research fellowships, and communication between the faculty and the university. I have served for approximately eight years, during which the Cancer Research Center increased its funding by over tenfold. In 2002 I helped secure an unrestricted gift for over $1,000,000. This center draws on the expertise of faculty from many disciplines and colleges.

Research Presentations by Year

1984 Presented paper to the British Genetical Society.
1985 Presented paper to the Irish Genetical Society.
1985 Presented paper entitled, "Leukocyte thymidine kinase activities in cancer patients." British Society for Immunology, (Summer conference proceedings), London.
1985 Presented paper entitled, "The influence of thymidine kinase on lymphocyte proliferation." British Society for Immunology, (Summer conference proceedings), London.
1985 Presented poster entitled, "The influence of thymidine kinase on lymphocyte proliferation." British Cancer Meeting Conference, London.
1985 Presented paper entitled, "Lymphocyte thymidine kinase levels in cancer patients and control patients" Genetical Society—Abstracts of Papers.
1986 Presented poster to the 14th Annual meeting of the International Society for Oncodevelopmental Biology and Medicine in Helsinki, Finland.

1987 Presented poster to the International Breast Cancer Meeting, Nottingham.

1988 Presented paper entitled, "Serum total thymidine kinase levels in the management of breast cancer" in Stuttgart, Germany.

1988 Presented poster at Surgical Oncology Society meeting, London.

1988 Presented poster at the Cancer Research Group, Belfast.

1988 Presented paper at the Medical Research group, Belfast.

1988 Presented paper entitled, "Serum and mononuclear leukocyte TK levels in patients with breast cancer and other malignancies," at the 16th Annual meeting of the International Society for Oncodevelopmental Biology and Medicine in Bonn, West Germany.

1989 Presented poster at the European Association of Cancer Research meeting, Galway, Ireland.

1989 Presented paper at the European Association of Cancer Research meeting Galway, Ireland.

1989 Presented poster entitled, "Thymidine kinase (TK) isozyme levels in tumours and serum samples from breast cancer patients," at the 17th Annual Meeting of the International Society for Oncodevelopmental Biology and Medicine in Freiburg, West Germany.

1989 Presented paper entitled, "Serum thymidine kinase—a tumour marker in advanced breast cancer," at the 30th BACR and 4th ACP Meetings.

1990 Presented posters (3) at the Royal Academy of Medicine Annual meeting in Belfast, Ireland.

1990 Presented paper entitled, "The effect of iron status and tumour induction on thymidine kinase activity in rat colonic tissue," to the Royal Academy of Medicine Annual meeting in Belfast, Ireland.

1990 Presented paper entitled, "Serum thymidine kinase levels in acute leukaemia," to the Royal Academy of Medicine Annual meeting in Belfast, Ireland.

1990 Presented paper entitled, "Effects of surgery on serum thymidine kinase levels in patients with breast cancer," to the Royal Academy of Medicine Annual Meeting in Belfast, Ireland.

1991 Presented paper to the 10th congress of The European Association of Urology.

1991 Presented paper entitled, "Thymidine kinase levels in transitional cell carcinoma of the bladder."

1992 Presented paper entitled, "Why do most neoplasms occur at the ureteric orifices?" to the Edinburgh Urological Festival, Edinburgh, Scotland. (This paper won a prize for the best short paper).

1992 Presented paper at the Association of Surgeons of Great Britain and Ireland.

1993 Presented posters (5) and papers (2) at the1993 annual meeting of the Intermountain Branch of the American Society for Microbiology:
"The single cell gel assay as a technique in measuring repair of single strand DNA breaks."
"Genetic engineering of the gene for a breast cancer marker into *E. coli.*"
"Determining DNA strand breaks using the laser scanning microscope."
"Parameters influencing the single cell gel assay."

"DNA damage analysis of human cells exposed to EMF."
"Computer aided determination of cell viability."
"Crisis form factor induced in rabbits and mice."

1993 Presented poster entitled, "Determining DNA strand breaks using the laser scanning microscope," at the 54th Annual Meeting of the Microscopy Society of America, (MSA).

1993 Presented poster entitled, "Application of capillary zone electrophoresis in detecting nucleotide pools in human tumor cells in clinical laboratory", at the 6th International Symposium on High Performance Capillary Electrophoresis, San Diego, California.

1993 Presented paper entitled, "Determining DNA strand breaks using the laser scanning microscope," at the Proc 51st Annual Meeting of the Microscopy Society of America.

1994 Presented poster entitled, "A Novel monoclonal antibody for diagnosis and prognosis of breast cancer," at the 85th Annual meeting of the American Association for Cancer Research, San Francisco, California.

1994 Presented poster entitled, "DNA fragmentation and nucleotide pool activities in apoptotic human lymphocyte lines," at the 85th Annual meeting of the American Association for Cancer Research, San Francisco, California.

1994 Attended the Annual meeting of the American Society of Microbiology, Las Vegas, Nevada.

1995 Presented poster entitled, "Induction of apoptosis in Raji cells using hyperthermia," at the 86th Annual meeting of the American Association for Cancer Research, Toronto, Canada.

1995 Presented poster entitled, "Thymidine Kinase predicts Tamoxifen response in breast cancer cells," at the 86th Annual meeting of the American Association for Cancer Research, Toronto, Canada.

1995 Presented poster at the 7th Annual International Scientific Meeting, participation with the Society for Microscopy, Monterey, California. (This poster won an award).

1995 Presented poster entitled, "Apoptotic death related DNA damage can be discriminated from necrotic DNA damage in individual cells," at the American Association for the Advancement of Science, Vancouver, British Columbia, Canada.

1995 Presented paper entitled, "TPS in breast cancer." at the 12th International Conference on Human Tumor markers, New York, New York.

1995 Presented paper entitled, "Thymidine Kinase levels in Primary Breast Tumors Can Predict Tumor Recurrence," at the 4th Nottingham International Breast Cancer conference. Nottingham, England.

1995 Presented poster at the Specialist Workshop on Blood Tumour Markers in Breast cancer, East Midlands Conference, Nottingham, England.

1995 Presented poster at the 4th Nottingham International Breast Cancer Conference, Nottingham England, September 15th 17th.

1995 Presented poster entitled, "Absence of Temporal Ordering of Apoptotic

Features in Heat-Shock Treated Leukemia and Lymphoma Cell Lines," at the 30th Annual Meeting Microbeam Analysis Society (MAS).

1996 Presented paper entitled, "Absence of Temporal Ordering of Apoptotic Features in Heat-shock Treated Leukemia and Lymphoma Cell Lines," at the 23rd Annual Meeting of the Microscopical Society of Canada/Societe de Microscopie du Canada.

1996 Presented paper, entitled, "The Application of Comet Assay for Quantification of DNA damage at the 5th Symposium of Gyevongsang Institute of Cancer Research and Apoptosis, Jin-Ju, Korea.

1997 Presented paper entitled," Apoptosis Effect of the Genotoxic Stress on Apoptosis-Sensitive Cell lines," at the 5th Symposium of Gyeongsang Institute of Cancer Research and Apoptosis, Jin-Ju, Korea.

1997 Presented paper entitled, "Introduction of the Single Cell Gel Electrophoresis (Comet Assay) to Detect DNA Damage and Apoptosis," at the Korean Environmental Toxicology Congress, Seoul, Korea.

1997 Presented poster entitled, "Column technology and capillary electrophoresis performance for ribonucleotides," at the 9th International Symposium on High Performance Capillary Electrophoresis and Related Microscale Techniques, Anaheim, California.

1997 Presented poster entitled, "Hyperthermia-induced alterations of purine and pyrimidine ribonucleotide metabolism measured by capillary electrophoresis," at the 9th International Symposium on High Performance Capillary Electrophoresis and Related Microscale Techniques, Anaheim, California.

1997 Presented poster entitled, "Tamoxifen induces a dramatic reduction of nucleotide pools and thymidine kinase levels in MCF-7 breast cancer cells," at a special conference of the American Association for Cancer Research on 'Basic and Clinical aspects of Breast Cancer,' Keystone, Colorado.

1997 Presented paper entitled, "Cancer: a question of balance," at the Biology and Agriculture College Annual Symposium, Provo, Utah.

1997 Presented poster entitled, "Morphological and nucleotide metabolic features in heat shock induced apoptosis and necrosis," at the 88th Annual Association of Cancer Research, San Diego, California.

1997 Presented poster entitled, "The inhibitory effect of caffeine on heat shock induced apoptosis in human promyelocytic leukemia," at the 88th Annual Association of Cancer Research, San Diego, California.

1997 Presented poster entitled, "Differential response to heat shock induced apoptosis in leukemic cell lines," at the 88th Annual Association of Cancer Research, San Diego, California

1997 Presented paper entitled, "Mechanisms studying DNA damage and Apoptosis induced by Heat Shock Using the Comet Assay," at Korean Toxicology and Environmental Mutagen & Carcinogen, Congress, Seoul, Korea.

1997 Presented paper entitled, "Mechanisms studying Hyperthermia-induced Apoptosis Using Comet Assay," at the First International Congress of Asia-Pacific Association of Medical Toxicology (APAMT-1), Tehran, Iran.

1998 Presented poster entitled, "Thymidine Kinase Immunodetection Assay: The

Future of Breast Cancer Prognosis?" at the 11th International Conference on Monoclonal Antibodies against Cancer, Hosted by Sidney Camel Cancer Center, San Diego, California, March 19th-21st.

1998 Presented poster entitled, "Critical Parameters influencing hyperthermia induced apoptosis in human lymphoid cell lines," at the 89th Annual Meeting of American Association for Cancer Research, New Orleans, Louisiana. March 28th-April 1st.

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Raji cell lines and human lymphocytes demonstrate an increase resistance to hydrogen peroxide when treated with grape seed extract."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Thymidine Kinase immunodetection assay: The future of breast cancer prognosis?"

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled:"Bax over-expression coupled with Bcl-2 suppression under the control of the cancer-specific thymidine kinase promoter."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Analysis of tail moments in the comet assay procedure."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Critical parameters influencing hyperthermia induced apoptosis in human lymphoid cell lines."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled:"

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Caffeine treated human promyelocytic leukemia cell line HL-60 demonstrate an increased suppression of heat shocked induced apoptosis."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "The effects of nicotine on human cells."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Differential responses of several human cancer cell lines to H_2O_2, UV and heat shock."

1998 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Idaho Falls, Idaho. April 25th. entitled: "Hyperthermia-induced apoptosis is not dependent upon DNA strand breaks of p53 status." (This paper won 2nd place in the student competition)

1998 Presented poster entitled, "Membrane susceptibility to phospholipase A_2: marker of early changes in membrane structure during apoptosis," at the 38th Annual Meeting of The American Society for Cell Biology. San Francisco, California. December 12th-16th.

1998 Presented poster entitled, "Supplementation with fruit and vegetable extracts reduces DNA damage in the peripheral lymphocytes of an elderly population," at the 38th Annual Meeting of The American Society for Cell Biology, San Francisco, California. December 12th-16th.

1999 Presented poster entitled, "A comparative evaluation of aflatoxin B_1 genotoxicity in fish models using the Comet assay," at the 90th Annual Meeting of American Association for Cancer Research, Philadelphia, Pennsylvania. April 10th-14th.

1999 Presented poster entitled, "Monitoring thymidine kinase levels serves as an accurate diagnostic and prognostic indicator in ALL and AML patients," at the 90th Annual Meeting of American Association for Cancer Research, Philadelphia, Pennsylvania. April 10th-14th.

1999 Presented poster entitled, "Evaluation of the genotoxicity of nicotine and tobacco smoke filtrates on human cell lines," at the 90th Annual Meeting of American Association for Cancer Research, Philadelphia, Pennsylvania. April 10th-14th.

1999 Presented poster entitled, "In a comparison study with vitamin C, grape seed proanthocyanidin extracts demonstrate a significant reduction in oxidative DNA damage," at the 90th Annual Meeting of American Association for Cancer Research, Philadelphia, Pennsylvania. April 10th-14th.

1999 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Weber State University, Ogden, Utah. April 24th.entitled: "A comparative evaluation of aflatoxin B_1 genotoxicity in fish models using the Comet assay."
(This paper won 1st place in the student competition).

1999 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Weber State University, Ogden, Utah. April 24th entitled: "The genotoxicity of asbestos fibers using the comet assay."

1999 Poster presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Weber State University, Ogden, Utah. April 24th entitled: "Evaluation of the genotoxicity of nicotine and tobacco smoke filtrates on human cell lines." (This poster won 2nd place)

1999 Presented paper entitled, "A comparative evaluation of aflatoxin B_1 genotoxicity in fish models using the Comet assay," at the Annual Conference of the Utah Academy, Brigham Young University, Provo, Utah. April 24th.

1999 Attended the United Kingdom Environmental Mutagen Society, University of Ulster, Coleraine, Northern Ireland. June 23rd-25th.

1999 Presented poster entitled, "Vitamin Induced Cytologic Alterations in Metastatic HT-29 Human Colon Adenocarcinoma Cells," at the Beatson International Cancer Conference, Glasgow, Scotland. June 27th-June 30th.

1999 Presented poster entitled, "Key Morphologic Changes, DNA Strand Breaks, and Critical Parameters in the Invasive Human Promyelocytic Leukemia Cells in

Response to Heat-Shock," at the Beatson International Cancer Conference, Glasgow, Scotland. June 27th-June 30th.

2000 Presented poster entitled, "DNA damage resulting from exposure to filter collected air pollution samples using the comet assay," at the 91st Annual Meeting of American Association for Cancer Research, San Francisco. April 1st –April 5th.

2000 Presented poster entitled, "Regulation of thymidine kinase in cell lines of differing p53 status in response to radiation induced DNA damage." at the 91st Annual Meeting of American Association for Cancer Research, San Francisco, California. April 1st-April 5th.

2000 Presented poster entitled, "Combined effects of 5-flourouracil and vitamins on HT-29 human colon adenocarcinoma cells," at the 91st Annual Meeting of American Association for Cancer Research, San Francisco, California. April 1st-April 5th.

2000 Presented poster entitled, "Induction of apoptosis by allium sativum (garlic) in human colon adenocarcinoma cells," at the 91st Annual Meeting of American Association for Cancer Research, San Francisco, California. April 1st-April 5th.

2000 Presented poster entitled, "Protection from apoptosis and decreased DNA repair rates mediated by electromagnetic field exposure as analyzed by the comet assay," at the 91st Annual Meeting of American Association for Cancer Research, San Francisco, California. April 1st-April 5th.

2000 Presented poster entitled, "Increased thymidine kinase 1 activity correlates with a decrease in apoptosis induced by hyperthermia," at the 91st Annual Meeting of American Association for Cancer Research, San Francisco, California. April 1st-April 5th.

2000 Presented poster entitled, "Discriminating apoptosis from necrosis using the comet assay: implications for assessing cancer therapeutics," at the European School of Haematology- UTMD Anderson Cancer Center Conference on Mechanisms of cell death and disease: Advances in Therapeutic Intervention, Dublin, Ireland. May 13th-17th.

2000 Presented poster entitled, "Induction of apoptosis in human colon cancer cells by 13-cis-retinoic cid and vitamin E Succinate," at the European School of Haematology-UTMD Anderson Cancer Center Conference on Mechanisms of cell death and disease: Advances in Therapeutic Intervention, Dublin, Ireland. May 13th-17th.

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. entitled: "Mechanism by which thymidine kinase 1 is increased in the serum of cancer patients."

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. entitled: "Measuring the effect of tricholoroethylene on DNA *via* the comet assay."

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. entitled: "Induction of apoptosis by *Allium sativum* (garlic) in human colon adenocarcinoma cells." (This paper won 1st prize).

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. entitled: "DNA damage caused by air pollution as measured by the comet assay." (This paper won 2nd prize).

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. entitled: "Decreased DNA repair rates and protection from heat induced apoptosis mediated by electromagnetic field exposure."

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. Entitled "Differential over-expression of Bax in MCF-7 cells using the thymidine kinase promoter."

2000 Oral presentation at the annual meeting of the Intermountain Branch of the American Society for Microbiology. entitled: "Regulation of thymidine kinase in cell lines of differing p53 status in response to radiation induced DNA damage."

2000 Poster presentation at the Intermountain Branch of the American Society for Microbiology annual meeting. entitled: "Increased thymidine kinase 1 activity correlates with a decrease in apoptosis induced by hyperthermia." (This poster won 3rd prize).

2001 Presented presentation entitled, "Genotoxic Effects of Trichloroethylene on Raji, TK-6, and Peripheral Blood Lymphocytes as Measured by the Comet Assay," at the 92nd Annual Meeting of the American Association for Cancer Research, New Orleans, Louisiana. March 24th-28th.

2001 Presented presentation entitled, "Non-Receptor Mediated Apoptosis in S49 Cells and Mouse Peripheral Blood Lymphocytes: A Comparative Study," at the 92nd Annual Meeting of the American Association for Cancer Research, New Orleans, Louisiana. March 24th-28th.

2001 Presented presentation entitled, "Enhancement of Apoptosis Induction by 5-Fluorouracil and 13-Cis-Retinoic Acid/Vitamin E Succinate Combination in Human Colon Caner Cells," at the 92nd Annual Meeting of the American Association for Cancer Research, New Orleans, Louisiana. March 24th-28th.

2001 Presented presentation entitled, "Synergistic Effect of Vitamin C: K3 Induction of Apoptosis in the WIDR Cell Line," at the 92nd Annual Meeting of the American Association for Cancer Research, New Orleans, Louisiana. March 24th-28th.

2001 Presented presentation entitled, "Garlic (Allium sativum) Induces Apoptosis in Suspension "Microtumor" Cultures of Human Colon Cancer Cells," at the 92nd Annual Meeting of the American Association for Cancer Research, New Orleans, Louisiana. March 24th-28th.

2001 Presented presentation entitled, "A Comparative Analysis of Apoptotic Progression in Human T Cells," at the ASM International Branch Meeting, Pocatello, Idaho. April 28th.

2001 Presented presentation entitled, "Enhancement of Apoptosis by 5-Flutouracil and 13-CIS Retinoic Acid and Vitamin E Succinate Combination in Human Colon Caner Cells," at the ASM International Branch Meeting, Pocatello, Idaho. April 28th.

2001 Presented presentation entitled, "Synergistic Effect of Vitamin C: K3 Induction of Apoptosis in the WIDR Cell Line," at the ASM International Branch Meeting, Pocatello, Idaho. April 28th.

2001 Presented presentation entitled, "Regulation of Thymidine Kinase in Cell Lines of Differing p53 Status in Response to Radiation-Induced DNA Damage," at the ASM International Branch Meeting, Pocatello, Idaho. April 28th.

2001 Presented presentation entitled, “Genotoxic Effects of Trichlorethylene or Raji, TK6, and Peripheral Blood Lymphocytes as Measured by the Comet Assay,” at the ASM International Branch Meeting, Pocatello, Idaho. April 28th.

2001 Presented poster entitled, “Thymidine Kinase 1 Promoter Regulation May Be Controlled By Oncogenic Transcription Factors,” at the Beatson International Cancer Conference, Glasgow, Scotland. July 15th-18th.

2001 Presented poster entitled, “Transcription Modulation In Human Colon Adenocarcinoma Cells by Vitamins and Phytochemicals,” at the Association for International Cancer Research, Glasgow, Scotland. July 15th-18th.

2002 Presented a talk entitled, "A comparison of the peroxyl-radical scavenging capacities of various antioxidants utilizing the novel TOSC assay,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented a talk entitled, “A comparison of the antioxidant capacities of green tea, white tea, and epigallocatechin-3-gallate by the TOSC assay,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th. (This talk won first place in the division).

2002 Presented a talk entitled, “An Oregano Extract Has Antioxidant Activity as Measured by the Total Oxyradical Scavenging Capacity (TOSC) Assay,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented a talk entitled, “Effects of drug resistance on expression of Thymidine Kinase,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented a talk entitled, “Radiation-induced apoptosis in MOLT-4 cells requires *de novo* protein synthesis independent of *de novo* RNA synthesis,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented a talk entitled, “Effects of electromagnetic field exposure on expression of Thymidine Kinase,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah March 30th. (This talk won second place in the division).

2002 Presented a talk entitled, “The Effects of Diallyl Sulfide, Diallyl Disulfide, Garlic, and Quercetin on Benzo[a]pyrene Induced DNA Damage in HepG2 cells as Measured by the Comet Assay,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th. (This talk won first place in the division).

2002 Presented a talk entitled, “Green tea polyphenol (-)-Epigallocatechin gallate (EGCG) causes DNA damage detectable by the alkaline Comet assay at physiologic concentrations,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented a talk entitled, “A comparison of the antioxidant capacities of human blood serum,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented a talk entitled, “p53, c-myc, and h-ras gene products may participate in regulation of the Thymidine kinase 1 promoter,” at the American Society for Microbiology Intermountain Branch Annual Conference, Utah State University, Logan, Utah. March 30th.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: Antimutagenic effects of EGCG on Benzo[a]pyrene treated Hep G2 Cells as determined by the Comet Assay. R. R. Olsen, J. F McBride, J. Ahlstrom, B. K Murray, and K. L. O’Neill.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: The Anti-Genotoxic effect of Garlic and Quercitin against Benzo[a]pyrene in metabolically competent Hep G2 Cells as measured by the Comet Assay.
J. D Ahlstrom, T. E Spackamn, C. W Speers, B. K Murray, and K. L. O’Neill

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: An Evaluation of the total peroxyl radical-scavenging capacities of various antioxidants utilizing the novel TOSC Assay. B. Green, S. Standage, D. Cox, B.K. Murray, and K.L. O’Neill.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: A comparison of the antioxidant capacities if Green Tea, White Tea, and Epigallocatechin-3-Gallate by the TOSC Assay. B. Green, D. Cox, J. McBride, B.K. Murray, and K.L. O’Neill.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: Green Tea polphenol (-)-epigallocatechin gallate (EGCG) causes DNA damage detectable by the alkaline Comet Assay at physiologic concentrations
J. F. McBride, B. K Murray, and K. L O’Neill

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: Inhibitory effects of Diallyl Sulfide, Diallyl Disulfide, Dipropyl Sulfide, and Dipropyl Disulfide through up-regulation of phase II enzyme activity on DNA damage induced by Benzo9a)pyrene in Hep G2 cells as evaluated using the single-cell gel electrophoresis (Comet) assay and the glutathione-s-transferase 340 assay
C. Speers, B. K. Murray and K.L. O’Neill.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: Thymidine Kinase 1 promoter regulation may be controlled by oncogenic transcription factors.
M. R Buckwalter, J. J Jackson, A. M Secrest, B. K Murray, and K. L O’Neill.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: Mechanisms involved in Vitamin C and K3 induced apoptosis of the WiDr human adenocarcinoma cell line. A.D. Rogers, D A. Millar, C. Michaud, K. L. O'Neill, and B. K. Murray.

2002 Presented at the 93rd Annual Meeting of the American Association for Cancer Research April 6th-10th in San Francisco entitled: Reduction in Toxicity of Doxorubicin by Alpha Tocopherol and Ascorbic Acid in Human Adenocarcinoma Cells.
C.L. Michaud, A.D. Rogers, M. Young, D. Millar, B.K. Murray, and K.L. O'Neill.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "A comparison of the peroxyl-radical scavenging capacities of various antioxidants utilizing the novel TOSC assay" D. M. Cox, B.R. Green, S. Standage, B.K. Murray, K.L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "A comparison of the antioxidant capacities of green tea, white tea and epigallocatechin-3-gallate by the TOSC assay" B. Green, D. Cox, J. McBride, B. K. Murray, and K. L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "Inhibition of Benzo[a]pyrene induced DNA damage in Hep G2 cells by the Organosulfur compounds Diallyl sulfide and Diallyl Disulfide as measured by the comet assay" J.D. Ahlstrom, T.E. Spackman, B.K. Murray, K.L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "The Effects of fruit and vegetable compounds against Benzo[a]pyrene induced DNA damage in Xenobiotically competent Hep G2 cells as measured by the comet assay" J.D. Ahlstrom, T.E. Spackman, C.W. Speers, K. Melton, L. Fort, J. McBride, D. Tollman, B.K. Murray, K.L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "Green tea polyphenol (-)-Epigallocatechin Gallate (EGCG) causes direct DNA damage detectable by the alkaline comet assay" J.F. McBride, B.K. Murray, K.L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "Thymidine Kinase 1 promoter regulations may be controlled oncogenic transcription factors" M.R. Buckwalter, J.J. Jackson, A.C. Secrest, J.C. Swigert, B.K. Murray, K.L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "Garlic extract has antioxidant activity as measured by the total oxyradical scavenging capacity assay" D.P. Tomer, J.D. Ahlstrom, B.K. Murray, K.L. O'Neill, Dept of Microbiology, Brigham Young University, Provo, UT.

2002 Presented poster at the American Society for Microbiology 102nd General Meeting in Salt Lake City, Utah on May 21-22nd entitled: "Antimutagenic effects of EGCG against Benzo[a]pyrene treated Hep G2 cells" R.R. Olsen, J.F. McBride, J.D. Ahlstrom, B.K. Murray, K.L. O'Neill Dept of Microbiology, Brigham Young University, Provo, UT.

2003 Presented poster at the 2003 Annual Meeting of the American Association for the Advancement of Science in Denver, CO, February 13th-18th entitled: "Age-related macular degeneration (AMD): Lipofuscin-generated, light-induced apoptosis in human retinal pigment epithelial (RPE) cells." A.M. Secrest, K.D. Sorensen, C.W.

Hardie, S.M. Warburton, B.K. Murray, K.L. O'Neill, C.D. Thulin. Department of Microbiology and Molecular Biology, and the Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT.

2003 Presented poster at the 2003 Annual Meeting of the American Association for the Advancement of Science in Denver, CO, February 13th-18th entitled: "Comparative study of total antioxidant activity between the fruit *Momordica cochinchinensis (gac)* and its major carotenoid constituents." A.M. Secrest, K.D. Sorenson, C.W. Hardie, L.D. McLeman, L.T. Vuong, B.K. Murray, K.L. O'Neill. Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the 2003 Annual Meeting of the American Association for the Advancement of Science in Denver, CO, February 13th-18th entitled: "Total Oxyradical Scavenging Capacity of Soy-based Foods as a Measure for Cancer Prevention." S. Ohmine, D.P. Tomer, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Measurement of the Antioxidant Activity of Phytochemicals Using the ORAC and TOSC Assays." D.P. Tomer, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "New Method to Measure Oxidative DNA Repair in HL-60 Cells using TUNEL Assay." J.D. Young, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "A Comparison of the Total Oxyradical Scavenging Capacity of Soy-based Foods With Protection From DNA Fragmentation as Measured by the Comet Assay." S. Ohmine, C.J. Whatcott, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT. (This poster won 1st place in the poster competition.)

2003 Presented poster at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Cancer Prevention through Bilberry and Cranberry." M. Bergin, K.A. Saunders, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Increased Thymidine Kinase Activity Induced by 60Hz Magnetic Field Exposure in Human Breast (MCF-7) Cells." A.J. Lee, M.R. Buckwalter, M.P. Dance, A.M. Secrest, K.D. Sorenson, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "A Comparison Study of the Antioxidant Capacity of Trolox® Using the COMET, TOSC, and ORAC Assays." N. London, C. Trimble, B. Franz, K. Barbour, D. Tomer, L. McLeman, A.

Stevens, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "A Comparative Analysis of Total Antioxidant Capacity in Various Body Fluids as Measured by the Fluorometric Oxyradical Absorbance Capacity (ORAC) Assay." L.D. McLeman, S. Ohmine, D.P. Tomer, S.G. Aldana, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Development of a Microwell Plate-Based High Sensitive Assay for C-Reactive Protein, a Biomarker for the Potential Onset of Cardiovascular Disease." S. Ohmine, L.D. McLeman, D.P. Tomer, S.G. Aldana, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "The Effect of Ellagic Acid on Benzo[a]Pyrene-Induced DNA Damage to HepG2 Cells as Measured by the Comet Assay." A. Stevens, D.D. Twitchell, C.P. Richards, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Individual and Synergistic Effects of Isoflavones' Antioxidant Capacity using the TOSC Assay." K.A. Saunders, M. Bergin, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Tail Profile: A More Accurate System for Analyzing DNA Damage using the Comet Assay." M.T. O'Neil, L.A. O'Neil, R.D. Bowden, M.R. Buckwalter, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT. (This presentation won 1st place in its division.)

2003 Presented at the 2003 Intermountain Branch Annual Conference of the American Society for Microbiology in Tooele, UT, March 29th entitled: "Quantifying Angiogenesis Images Using a Novel Program." D.P. Tomer, R.R. Olsen, S.S. Tomer, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the Brigham Young University Department of Physical and Mathematical Spring Research Conference in Provo, UT, March entitled: "Effects of a 60 hz Electromagnetic Field on HSV-1 Attachment of and Infection in Mink Lung Cells." N. R. London, M. R. Buckwalter, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT. (This poster won 1st place in its division.)

2003 Presented poster at the 94th Annual Meeting of the American Association for Cancer Research in Washington, D.C., July 11th-14th entitled: "Effects of Varied Levels of Caffeine on the Nucleotide Salvage Pathway Enzyme Thymidine Kinase 1 in a Breast Cancer Cell Line (MCF-7)." M.P. Dance, M.R. Buckwalter, K.D. Sorensen, A.M.

Secrest, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the 94th Annual Meeting of the American Association for Cancer Research in Washington, D.C., July 11th-14th entitled: "Correlation Between ORAC and TOSC Antioxidant Assays." David P. Tomer, Lee D. McLeman, Seiga Ohmine, Byron K. Murray, and Kim L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented poster at the 94th Annual Meeting of the American Association for Cancer Research in Washington, D.C., July 11th-14th entitled: "Exposure to a 60 Hz Electromagnetic Field Increases Thymidine Kinase Activity in MCF-7 Human Breast Cancer Cells." Matthew R. Buckwalter, Matthew P. Dance, Aaron M. Secrest, Kenneth D. Sorensen, Byron K. Murray, and Kim L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 6th Beatson International Cancer Conference: Cell Signaling and Cancer in Glasglow, Scotland, July 6th-9th entitled: "A Novel Program to Quantify Cell Signaling Involved in Tumor Angiogenesis." K.L. O'Neill, D.P. Tomer, S.S. Tomer, and B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2003 Presented at the 6th Beatson International Cancer Conference: Cell Signaling and Cancer in Glasglow, Scotland, July 6th-9th entitled: "Vitamin Induced Signal Pathways in Human Adenocarinoma Cells." B.K. Murray, J.S. Tessem, A.D. Rogers, and K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented poster at the Brigham Young University Department of Physical and Mathematical Spring Research Conference in Provo, UT, March, entitled: "The Effects of an Electromagnetic Field on Tumor Cell Invasion and Metastatic Spread." N.R. London, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Mononuclear Leukocytes May Inadvertently Increase Tumor Cell Invasion Potential." N.R. London, A. Ethington, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Differing Expressions of p53 Influence Cell Invasion." A. Burch, N.R. London, B.M. Webb, D. Twitchell, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "The Effects off an Electromagnetic Field on Tumor Cell Invasion." N.R. London, E.D. Reeves, D. Twitchell, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Assessing the Invasive Potential of Cancer Cells Using an Adaptation of the CAM Assay." N.R.

London, K.D. Barbour, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Tannins as *in vivo* anti-angiogenic agents." C.P. Richards, D.D. Twitchell, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Induction of angiogenesis by mononuclear leukocytes using the CAM assay." R.L. Hamblin, D.D. Twitchell, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Induction of apoptosis by concurrent cancer therapies in different cancer cell lines." M.R. Phillips, B.M. Webb, A.B. Clifford, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Apoptosis and necrosis in lymphoid cell lines increase extracellular thymidine kinase activity." B.M. Webb, M.R. Phillips, J.J. Doxey, M.P. Dance, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Staufen in Localization in Human Neural Progenitor Cells (hNPCs)." D.G. Fuja, T.J. Fuja, G. Cheng, P.H. Schwartz, K.L. O'Neill, B.K. Murray, P.J. Bryant; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT. In association with: Univ. of Iowa, Iowa City, IA; Univ. of California—Irvine, Irvine, CA; and CHOC, Orange, CA.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Correlation Between Antioxidant Activity of Phytochemicals and Ability to Quench Lipid Hydroxyperoxides." D.P. Tomer, L.D. McLeman, S. Ohmine, S. B. Strigham, C. Trimble, N.J. Buchkovich, K. Hamik, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Development of a Regulated Cell Culture C-Reactive Protein Biomarker Assay." S. Ohmine, M.P. Gutiérrez, T.A. Gaufin, L.D. McLeman, D.P. Tomer, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Intermountain Branch Annual Conference of the American Society for Microbiology in Idaho Falls, ID, March 27th entitled: "Inactivation of Animal Viruses in Biological Fluids Following Ozone Exposure." S. Ohmine, T.A. Gaufin, M.P. Gutiérrez, L.D. McLeman, D.P. Tomer, K. Hamik, K.L. O'Neill, B.K.

Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Additive Response to Combined Cancer Therapies in Six Lymphoid Cell Lines." B.M. Webb, M.R. Phillips, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Effects of Electromagnetic Fields (EMF) on Angiogenesis of Breast Cancer and Macrophages Measured using the Chorioallantoic Membrane (CAM) Assay." R.L. Hamblin, D.D. Twitchell, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Detecting Apoptosis: A Comparison of the Comet Assay and the Annexin-V Method Using Six Lymphoid Cell Lines." M.R. Phillips, B.M. Webb, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Inhibition of Benzo[a]Pyrene Induced DNA Damage in HepG2 Cells by the Organosulfur Compound N-acetyl Cysteine (NAC) as Measured by the Comet Assay." M. O'Neil, L. O'Neil, A. Stevens, C. Speers, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Measurement of MDA Levels as a Marker of Lipid Peroxidation in Serum." C. Trimble, L.D. McLeman, S. Ohmine, S.B. Strigham, D.P. Tomer, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Lipid Peroxides Generated by the Ozonation of Biological Fluids are Effectively Neutralized by Phytochemicals with Antioxidant Capacity." D.P. Tomer, L.D. McLeman, S. Ohmine, S.B. Stringham, C. Trimble, N.J. Buchovich, K.L. O'Neill, B.K. Murray; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 2004 Biological Sciences and Ecology and Environmental Sciences of the American Association for the Advancement of Sciences in Logan UT, June 15th entitled: "Inhibition of CXCR4/SDF-1 α Mediated Angiogenesis by Tannic and Ellagic Acid in Breast Cancer Cells." D.D. Twitchell, K.T. Meier, B.K. Murray, K.L. O'Neill; Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 95th Annual meeting of the American Association for Cancer Research, Orange County, Orlando, Florida. Entitled: 'Tannic acid prevents angiogenesis *in vivo* by inhibiting CXCR4/SDF-1 Alpha binding in breast cancer cells'. D.D. Twitchell, N.R. London, D.P Tomer, E Tomer, B.K. Murray and K.L.O'Neill Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 95th Annual meeting of the American Association for Cancer Research, Orange County, Orlando, Florida. Entitled: 'Evidence of synergistic intracellular antioxidant networking'. L.D. McLeman, S. Ohmine, D.P Tomer, M. Phillips, B. Webb, K.L.O'Neill, and B.K. Murray. Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2004 Presented at the 95th Annual meeting of the American Association for Cancer Research, Orange County, Orlando, Florida. Entitled: 'Stress meditaed induction of C reative protein in human cancer cells. S. Ohmine, L.D. McLeman D.P Tomer, K.L.O'Neill, and B.K. Murray. Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Construction of Apoptotic B16 F1/F10 mouse melanoma cells using the Fas-mediated suicide gene. Aamodt, H.M., Kim, D.J., Burnett, S. H., Murray, B. K., O'Neill, K. L.

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. 'Macrophage Activation Profiles Upon Exposure To Apoptotic And Necrotic Cancer Cells.' C. Ellingston, A. Clifford, B.K. Murray, and K.L. O'Neill.

2005 Presented at the 53rd Annual Meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Increased Invasive Potential of CXCR4+ Breast Cancer Cells in the Presence of Stromal Cell Derived Factor-1α and Macrophages M. A. Viskovska, T. A. Gaufin, S. Ohmine, D. D. Twitchell, **K. L. O'Neill,** and B. K. Murray

2005 Presented at the 53rd Annual Meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. 'Role of Collapse Cavitation in Ultrasound-Mediated Chemotherapeutic Drug Uptake.' S. B. Stringham, T. A. Gaufin, M. A. Viskovska, S. Ohmine, K.L. O'Neill, B. K. Murray, and W. G. Pitt

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Reduction of Oxidative Stress in Human Leukemia Cells by Combinational Antioxidant Supplementation. S. Ohmine, O. Badamjav, D. P. Tomer, L. D. McLeman, K. L. O'Neill and B. K. Murray

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Herpes Simplex Virus Type-1 Inactivation Through Ozone-Mediated Peroxidation T. A. Gaufin[1], K. J. Jensen[1], S. Ohmine[1], M. A. Viskovska[1], D. P. Tomer[1], N. J. Buchkovich[1], S. B. Stringham[1], J. Latino[2], K. L. O'Neill[1], F. B. Johnson[1] and B. K. Murray[1]

2005 Presented at the 53rd Annual meeting of the American Society for

Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Inactivation Kinetics of Enveloped and Non-Enveloped Viruses Through Reactive Oxygen Species (ROS) T. A. Gaufin[1], J. W. Monson[1], S. Ohmine[1], M. A. Viskovska[1], D. P. Tomer[1], N. J. Buchkovich[1], J. S. Latino[2], K. L. O'Neill[1], F. B. Johnson[1] and B. K. Murray[1]

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Loss of Vesicular Stomatitis Virus Infectivity Through Ozone-Generated Reactive Oxygen Species M. A. Viskovska[1], D. C. Harrell[1], S. Ohmine[1], T. A. Gaufin[1], D. P. Tomer[1], C. R. Trimble[1], N. J. Buchkovich[1], J. Latino[2], K. L. O'Neill[1], F. B. Johnson[1] and B. K. Murray[1]

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Majority of Polyunsaturated Fatty Acids in the Membranes of Cancer Cells Are Upregulated Compared to Normal Cells. C. R. Trimble, S. Ohmine, T. R. Hart, T. A. Gaufin, M. A. Viskovska, R. A. Robison, K. L. O'Neill and B. K. Murray.

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Progress Toward Determination of an Apoptotic Response in Bovine Parvovirus Infected Cells. Lubna S. Abdel-Latif, Rebecca L. Renberg, Heidi S. Porter, Byron K. Murray, Kim L. O'Neill and F. Brent Johnson.

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Resolution of Differences in Lipid Peroxidation for Unsaturated Fatty Acids by the MDA Assay. C. Trimble, L. R. Jensen, K. L. O'Neill and B. K. Murray.

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Angiogenic activity is affected by breast cancer cell and mononuclear leukocyte interaction J. J. Butt, R. A. Zinke, P. M. Scherer, B. Murray and K. L. O'Neill.

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. Various Plant Derived Polyphenolic Compounds Reduce SDF-1 alpha Induced Breast Cancer Angiogenesis. K.T. Meier, D.D. Twitchell, B.K. Murray, and K.L. O'Neill

2005 Presented at the 53rd Annual meeting of the American Society for Microbiology meeting, Weber State University, Ogden, Utah. March 12th 2005. The Use of Cationic Steroid Antibiotics in the Fight Against Cancer. J. W. Nielsen, J. Ostler[1], T. Orsak[1], S. Salt[1], K. L. O'Neill[2], and P. B. Savage[1].

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. Apoptosis through *Fas*-mediated suicide gene induction in mouse melanoma
Aamodt, H. M., Clifford, A., Ellingson, C., Burnett, S. H., Murray, B. K., O'Neill, K. L.

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. Membrane Fatty Acid Composition in Cancer Cells: Implications for Chemotherapeutic Intervention.

Christopher R. Trimble, Seiga Ohmine, Tyler R. Hart, Thaidra A. Gauffin, Maria A. Viskovska, Richard A. Robison, Kim L. O'Neill and Byron K. Murray

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. Apoptotic bodies from cancer cells may trigger an M2 phenotype in macrophages.
Clifford C. Ellingson, Heather Aamodt, Matthew B. Crook, Michael R. Phillips, Russell Hamblin, Byron K. Murray, and Kim L O'Neill

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. Tannic Acid Derivatives Display Anti-Angiogenic Properties in Human Breast Cancer Cells by Interfering with CXCR4/SDF-1α interactions. K.T. Meier, D.D. Twitchell, B.K. Murray, and K.L. O'Neill

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. Atypical hScrib expression and localization in malignant human breast cancer. Daniel G. Fuja, Michael Phillips, Bracken Webb, Adrianne Clifford, Byron K. Murray, Kim L. O'Neill

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005.Mononuclear leukocyte and breast cancer cell interaction affects angiogenic activity P.M. Scherer, R.A. Zinke, J.J. Butt, B.K. Murray, and K.L O'Neill,

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005 'Mechanism of targeted chemotherapeutic delivery using ultrasound.' S. Briant Stringham, Byron K. Murray, Kim L. O'Neill, Seiga Ohmine, Thaidra A. Gaufin, William G. Pitt

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. Stromal Cell Derived Factor-1α and Macrophages increased invasive potential of breast cancer cells expressing CXCR4. Devin D. Twitchell, Seiga Ohmine, Thaidra A. Gaufin, Russell L. Hamblin, Kim L. O'Neill, and Byron K. Murray

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. 'Development of a Novel Human Vestibular Schwannoma Xenograft Model in SCID Mice'
Welling JD[1], Lorenz M[2], Rock J[2], O'Neill KL[1], Murray BK[1], Welling DB[2,4], Chang L.-S.

2005 Presented at the 96th Annual Meeting of the American Association for Cancer Research, Anaheim, Orange County, CA. April 16-20 2005. 'Ameliorization of Oxidative Stress in Human Leukemia Cells by Antioxidant Synergism.' Seiga Ohmine, Christopher R. Trimble, David P. Tomer, Lee D. McLeman, Kim L. O'Neill and Byron K. Murray Department of Microbiology and Molecular Biology, Brigham Young University, Provo, UT.

2005 Presented at the annual meeting of the American Society of Microbiology, Atlanta Georgia, June. Loss of Herpes Simplex Virus Type-1 Infectivity by Reactive Oxygen Species", Seiga Ohmine, Maria A. Viskovska, David P. Tomer, S. Briant Stringham, Joseph Latino, Kim L. O'Neill, F. Brent Johnson and Byron K. Murray

2005 Presented at the annual meeting of the American Society of Microbiology, Atlanta Georgia, June. Reactive Oxygen Species Inactivation of Enveloped and Non-Enveloped Viruses", S. Ohmine, D. P. Tomer, T. A. Gaufin, N. J. Buchkovich, J. S. Latino, K. L. O'Neill, F. B. Johnson, B. K. Murray

2005 Presented at the 28th Annual Medical Student Research day, University of Maryland School of Medicine, Baltimore. 'Apoptosis through *Fas*-mediated suicide gene induction in mouse melanoma' Aamodt, H. M., Clifford, A., Ellingson, C., Burnett, S. H., Murray, B. K., and O'Neill, K. L.

2005 Presented at the 13th International Union of Microbiological Societies San Francisco, California July 23-28. 'Reactive Oxygen Species-Mediated loss of Vesicular Stromatitis Virus Infectivity.' T Gaufin, S Ohmine, M A Viskovska, D. P. Tomer, N.J. Buchkovich, J Latino, F. B. Johnson, K.L. O'Neill and B. K. Murray.

2005 Presented at the 13th International Union of Microbiological Societies San Francisco, California July 23-28. Inactivation of Scrapie Prion Infectivity by Reactive Oxygen Species. S Ohmine, D. P. Tomer, N.J. Buchkovich, J Latino, K.L. O'Neill and B. K. Murray.

2005 Presented at the Beatson International Cancer Conference, Glasgow, Scotland June 19th-June 22nd A Model for Enhanced Cancer Cell Invasion by Stromal Cell Derived Factor-1a and Macrophages. Byron K. Murray, Devin D. Twitchell, Thaidra A. Gaufin, Russell L. Hamblin, Seiga Ohmine, Nicholas Buchkovich, and Kim L. O'Neill.

2005 Presented at the Beatson International Cancer Conference, Glasgow, Scotland June 19th-June 22nd Apoptosis vs Necrosis: A possible model for the induction of the M2 phenotype in tumor associated macrophages. Kim L. O'Neill, Clifford C. Ellingson, Adrianne Clifford, and Byron K. Murray.

2005 Presented poster at the American society for Microbiology, Orlando, Florida. Rapid detection of loss of scrapie prion infectivity following controlled ozone exposure. Byron K. Murray, David P. Tomer, Nicholas J. Buchkovich, Maria A. Viskovska, Odgerel Badamjav, Sharyl Escobosa, Joseph Latino, and Kim L. O'Neill

2006 Presented poster at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Thymidine Kinase-1 Activity in UV Irradiation Induced Apoptotic and Necrotic Cells of an Acute T Cell Leukemia Cell Line. G.G. Wood**,** M.M. Lee-Hin, B.K. Murray, K.L. O'Neill, Brigham Young University, Provo, UT 84602

2006 Presented poster at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Macrophages in a Mouse Melanoma Model A. B. Clifford, S. C. McGuire, R. T. Isakson, S. H. Burnett, B. K. Murray and K. L. O'Neill, Brigham Young University, Provo, Utah. 84602 * This poster won first place.

2006 Presented poster at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Two physical methods of inducing apoptosis and their effectiveness in lymphoma cell lines M. M. Lee-Hin, C. C. Ellingson, B. K. Murray, and K. L. O'Neill, Brigham Young University, Provo, UT 84602

2006 Presented poster at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Differing Cellular DNA Repair Rates as Determined

by the TUNEL Assay. S. McGuire, A. Clifford, B.D. Murray, and K. L. O'Neill, Brigham Young University, Provo, UT 84602

2006 Presented poster at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. The Protective Synergistic Effect of Antioxidants Against Reactive Oxygen Species. J. Bentley, L Knox, D.P. Tomer, B.K. Murray, and K.L. O'Neill, Brigham Young University, Provo UT 84602

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Thymidine Kinase Activity and Potential Prognostic and Diagnostic Value for ALL and AML Patients. A.J. Lee, A.B. Clifford, F. Zhang, B.K. Murray, K.L. O'Neill, Brigham Young University, Provo, UT 84602

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. The Effects of Macrophage Depletion on Tumor Growth in a MaFIA Mouse Model
A. Lamprecht, A.B. Clifford, B.K. Murray, K. O'Neill, Brigham Young University, Provo, UT, 84602

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Macrophages and Metastasis: A Preliminary Model. Keith R. Wells, Adrianne B. Clifford, Byron K. Murray, and Kim L. O'Neill, Brigham Young University, Provo, UT 8402
* This talk won first place.

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Presentation of Apoptotic Bodies and Necrotic Debris Differentiate Macrophage Cytokine Expression.
*Clifford C. Ellingson[1], Clinton R. Ellingson[2], Marcos Lee-Hin[1], Collin Burton[1], Byron K. Murray[1], Kim L. O'Neill. [1]Brigham Young University, Provo, UT 84602 [2]University of Utah, Salt Lake City, UT

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah**.** Using Multiphoton Microscopy and 3-D Quantification of Vasculature Imagery to Analyze Tumor Vasculature in Brain Gliomas D. Fuja[1], J. A. Tyrrell[2], E. di Tomaso[3], K. Kozak[3], B. Roysam[2], K.L. O'Neill[1], R. K. Jain[3]1. Brigham Young University, Provo, UT 84602 2. Rensselaer Polytechnic Institute (RPI), Troy, NY 12180 3. Harvard Medical School and Massachusetts General Hospital, Boston, MA 02114

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah. Ozonation Alters Scrapie Prion Glycosylation Pattern and Eliminates Scrapie Prion Infectivity *In Vitro*
O. Badamjav[1], D. P. Tomer[1], N. J. Buchkovich[1], M. A. Viskovska[1], S. Escobosa[1], M. S. Karim[1], W. Gibby[1], J. Latino[2], K. L. O'Neill[1], B. K. Murray[1], [1]Brigham Young University, Provo, Utah, 84602; [2]Lipidviro Tech, Inc. Salt Lake City, Utah, 84108

2006 Presented talk at the American Society for Microbiology Branch meeting, Brigham Young University, Provo, Utah**.** Cell Death in Bovine Parvovirus Infected EBTr Cells is Mediated by Necrosis Rather Then Apoptosis
L. Abdel-Latif, B. K. Murray, R. L. Renberg , K. L. O'Neill, H. Porter, J. B. Jensen, and F. B. Johnson

2006 Presented a poster at the Annual Meeting of the American Association for Cancer Research Washington D.C. April 1-5 2006 entitled, 'Inactivation of Thymidine Kinase-1 in a Damaged Acute T Cell Leukemia Cell Line.'
Geoffrey G. Wood, Levi J. Hilton, Marcos M. Lee-Hin, Byron K. Murray, and Kim L. O'Neill

2006 Presented a poster at the Annual Meeting of the American Association for Cancer Research Washington D.C. April 1-5 2006 entitled,
Elucidating the Role of Macrophages in Tumor Development and Progression
Adrianne B. Clifford, Shannon C. McGuire, Ryan T. Isakson, Sandra H. Burnett, Byron K. Murray, and Kim L O'Neill

2006 Presented a poster at the Annual Meeting of the American Association for Cancer Research Washington D.C. April 1-5 2006 entitled, **'**Two physical methods of inducing apoptosis trigger different responses in lymphoma cell lines'. Marcos M. Lee-Hin, C. C. Ellingson, B. K. Murray, and K. L. O'Neill

2006 Presented a poster at the Annual Meeting of the American Association for Cancer Research Washington D.C. April 1-5 2006 entitled, 'A Comparison of Cellular DNA Repair Rates of Different Cell Lines Using the TUNEL Assay'.
Shannon McGuire, Adrianne Clifford, Byron K. Murray, and Kim L. O'Neill

2006 Presented talk at the American Society for Microbiology Rocky Mountain Branch meeting, Fort Collins, Colorado, entitled, 'The role of macrophages in a mouse melanoma model' K. Wells and K. L. O'Neill (This talk won first place in a presentation competition).

2006 Presented talk at the American Society for Microbiology Rocky Mountain Branch meeting, Fort Collins, Colorado, entitled, "The role of the retinoblastoma tumor suppressor (RB) gene in the cellular response to targeted chemotherapeutic agents" J. Robison and K. L. O'Neill. (This talk won second place in a presentation competition)

2006 Presented talk at the American Society for Microbiology Rocky Mountain Branch meeting, Fort Collins, Colorado, entitled, 'Monoclonal antibody against thymidine kinase 1 as a potential diagnostic indicator for squamous cell carcinomas' K. Jensen and K. L .O'Neill. (This talk won third place in a presentation competition)

2007 Presented poster at the Midwinter Conference of Immunologists, Asilomar Conference Grounds, Pacific Grove, CA. January 27th -30 2007, entitled, 'Macrophages and Metastasis: Ties to the MaFIA'. A. Clement, A. B. Clifford, A. Hamblin, D. G.Fuja, B. K. Murray, R.A. Robison, K. L. O'Neill.

2007 Presented poster at the Midwinter Conference of Immunologists, Asilomar Conference Grounds, Pacific Grove, CA, January 27th -30 2007, entitled,'Critical Parameters for Apoptosis in Cells of the Lymphoid Lineage.' Hamblin, AM, Clement, AM, Fuja, DG, Poe, BS, Smith, MJ, Fairbairn, DW, O'Neill, KL

2007 Presented talk entitled "Metastatic Activity and Macrophages in a MAFIA Mouse Model" A.D. Welch, K.R. Wells, D.G. Fuja, B.A. Bertola, A.B. Clifford, B.K. Murray, Richard A Robison, and K.L. O'Neill at the ASM branch meeting. Pocatello, Idaho, March 10,2007

2007 Presented at 2007 Annual Rocky Mountain Branch Conference of the American Society for Microbiology in Grand Junction, Colorado, April 21st entitled "Melanoma/Macrophage Fusion in Transgenic MaFIA Mouse: First Step To

Metastasis." B. Bertola, A.M. Clement, A.B. Clifford, K.R. Wells, M.L. Webb, A.M. Hamblin, D.G. Fuja, B.K. Murray, Richard A Robison, and K.L. O'Neill

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Development of a specific stain for malignant tumor tissue using a monoclonal antibody to Thymidine Kinase 1. K.I. Aamodt, J.R.W. Staples, B. Murray[1], and K.L. O'Neill[1]

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: From Diagnostic to Therapeutic Agent: The Emerging Potential of Thymidine Kinase 1
A.M. Hamblin, D.G. Fuja, A.M. Clement, K.J. Jensen, M. Phillips, B. Webb, B.K. Murray, and K.L. O'Neill

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Thymidine kinase 1 expression and localization in malignant human breast tissue
D.G. Fuja, A.M. Clement, A.M. Hamblin, S.W. Freestone, B.K. Murray, and K.L. O'Neill

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Synergistic and quenching effects of antioxidants against reactive oxygen species. L.D. Knox, J.M. Bentley, L. McLeman, D.P. Tomer, M. Hardy, B.K. Murray, and K.L. O'Neill

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Identifying Different Stages of Prostate Cancer using Thymidine Kinase 1. J.R.W. Staples, K.I.Aamodt, B. Murray, and K. L. O'Neill.

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Genetic expression of macrophages after exposure to MDA-BA-435 and MCF-7 breast cells may determine mechanism for immune system evasion. Miller TD, Ellingson CR*, Ellingson CC, Lee-Hin M, Larson MT, Murray BK, Robison RA, O'Neill KL

2007 Presented poster at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Thymidine Kinase 1 Immunostaining as a Diagnostic Indicator for Advanced Melanoma and Other Skin Neoplasia. K.J. Jensen, A. Lee, D.G. Fuja, S.R. Peterson, R. Cole, B.K. Murray, and K.L. O'Neill.

2007 Presented talk at the annual meeting of the American Association for Cancer Research in Los Angeles April 2007, entitled: Cell Fusion: A Gateway to Metastasis. A.M. Clement, A.B. Clifford, K.R. Wells, M.L. Webb, A.M. Hamblin, D.G. Fuja, B.K. Murray, and K.L. O'Neill

2007 Presented poster at the Beatson International Cancer Conference, Glasgow Scotland, June 17-20th 2007, entitled: Thymidine kinase 1 a molecular marker for possible cancer therapy. K.L. O'Neill, D.G. Fuja, A.M. Hamblin, R. A. Robison and BK Murray.

2007 Presented poster at the Beatson International Cancer Conference, Glasgow Scotland, June 17-20th 2007, entitled: The Therapeutic Potential of Thymidine Kinase 1. Byron K Murray, Amanda M Hamblin, Daniel G Fuja, Richard A Robison, Kim L. O'Neill.

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Synergistic antioxidant capacity of Vitamins A, C, and

E. M. Hardy, L.D. Knox, J.M. Bentley, L. McLeman, D.P. Tomer, B.K. Murray, and K.L. O'Neill

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Therapeutic Potential of Thymidine Kinase I. K. W. Dahle,, D. J. Fuja, B.K. Murray, and K.L. O'Neill.

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Developing a specific stain for malignant tumor tissue using a monoclonal antibody to Thymidine Kinase 1. Andrew Garrett, Crystal Graziano Kristie Aamodt, Robert Staples, Byron Murray, and Kim O'Neill.

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: TK1 as a Possible Indicator and Localizer of Human Breast Cancer. K.R. Ririe, D. G. Fuja, A. M. Clement, A. M. Hamblin, S. W. Freestone, B. K. Murray, and K. L. O'Neill

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Therapeutic activity of a monoclonal antibody to Thymidine kinase 1 on xenograft breast tumors in nude mice
ML Anderson, AM Hamblin, DG Fuja, BK Murray, KL O'Neill

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Identification of Metastasizing Melanoma and Progression of Squamous Cell Carcinoma using Thymidine Kinase 1 Immunostaining. M Jordan Rowley, Kendal Jay Jensen, Ryan Cole, Byron Murray, and Kim O'Neill.

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Metastatic Activity and Macrophages in a MaFIA Mouse Model. A.D. Welch, K.R. Wells, D.G. Fuja, B.A. Bertola, A.B. Clifford, B.K. Murray, and K.L. O'Neill.

2007 Presented a talk at the American Society for Microbiology, Branch meeting in Grand Junction, Colorado, entitled: Macrophage x cancer cell fusion as observed via light and electron microscopy. M. Webb, B. Taylor,B. K. Murray, and K.L. O'Neill.

2007 Dickey, L.L., J.D. Hoopes, G.B. Schaalje, K.L. O'Neill, and R. Robison. Effect of gender and diabetic state on levels of proinflammatory cytokines secreted by peripheral blood monocytes in response to infection with *Burkholderia pseudomallei*. General Meeting of the American Society for Microbiology, Session 281/B, Abstract # B-431, p. 193. May 24, 2007. Toronto, Canada.

2007 Cohen, M.N., G.B. Moffitt, K.L. O'Neill, and R.A. Robison. Evaluation of a novel disinfectant with rapid sporicidal and tuberculocidal activity. Intermountain Branch of the American Society for Microbiology Annual Meeting. Abstract A-5, p. 5. March 10, 2007. Pocatello, ID.

2008 Tovar, M., R. Robison, B.K. Murray, and K.L. O'Neill. A novel antibody approach to breast cancer diagnosis and prognosis. Intermountain Branch of the American Society for Microbiology Annual Meeting. Abstract B-3, 56:13. March 1, 2008. Logan, UT. (Note: M. Tovar won first place in the student oral presentation competition.)

2008 Hopson, N., A. Welch, B. Bertola, B. Murray, R. Robison, and K. O'Neill. Are cancer metastasis caused by macrophages? Intermountain Branch of the American Society for Microbiology Annual Meeting. Abstract B-4, 56:13. March 1, 2008. Logan, UT.

2008 Satterfield, B.A., M.N. Cohen, K.L. O'Neill, and R.A. Robison. Differentiation of *Mycobacterium ulcerans* and *Mycobacterium marinum* by a duplex real-time PCR assay. Intermountain Branch of the American Society for Microbiology Annual Meeting. Abstract A-3, 56:11. March 1, 2008. Logan, UT.

2008 Pratt, M.D., M.N. Cohen, G.B. Moffitt, K.L. O'Neill, and R.A. Robison. Differential response of various spore species to sporicidal disinfectants. Intermountain Branch of the American Society for Microbiology Annual Meeting. Abstract A-4, 56:11. March 1, 2008. Logan, UT. (Note: G.B. Moffitt won second place in the student oral presentation competition.)

2008 Presented poster at the Beatson International Cancer Conference in Glasgow Scotland 14th -19th June 2008 entitled 'Are Macrophages Involved in Tumor Metastasis and Progression?' Kim O'Neill, Richard Robison and Byron K. Murray.

2008 Presented Poster at the Annual Meeting of the American Association for Cancer Research in San Diego, California. April 12-16th 2008 entitled, 'Resveratrol induced apoptosis in wild-type and mutant p53 human lymphoblast cell lines." A.J. Lee, K. Aamodt, R. Staples, B.K Murray, K.L. O'Neill.

2008 Presented Poster at the Annual Meeting of the American Association for Cancer Research in San Diego, California. April 12-16th 2008 entitled, "Development of a direct ELISA for intracellular human thymidine kinase 1" K.I. Aamodt, M. Anderson, M. Tovar, B. Loosle, D. Sjoberg, B. Murray[1], and K.L. O'Neill[1]

2008 Presented oral presentation at the 33rd West Coast Biological Sciences Undergraduate Research Conference, Point Loma Nazarene University San Diego, California. 12th April 2008 entitled "Macrophages: A vehicle for metastasis. N. Hopson, A Welch, and B Bertola, B Murray, R Robison and K L. O'Neill.

2008 Presented oral presentation at the 33rd West Coast Biological Sciences Undergraduate Research Conference, Point Loma Nazarene University San Diego, California. 12th April 2008 entitled, "Early Breast Cancer Detection using a Novel Monoclonal Antibody." M. Tovar, and B. Loosle R. Robison, B. Murray and K.L. O'Neill.

2008 Presented oral presentation at the 33rd West Coast Biological Sciences Undergraduate Research Conference, Point Loma Nazarene University San Diego, California. 12th April 2008, entitled, "The New Herceptin" B. Loosle, and M. Tovar, R. Robison, B.K. Murray, and KL O'Neill.

2008 Presented oral presentation at the Association of Minority Health Professions Schools 2008 Annual Symposium on Career Opportunities in Biomedical Sciences and Health Professions. March 19 – 21, 2008, New Orleans, Louisiana, entitled, 'Thymidine Kinase 1: The Story so Far. Phylicia Gowu and K.L. O'Neill.

2008 Presented poster presentation at the Association of Minority Health Professions Schools 2008 Annual Symposium on Career Opportunities in Biomedical Sciences and Health Professions March 19 – 21, 2008, New Orleans, Louisiana, entitled, Thymidine Kinase 1 as a Biomarker for Breast Cancer. Phylicia Gowu* and K.L. O'Neill. *(This student won first place for her presentation in a competition of over 200 presentations).

2008 Presented poster presentation at the Brigham Young University Presidents Leadership Council, Provo, Uath. October 16th entitled, Thymidine Kinase 1 as a Biomarker for Breast Cancer. P. Gawu, M. Tovar, B. Loosle and K.L. O'Neill.

2009 Presented poster at the Midwinter Conference of Immunologists, Asilomar Conference Grounds, Pacific Grove, CA. January 24th -27th 2009, entitled, "Utilizing a Novel Monoclonal Antibody as a Biomarker for Breast Cancer K.L. O'Neill, R.A. Robison, and B.K. Murray.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: "Could Macrophages be Helping Tumors to Metastasize? R.A. Enz, A. Clement, R. Robison, and K.L. O'Neill. (This talk was awarded first place in the student competition)

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: A Model for Predicting Antioxidant Capacity From a Chemist's Point of View. J. W. Collins, A. R. Garrett, J. M. Handy, J. A. Chauca, R.A. Robison, and K. L. O'Neill.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: **"**A Possible Immunotherapeutic Avenue for Treating Lymphoma Using Thymidine Kinase 1" J. Holm, J. D. Evans, M. Tovar, F.B. Johnson, R. A. Robison, K. L. O'Neill.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: **"**A Triplex Real-Time PCR Assay for the Detection and Differentiation of *Francisella tuluarensis* subspecies *tularensis* Type A.I, subspecies *tularensis* Type A.II, subspecies *holarctica*, and subspecies *novicida"* Mark Gunnell[1, 2,*], Charity Carter[1], W. Scott Jonas[2], Benjamin Satterfield[1], Emily Moore[1], Kim O'Neill[1], and Richard Robison.[1]

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: Green Tea: Friend or Foe? J.G. McDonald, J. McBride, J. Handy, P. Gawu, R. Enz, R.A. Robison, and K.L. O'Neill.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: "Is There a Relationship Between Caffeine and p53?" M. M. Bingham, B. Loosle, M. Tovar, R. A. Robison, and K. L. O'Neill.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: **"**Prognostic Detection of Lung Cancer Using a Monoclonal Antibody to Thymidine Kinase 1" [1.]W. M. Wilson, [1.]M. Tovar, [1.] B. Loosle, [2.]M. Weyant, [1.]R. Robison, and [1.]K. L. O'Neill.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: **"**Thymidine Kinase 1 as a Biomarker for Diagnosis and Prognosis in Leukemia Patients" B. J. Bowen, R. A. Robison, and K. L. O'Neill.

2009 Presented a talk at the American Society for Microbiology, Branch meeting in Salt Lake City, Utah. March 21st 2009, entitled: **"**A Quadraplexed Real-Time PCR Assay for Rapid Detection and Differentiation of the *Clostridium botulinum* Toxin Genes A, B, E, and F in Pure Culture and Environmental Samples." Benjamin A. Satterfield, Alvin F. Stewart David O. Pickett, K. L., O'Neill, Richard A. Robison.

2009 Presented poster at the 100th Annual meeting of the American Association for Cancer Research, Denver, Colorado, April 18th-22nd 2009, entitled, "Is it possible to find a

biomarker for the early detection of lung cancer?" [1.]M Tovar, [1.] B Loosle, [2].M Weyant, [1.]R Robison, [1.]KL ONeill.

2009 Presented poster at the 100th Annual meeting of the American Association for Cancer Research, Denver, Colorado, April 18th-22nd 2009, entitled, "A novel method for assessing antioxidant capacity based on structural characteristics." A. R. Garrett, J. M. Handy, J. A. Chauca, J. W. Collins, R.A. Robison, B.K Murray and K L. O'Neill.

2009 Presented poster at the 100th Annual meeting of the American Association for Cancer Research, Denver, Colorado, April 18th-22nd 2009, entitled, "Caffeine Modulates Cell Apoptosis and Thymidine Kinase 1 Activity in Several Human Cell Lines." B. Loosle, M. Tovar, M. Bingham, S. Gehen, R. Robison and K L O'Neill.

2009 Presented poster at the 100th Annual meeting of the American Association for Cancer Research, Denver, Colorado, April 18th-22nd 2009, entitled, "Thymidine Kinase 1, a molecular target for immunotherapy is overexpressed in the plasma membrane of lymphoma cells." J. D. Evans, M. Tovar, S. Brady, B. K. Murray, R. Robison, and K. L. O'Neill.

2009 Presented talk at the 100th Annual meeting of the American Association for Cancer Research, Denver, Colorado, April 18th-22nd 2009, entitled, "Green tea health benefits and costs--It's about finding balance." Jordan G. McDonald, J. McBride, A. Garrett, J. Handy, R. Enz, B. K. Murray, R. A. Robison, K. L. O'Neill.

2009 Presented poster at the Beatson International Cancer Conference, Glasgow Scotland, July5-8th 2009, entitled: "Macrophages in the Tumor Microenvironment could be Aiding Metastasis." K.L. O'Neill, A. Clement, R. Robison.

2010 Poster presentation at the annual intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'The Resistance Profile of Human Papillomavirus Type 16 to Chemical Disinfectants.' J. Meyers, E. Ryndock, M.J. Conway, K.L. O'Neill, C. Meyers, and R.R. Robison.

2010 Poster presentation at the annual intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'Improved recovery of spores from coated carriers used in the AOAC Sproicidal Activity of Disinfectants (Method II) spore Enumeration Method , by addition of a surfactant to the rinse solution. T. > Bills, Q. C. Shepherd, A. J. Blam, E. A. Moore, J. Gardner, B. Schaalje, K. L. O'Neill and R.R. Robison.

2010 Poster presentation at the annual intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'Migration and Polarization of Macrophages May Be Simultaneously Affected by Macrophages Inhibition Factor (MIF).' B.S. Hendriksen, R.A. Enz, R.R. Robison, and K. l. O'Neill.

2010 Poster presentation at the annual intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'The Potential of TK1 as a Molecular Target for Cancer Treatment. Dagoberto Estevez, Robert Whitehurst, Jaden D. Evans, Lafe T. Peavler, Melissa Tovar, Richard A. Robison, and Kim L. O'Neill.

2010 Poster presentation at the annual intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'Could Macrophage Phagocytosis be Regulated by the Tumor

Microenvironment?' D. Griffin, B. Hansen, B.R. Hendricks, R. Robison, and K.L. O'Neill.

2010 Poster presentation at the annual intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'Oxidative Stress Promotes Increased Antioxidant Uptake in a Cellular Model.' Jorge A. Chauca, Andrew R. Garrett, Andres D. Martinez, Evita Giraldez, Jason Loong, Jon Whitaker, José M. Peña, Richard A.Robison, and Kim L. O'Neill.

2010 Poster presentation at the annual Intermountain branch meeting of the American Society for Microbiology, April 10th, Brigham Young University, Provo. Utah. Entitled, 'Immunolabeling Transmission Electron Microscopy: an effective method for examining location of thymidine kinase 1 in human lymphoma cells.' M. Hardy, M. Tovar, M. Standing, R. Robison, and K.L. O'Neill.

2010 Undergraduate poster competition presentation at the 101st annual meeting of the American Association for Cancer Research, April 17th, Washington DC., entitled, 'Can drinking tea prevent cancer?' J. K. Loong, E. Giraldez, J. Whitaker, R. A. Robison, K. L. O'Neill.

2010 Undergraduate poster competition presentation at the 101st annual meeting of the American Association for Cancer Research, April 17th, Washington DC., entitled, 'Antioxidant studies on the Peruvian cherimoya fruit give an insight into the healthy lifestyle of the Incas.' G. Gupta Elera, J. Whitaker, J. Chauca, R. Robison, and Kim O'Neill.

2010 Undergraduate poster competition presentation at the 101st annual meeting of the American Association for Cancer Research, April 17th, Washington DC., 'Changes in Antioxidant capacities of isolated radish components during growth. J. Whitaker, E. Giraldez, J. Loong, J. Wagstaff, R Robison and K.L. O'Neill.

2010 Undergraduate poster competition presentation at the 101st annual meeting of the American Association for Cancer Research, April 17th, Washington DC., 'Inhibition of M1 Macrophages May Aid the Conversion Process to M2, which May Aid Tumor Survival.' R.A. Enz, C. Knechtel, A.D. Enz, B. Swanson, E. Giraldez, R. Robison, and K.L. O'Neill.

2010 Poster presentation at the 101st annual meeting of the American Association for Cancer Research, April 17-21, Washington DC., entitled, 'Can drinking tea prevent cancer?'J. K. Loong, E. Giraldez, J. Whitaker, R. A. Robison, K. L. O'Neill.

2010 Poster presentation at the 101st annual meeting of the American Association for Cancer Research, April 17-21, Washington DC., entitled, 'Antioxidant studies on the Peruvian cherimoya fruit give an insight into the healthy lifestyle of the Incas.' G. Gupta Elera, J. Whitaker, J. Chauca, R. Robison, and Kim O'Neill.

2010 Poster presentation at the 101st annual meeting of the American Association for Cancer Research, April 17-21, Washington DC., 'Changes in Antioxidant capacities of isolated radish components during growth. J. Whitaker, E. Giraldez, J. Loong, J. Wagstaff, R Robison and K.L. O'Neill.

2010 Poster presentation at the 101st annual meeting of the American Association for Cancer Research, April 17-21, Washington DC., 'Inhibition of M1 Macrophages May Aid the Conversion Process to M2, which May Aid Tumor Survival.' R.A. Enz, C. Knechtel, A.D. Enz, B. Swanson, E. Giraldez, R. Robison, and K.L. O'Neill.

2010 Oral presentation at the annual conference of the American Association for the Advancement of Science (AAAS) Pacific Division on June 15, 2010: entitled, 'Localization of Thymidine Kinase 1 in Human Lymphoma Cells through Immunogold Labeling Transmission Electron Microscopy.' Moragn Hardy and K.L. O'Neill.

2010 Poster presentation at the annual conference of the American Association for the Advancement of Science (AAAS) Pacific Division on June 15, 2010: entitled, 'Can drinking tea prevent cancer?' J. Loong, R. Robison and K. l. O'Neill

2010 Oral Presentation at the 35th Annual Biological Sciences Undergraduate Research Conference Saturday, April 24, 2010, Santa Clara University. California, entitled, 'Release of MIF by Aggressive Adenocarcinoma cell lines May Be an Initial Step in the Polarization of Macrophages.'
B.S. Hendriksen, R.A. Enz, C. Knechtel, A.D. Enz, B. Swanson, R. Robison, and K.L. O'Neill.

2010 Oral Presentation at the 35th Annual Biological Sciences Undergraduate Research Conference Saturday, April 24, 2010, Santa Clara University. California, entitled, 'A Novel Target for Cancer Immunotherapy.' D. E. Estevez, R. Whitehurst, J. D. Evans, M. Tovar, R. A. Robison, and K. L. O'Neill.

2010 Presented talk at the 8th Annual ASM Biodefense and Emerging Disease Research Meeting. February 21-24, 2010. Baltimore, MD. Entitled,'A multiplex real-time PCR assay for the detection and differentiation of *Francisella tularensis* subspecies.' Gunnell, M.K., C.D. Carter, W.S. Jonas, B.A. Satterfield, E.A. Moore, K.L. O'Neill, and R.A. Robison

2010 Presented talk at the 3rd Annual Biothreat Agents Workshop. March 15, 2010. Charlotte, NC. Entitled, 'A multiplex real-time PCR assay for the detection and differentiation of *Francisella tularensis* subspecies.' Gunnell, M.K., C.D. Carter, W.S. Jonas, B.A. Satterfield, E.A. Moore, K.L. O'Neill, and R.A. Robison

2010 Presented Poster at the Intermountain Branch of the American Society for Microbiology Annual Meeting. Abstract #39, p.12, April 10, 2010. Provo, UT. entitled, 'Improved recovery of spores from coated carriers used in the AOAC Sporicidal Activity of Disinfectants (Method II) spore enumeration method, by the addition of a surfactant to the rinse solution.' Bills, T.M., Q.C. Shepherd, A.J. Blam, E.A. Moore, J. Gardner, B. Schaalje, K.L. O'Neill, and R.A. Robison (Note: T.M. Bills won first place in the student poster presentation competition.)

2010 Presented poster at the General Meeting of the American Society for Microbiology, Session 329/Q, Abstract # Q-3097/176, p. 218. May 27, 2010. San Diego, CA. Entitled, 'Improved recovery of spores from coated carriers used in the AOAC Sporicidal Activity of Disinfectants (Method II) spore enumeration method, by addition of a surfactant to the rinse solution.' Bills, T.M., Q.C. Shepherd, A.J. Blam, E.A. Moore, J. Gardner, B. Schaalje, K.L. O'Neill, and R.A. Robison

2010 Presented poster at the General Meeting of the American Society for Microbiology, Session 329/Q, Abstract # Q-3111/190, p. 218. May 27, 2010. San Diego, CA. 'Susceptibility of native and synthetic HPV16 virions to clinical disinfectants'. Meyers, J.M., E. Ryndock, M.J. Conway, K.L. O'Neill, C.M. Meyers, and R.A. Robison.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster

Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'Localization of several potential biomarkers in various types of cancer'. Ballantines F Alegre, Melissa M Alegre, Morgan S Hardy,Richard A Robison, Kim L O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'Assessing the therapeutic and diagnostic potential of human thymidine kinase 1 in leukemia." Dagoberto Estevez, Robert A. Whitehurst, Daniel W. Sharp, Richard A. Robison, and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'Microsphere engulfment by macrophages when exposed to breast and colon tumor microenvironments' David Griffin, Ryan Quinton, Burke Hendricks, Brock Hansen, Paul Montoya, Atif El Naggar, Richard Robison, and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'Measuring TK1 autoantibodies in the serum of cancer and non-cancer patients' Wesley D LaPorte, Taylor Abegg-Lawrence, Melissa M. Alegre, Richard A. Robison, and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'Visualization of Thymidine Kinase 1 on the surface of cancer cell lines: a potential diagnostic marker and therapeutic target.' Robert A. Whitehurst, Dagoberto Estevez, Daniel W. Sharp, Melissa Alegre, Richard A. Robison, and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 ''Thymidine kinase 1, a novel biomarker specific to the plasma membrane of cancerous cell lines.' Daniel W. Sharp, Dagoberto Estevez, Robert A. Whitehurst, Melissa M. Alegre, Brit L. Germann, Joshua W. Foster, Richard A. Robison and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'Macrophage Aggressiveness in the Tumor Microenvironment.' Ryan Quinton, David Griffin, Melissa Alegre, Richard A. Robison, and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, FLorida, 2 April, 2011 'Raji antioxidant uptake of exotic fruit juices increases following pre-exposure to oxidative stress.' Andrés D. Martínez, Andrew R. Garrett, Timothy C. Michaelis, José M. Peña, Richard A. Robison and Kim L. O'Neill.

2011 Presented a poster at the 6th Annual Undergraduate Student Caucus and Poster Competition, American Association for Cancer Research (AACR), Orlando, Florida, 2 April, 2011 'The Organic Panic'. Jacob R. Jensen, Andrew R. Garrett, Ryan D. Kraus, Kylie Measom, Matthew Gillam, Richard A. Robison, and Kim L. O'Neill.

2011 Presented a poster at the American Association of Cancer Research Meeting 102nd annual meeting held April 2-6, 2011 in Orlando, Florida. “Assessing the therapeutic and diagnostic potential of human thymidine kinase 1 in leukemia.” Dagoberto Estevez, Robert A. Whitehurst, Daniel W. Sharp, Richard A. Robison, and Kim L. O’Neill.

2011 Presented a poster at the 102nd Annual Meeting of the American Association for Cancer Research, April 2-6, 2011, Orlando, Florida. Entitled "Microsphere engulfment by macrophages when exposed to breast and colon tumor microenvironments" David Griffin, Ryan Quinton, Burke Hendricks, Brock Hansen, Paul Montoya, Atif El Naggar, Richard Robison, and Kim L. O'Neill.

2011 Presented a poster at the 102nd Annual meeting of the American Association for Cancer Research, April 2-6, 2011, Orlando, Florida. Entitled "Measuring TK1 autoantibodies in the serum of cancer and non-cancer patients" Wesley D LaPorte, Taylor Abegg-Lawrence, Melissa M. Alegre, Richard A. Robison, and Kim L. O’Neill.

2011 Presented a poster at the American Association of Cancer Research Meeting 102nd annual meeting held April 2-6, 2011 in Orlando, Florida “Visualization of Thymidine Kinase 1 on the surface of cancer cell lines: a potential diagnostic marker and therapeutic target” Robert A. Whitehurst, Dagoberto Estevez, Daniel W. Sharp, Melissa Alegre, Richard A. Robison, and Kim L. O’Neill.

2011 Presented a poster at the American Association of Cancer Research Meeting 102nd annual meeting held April 2-6, 2011 in Orlando, Florida. ‘Thymidine kinase 1, a novel biomarker specific to the plasma membrane of cancerous cell lines.’ Daniel W. Sharp, Dagoberto Estevez, Robert A. Whitehurst, Melissa M. Alegre, Brit L. Germann, Joshua W. Foster, Richard A. Robison and Kim L. O’Neill.

2011 Presented a poster at the American Association of Cancer Research Meeting 102nd annual meeting held April 2-6, 2011 in Orlando, Florida. ‘Localization of Several Potential Biomarkers in Various Types of Cancer. Ballantines F Alegre, Melissa M Alegre, Morgan S Hardy, Richard A Robison, Kim L O’Neill.

2011 Presented a poster at the American Association of Cancer Research Meeting 1102nd annual meeting held April 2-6, 2011 in Orlando, Florida. ‘Macrophage Aggressiveness in the Tumor Microenvironment.” Ryan Quinton, David Griffin, Melissa Alegre, Richard A. Robison, and Kim L. O’Neill.

2011 Presented a poster at the American Association of Cancer Research Meeting 102nd annual meeting held April 2-6, 2011 in Orlando, Florida. ‘The Organic Panic’. Jacob R. Jensen, Andrew R. Garrett, Ryan D. Kraus, Kylie Measom, Matthew Gillam, Richard A. Robison, and Kim L. O’Neill.

2011 Presented an oral presentation at the American Society for Microbiology, Intermountain Branch meeting, April 9, 2011 in Ogden Utah. ‘Power juices: The role of exotic, anti-oxidant fruit juices in preventing cancer. Timothy C. Michaelis, Andres D. Martinez, Andrew R. Garrett, Jose M. Pena, Richard A. Robison and Kim L. O’Neill.

2011 Presented an oral presentation at the American Society for Microbiology, Intermountain Branch meeting, April 9, 2011 in Ogden Utah. ‘Antioxidant Levels in Blueberries: Are Organic Better Than Conventional?’ Ryan D. Kraus, Jacob R. Jensen, Andrew R. Garrett, Richard A. Robison, and Kim L. O’Neill.

*This presentation won a first-place award at the conference.

2011 Presented an oral presentation at the American Society for Microbiology, Intermountain Branch meeting, April 9, 2011 in Ogden Utah. 'Cancer Patients Possess Lower Serum Antioxidant Levels than Age Matched Healthy Subjects' Adam Grooms and Kim L. O'Neill.

2011 Presented an oral presentation at the American Society for Microbiology, Intermountain Branch meeting, April 9, 2011 in Ogden Utah. 'Macrophage Phagocytic Activity in the Tumor Microenvironment of Multiple Cancer Cell Lines.' Ryan J. Quinton and Kim L. O'Neill.

2011 Invited speaker at The Gift of Life and Breath Research Conference, University of Colorado Health Science Center, Aurora, CO May 3rd 2011, Talk entitled, 'TK1 the Story so Far.' Kim O'Neill

2011 Invited speaker at The Gift of Life and Breath Research Conference, University of Colorado Health Science Center, Aurora, CO May 3rd 2011, Talk entitled: A TK1 Sandwich ELISA, an early detection for lung cancer
Melissa Alegre, and Kim L O'Neill.

2011 Invited speaker at The Gift of Life and Breath Research Conference, University of Colorado Health Science Center, Aurora, CO May 3rd 2011, Talk entitled "TK1 Staining in Tumor Tissues" B. Fabrizio Alegre, Melissa Alegre, and Kim L O'Neill.

2011 Invited speaker at The Gift of Life and Breath Research Conference, University of Colorado Health Science Center, Aurora, CO May 3rd 2011, Talk entitled "A Breath of Fresh Air: TK1 is a Membrane Target for Lung Cancer Detection and Treatment." B.Germann, Melissa Alegre, and Kim L O'Neill.

2011 Invited speaker at the Univeristy of Colorado Health Sciences SPORE meeting, University of Colorado Health Science Center, Aurora, CO May 3rd 2011 talk entitled: Biomarkers in Cancer Research. Kim L O'Neill.

2012 Presented a poster at the Undergraduate Caucus of the Annual Meeting of the American Association for Cancer Research in Chicago April 2012, entitled,' S2AMN: A potential non-toxic anti-cancer therapy. A. M. El- Naggar[1,2], A. M. Chavez[1], E. C. PUneterson[1], R.Kuttab[1], R. A. Robison[1] and K. L. O'Neill[1]

2012 Presented a poster at the Undergraduate Caucus of the American Association for Cancer Research in Chicago April 2012, entitled, 'Blueberries: Conventional Cancer Prevention. Ryan D. Kraus, Andreas Martinez, Kylie Measom, Matt Gill, Gupta Gaytri, Andrew Garrett, Richard Robison, and Kim L. O'Neill.

2012 Presented a poster at the Undergraduate Caucus of the American Association for Cancer Research in Chicago April 2012, entitled, 'How 'Bout them Apples? Kylie Measom, Andrés D. Martinez, Erin M. Sharp, Timothy C. Michaelis, Kim L. O'Neill.

2012 Presented a poster at the Undergraduate Caucus of the American Association for Cancer Research in Chicago April 2012, entitled, 'Fortunella margarita: The little gold gem of the citrus family. James N. McCoy, Adam J. Grooms, Joshua Emerson, Ryan D. Kraus, Andres Martinez, Atif Elnaggar, Kim L. O'Neill.

2012 Presented a poster at the Undergraduate Caucus of the American Association for Cancer Research in Chicago April 2012, entitled, 'Differences in Intracellular Antioxidant Levels between Healthy and Cancerous Lymphocytes Adam J. Grooms, James N. McCoy, Atif Elnaggar, Michael Q. Sanderson, Andrew R. Garrett, and Kim L. O'Neill.

2012 Presented a poster at the Undergraduate Caucus of the American Association for Cancer Research in Chicago April 2012, entitled, 'Setting the Clock: Tumor TK1 is a Prognostic Marker for Disease Recurrence. M. Alegre[1], B. Germann[1], M. Leavitt[2], D. Eggett[3], N. Killpack[2], S. Burton[1], A. Orton[2], C. Leavitt[2] and K. L. O'Neill[1]

2012 Presented poster at the Annual meeting of the American Association for Cancer Research in Chicago April 2012, entitled,' S2AMN: A potential non-toxic anti-cancer therapy. A. M. El-Naggar[1,2], A. M. Chavez[1], E. C. Peterson[1], R.Kuttab[1], R. A. Robison[1] and K. L. O'Neill[1]

2012 Presented poster at the Annual meeting of the American Association for Cancer Research in Chicago April 2012, entitled, 'Blueberries: Conventional Cancer Prevention. Ryan D. Kraus, Andreas Martinez, Kylie Measom, Matt Gill, Gupta Gaytri, Andrew Garrett, Richard Robison, and Kim L. O'Neill.

2012 Presented poster at the Annual meeting of the American Association for Cancer Research in Chicago April 2012, entitled, 'How 'Bout them Apples?
Kylie Measom, Andrés D. Martinez, Erin M. Sharp, Timothy C. Michaelis, Kim L. O'Neill.

2012 Presented poster at the Annual meeting of the American Association for Cancer Research in Chicago April 2012, entitled, 'Setting the Clock: Tumor TK1 is a Prognostic Marker for Disease Recurrence. M. Alegre[1], B. Germann[1], M. Leavitt[2], D. Eggett[3], N. Killpack[2], S. Burton[1], A. Orton[2], C. Leavitt[2] and K. L. O'Neill[1]

2012 Presented poster at the Keystone Symposia on Molecular and Cellular Biology meeting entitled The Role of Inflammation during Carcinogenesis, Dublin Ireland May 20-25, 2012 entitled, 'A Tumor Microenvironment Rich in Macrophages could be Aiding Metastasis' K.L. O'Neill, A Clement, A. El-Naggar and R. Robison.

2012 Presented talk at the Intermountain Branch of the American Society for Microbiology Annual Meeting. Oral Session 1, Abstract #3, p.4, April 7, 2012. Pocatello, ID. Entitled, 'Comparative analysis of established DNA quantification methods.' Drake, D., C. Grandela, K.L. O'Neill, and R.A. Robison.

2012 Presented talk at the Intermountain Branch of the American Society for Microbiology Annual Meeting Oral Session 2, Abstract #6, p.7, April 7, 2012. Pocatello, ID. Entitled, 'Quantitative real-time multiplex PCR assay for rapid detection and discrimination of *Burkholderia pseudomallei* and *Burkholderia thailandensis* Lowe, C-W**.** B.A. Satterfield, J.K. March, A.B. Bunnell, K.L. O'Neill, and R.A. Robison.

2012 Presented talk at the Intermountain Branch of the American Society for Microbiology Annual Meeting Oral Session 2, Abstract #7, p.7, April 7, 2012. Pocatello, ID. Entitled, 'The susceptibility of *Bacillus subtilis, Clostridium sporogenes,* and virulent *Bacillus anthracis* spores to peracetic acid- and glutaraldehyde-based disinfectants.' March, J.K., M.D. Pratt, G.B. Schaalje, C-W. Lowe, A.B. Bunnell, K.L. O'Neill, and R.A. Robison.

2012 Presented poster at the General Meeting of the American Society for Microbiology, Session 114/Q, Abstract # 1510, p. 160. June 18, 2012. San Francisco, CA. Entitled,' Differential effects of heat-shocking *Bacillus subtilis, Clostridium sporogenes,* and virulent *Bacillus anthracis* spores following disinfectant treatment.'March, J.K., M.D. Pratt, G. B. Schaalje, CW Lowe, A.B. Bunnell, K.L. O'Neill, and R.A. Robison.

2012 Presented poster at the General Meeting of the American Society for Microbiology, Session 126/C, Abstract # 1721, p. 170. June 18, 2012. San Francisco, CA. Entitled,'

A real-time multiplex PCR assay for rapid identification and differentiation of *Burkholderia pseudomallei* and *Burkholderia thailandensis*.' Lowe, C-W**, B.A.** Satterfield, J.K. March, A.B. Bunnell, K.L. O'Neill, and R.A. Robison.

2012 Presented poster at the 41st Annual Meeting of the Autumn Immunology Conference, entitled, 'Caffeine affects Macrophage Engulfment'. Steck, R., E. Weagel, M. Gustafsson, P. Liu, A. Elnaggar, and K.L. O'Neill. November 16-19, Chicago, Illinois.

2013 Presented talk at the Annual American Society of Microbiology Branch Meeting Idaho State University, March 9th 2013, entitled, 'Macrophages may be polarized by apoptotic and necrotic cancer cells.' Livingston, J. Lee.E.J. Barlow, S. El-Naggar, A.M. Liu, P. Robison, R. A. and O'Neill K.L.

2013 Presented talk at the 41st Annual Meeting of the Autumn Immunology Conference, entitled, 'Caffeine affects Macrophage Engulfment'. E. Weagel, R. Steck, M. Gustafsson, P. Liu, A. Elnaggar, and K.L. O'Neill. November 16-19, Chicago, Illinois.

2013 Presented talk at the intermountain Branch meeting of the American Society of Microbiology at Idaho State University, Pocatello, Idaho, March 9TH 2013 entitled,' Macrophages may be polarized by apoptotic and necrotic cancer cells. Livingston, J., Lee E. J., Barlow, S., El-Naggar, A. M., Weagel, E., Liu, P., Robison R., O'Neill, K. L. This presentation (by one of my undergraduates) won first prize in the graduate competition.

2013 Presented poster at the 8th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), Washington DC, April 5-10th 2013, entitled 'The Potential of Resveratrol and *Nagami Kumquat* extracts in facilitating DNA repair in Raji cells'. Albert V. Helsing[1], Atif Elnaggar[1, 2], Philip Lynch[3], Michael Xiao[1], Madison Ramsden[1], B. Fabrizio Alegre[1], Evita Weagel[1], James N. McCoy[1], Richard A. Robison[1], and Kim L. O'Neill.

2013 Presented poster at the 8th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), Washington DC, April 5-10th 2013, entitled 'Cytototoxicity and mode of action of two lichen extracts, *Tuckermannopsis ciliaris* and *Xanthoparmelia chlorochroa* against Burkitt's Lymphoma (Raji) cell and Human colon cancer cell line (HT-29)' Shrestha, G.[1,2], El-Naggar, A. M.[3,4], Boswell, M. R.[3], Derenthal, S. C.[3], Weagel, E.[3], St. Clair, L. L.[1,2], Robison, R.[3], and O'Neill, K. L.[3]

2013 Presented poster at the 8th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), Washington DC, April 5-10th 2013, entitled 'Thymidine kinase 1 as a possible therapeutic target in Burkitt's lymphoma' C. A. Hamilton, J. J. Bell, S. R. Burton, C. R. Madsen, M. K. Ramsden, S. C. Derenthal, P. Liu, R. Robison, & K.L. O'Neill.

2013 Presented poster at the 8th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), Washington DC, April 5-10th 2013, entitled 'Apoptotic and Necrotic Signals May Modulate Macrophage Polarization'. E. J. Lee [1], S. Barlow[1],

A.M. El-Naggar,[1, 2] E. Weagel[1], P.G. Liu[1, 3] , J. Livingston[1], R. Robison [1], and K.L O'Neill[1]

2013 Presented poster at the 8th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), Washington DC, April 5-10th 2013, entitled 'Mutagenic effects of inorganic particulate matter on Raji and HepG2 cell lines exposed to ultraviolet radiation'. Michael Xiao[1, 2], Atif El-Naggar[1, 3], Albert V. Helsing[1], Philip M. Lynch[4], Melissa M. Alegre[1], Richard A. Robison[1], and Kim L. O'Neill[1]

2013 Presented poster at the 8th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), Washington DC, April 5-10th 2013, entitled 'Differences in cellular antioxidant activity in Burkitt's lymphoma and normal human lymphocytes'. Evita G. Weagel[1], Andres Martinez[1], Atif ElNaggar[1], Sean Ellis[1], Ping Guo Liu[2], Richard A. Robison[1], and Kim L. O'Neill[1].

2014 Presented poster at the Midwinter Conference of Immunologists, Asilomar Conference Grounds, Pacific Grove, CA. January 25th -28th entitled, "Metastatic Breast Cancer Polarizes Macrophages to an M2 Phenotype." Gajendra Shrestha, Evita Weagel, Justin Livingston, Larry St. Clair, Richard Robison, Kim O'Neill

2014 Presented poster at the Midwinter Conference of Immunologists, Asilomar Conference Grounds, Pacific Grove, CA. January 24th -27th, entitled, "Pharmacoregulation of inflammation in monocyte-derived macrophages." R. Steck, S. Hill, R. Robison, and K. L. O'Neill

2014 Presented poster at the Midwinter Conference of Immunologists, Asilomar Conference Grounds, Pacific Grove, CA. January 25th -28th, entitled, "Apoptotic and Necrotic Cancer Cells Differentially Affect Macrophage Aggressiveness." Justin Livingston, Gajendra Shrestha, Eugene Lee, Evita Weagel, and Kim O'Neill

2014 Presented talk at the American Society for Microbiology branch meeting, Brigham Young University March 8th 2014, entitled, 'Macrophage polarization by necrotic and apoptotic cancer cells.' C. Tellez, K. Williams, E. Weagel, K. O'Neill and S. Weber.

2014 Presented poster at the American Society for Microbiology branch meeting, Brigham Young University March 8th 2014, entitled, 'How does the tumor microenvironment affect macrophage aggressiveness? W Meng, C. Smith, R. Robison, and K. L. O'Neill.

2014 Presented poster at the American Society for Microbiology branch meeting, Brigham Young University March 8th 2014, entitled, 'Macrophage aggressiveness in cancer patients.' S. Hill, E, Weagel, R. Steck, J. Livingstone, M. Larsen, R. Robison, and K. L. O'Neill.

2014 Presented poster at the American Society for Microbiology branch meeting, Brigham Young University March 8th 2014, entitled, 'Piceatannol and Pterostillbene: Resveratrol analogs. Potent antioxidants.' J. Peterson, J. Livingstone, B. Graham, L. Camberos, G. Martinez, G. Shrestha, A. Martinez, E. Weagel, R. Robison, and K. L. O'Neill.

2014 Presented oral presentation at the Pittcon annual meeting Chicago, IL. March 2014 "Development of a Microfluidic Device Assay for Isoforms of a Serum Protein Cancer Biomarker Using a Novel Antibody."J. Pagaduan, M. Ramsden, S. Derenthal, K.L. O'Neill, and A.Woolley.

2014 Presented poster at the 9th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego CA, April 5-10th 2014, entitled 'Effects of Resveratrol on chemotherapeutic agent 5-fluorouracil induced DNA damage in prostate and breast cancer cells." Michael Xiao, Irene Yeung, Gaju Shrestha Luis Camberos, Richard A. Robison, and Kim L. O'Neill

2014 Presented poster at the 9th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego CA, April 5-10th 2014, entitled 'Detection of stage one lung cancer using a novel ELISA for thymidine kinase 1.' Madison K Ramsden; Melissa M Alegre; Michael J Weyant, Daine T Bennett; Jessica A Yu; Atif Elnaggar, Richard A Robison, Kim L O'Neill.

2014 Presented poster at the 9th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego CA, April 5-10th 2014, entitled 'Lichen-derived Polyphenols as a Potential Source of Anticancer Drugs.' Gajendra Shrestha, Micaeal Xiao Richard Robison, Larry L. St. Clair, and Kim L. O'Neill

2014 Presented poster at the 9th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego CA, April 5-10th 2014, entitled 'Pharmacological reversal of caffeine-mediated phagocytic suppression.' Ryan Steck, Spencer Hill, Richard A. Robison, Kim L. O'Neill.

2014 Presented poster at the 9th Annual Undergraduate Student Caucus and Poster Competition at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego CA, April 5-10th 2014, entitled 'Antioxidant studies on Cliantro show possible benefits in cancer prevention.'B. Bishop, E. Weagel, G. Shrestha, R. Robison, and K.L. O'Neill

2014 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego, CA April 5-10th 2014, entitled 'Effects of Resveratrol on chemotherapeutic agent 5-fluorouracil induced DNA damage in prostate and breast cancer cells." Michael Xiao, Irene Yeung,, Gaju Shrestha,, Luis Camberos, Richard A. Robison, and Kim L. O'Neill

2014 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego CA April 5-10th 2014, entitled 'Detection of stage one lung cancer using a novel ELISA for thymidine kinase 1.' Madison K Ramsden; Melissa M Alegre; Michael J Weyant; Daine T Bennett; Jessica A Yu; Atif Elnaggar, Richard A Robison, Kim L O'Neill.

2014 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego, CA. April 5-10th 2014, entitled 'Lichen-derived Polyphenols as a Potential Source of Anticancer Drugs.' Gajendra Shrestha, Micaeal Xiao Richard Robison, Larry L. St. Clair, and Kim L. O'Neill

2014 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), San Diego, CA. April 5-10th 2014, entitled 'Pharmacological reversal of caffeine-mediated phagocytic suppression.' Ryan Steck, Spencer Hill, Richard A. Robison, Kim L. O'Neill.

2014 Presented poster at the Annual Meeting of The American Association for Cancer

Research (AACR), San Diego, CA. April 5-10th 2014, entitled 'How does the tumor microenvironment affect macrophage aggressiveness?' Evita G.

2015 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'How does the tumor microenvironment affect macrophage aggressiveness?' Evita G. Weagel, Ping Guo Liu, Wei Meng, Curren D. Smith, Richard A. Robison, Kim O'Neill

2015 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Thymidine Kinase 1, a Possible Target for Immunotherapy'. Rachel Brog[1], Michelle Townsend[1], Jacquelyn Monroe[2], Jayson Pagaduan[1], Evita Weagel[1], Richard Robison[1], and Kim O'Neill[1]

2015 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Are Cancer Cells Redefining Macrophages' Aggressiveness? Elias Inga Jaco, Evita Weagel, Nicholas Anderson, Wei Meng, Josh Davis, Richard Robison, and Kim O'Neill

2015 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Prostate cancer microenvironment modulates macrophage phagocytosis'. Evita Weagel, Nicholas Anderson, Wei Meng, Josh Davis, Richard Robison, and Kim O'Neill

2015 Presented poster at the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Differences in cellular antioxidant activity in Burkitt's lymphoma and normal human lymphocytes'. Evita G. Weagel, Andres Martinez, Atif El Naggar, Ping Guo Liu, Richard Robison, and Kim O'Neill

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'How does the tumor microenvironment affect macrophage aggressiveness?' Evita G. Weagel, Ping Guo Liu, Wei Meng, Curren D. Smith, Richard A. Robison, Kim O'Neill

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Thymidine Kinase 1, a Possible Target for Immunotherapy'. Rachel Brog[1], Michelle Townsend[1], Jacquelyn Monroe[2], Jayson Pagaduan[1], Evita Weagel[1], Richard Robison[1], and Kim O'Neill[1]

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled, entitled 'Are Cancer Cells Redefining Macrophages' Aggressiveness? Elias Inga Jaco, Evita Weagel, Nicholas Anderson, Wei Meng, Josh Davis, Richard Robison, and Kim O'Neill.

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled, entitled 'Prostate cancer microenvironment modulates macrophage phagocytosis'. Evita Weagel, Nicholas Anderson, Wei Meng, Josh Davis, Richard Robison, and Kim O'Neill

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster

Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Differences in cellular antioxidant activity in Burkitt's lymphoma and normal human lymphocytes. Evita G. Weagel, Andres Martinez, Atif El Naggar, Ping Guo Liu, Richard Robison, and Kim O'Neill.

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'Usnic and Vulpinic Acids, Lichen derived metabolites, induce apoptosis in SW620 colon cancer cell line independeant of caspase -3' Derek abbott, Gajendra Shrestha Larry St Clair, Richard Robison, and Kim O'Neill.

2015 Presented poster at the Tenth Annual Undergraduate Student Caucus and Poster Competition of the Annual Meeting of The American Association for Cancer Research (AACR), Philadelphia, PA. April 5-10th 2015, entitled 'The antioxidant capacity and DNA repair effects of Resveratrol and its analogs: Picetannol and Pterostilbene'. Jake Peterson, Justin Livingstone, Gabriel Martinez, Connor Peck, Bret Thompson, Rachel, Uhl, Gajendra Shrestha and Kim O'Neill.

2016 Presented poster at the 55th Midwinter Conference of Immunologists at Asilomar Pacific Grove, CA, January, entitled, 'Breast Cancer Cells Suppress Macrophage Aggressiveness' R. A. Brog, E.G. Weagel, W. Meng, M.H. Townsend**,** E.J. Velazquez, R. A. Robison, K.L. O'Neill.

2016 Presented poster at the 55th Midwinter Conference of Immunologists at Asilomar Pacific Grove, CA, January, entitled, Macrophage Polarization in the Colon Cancer Tumor Microenvironment. Michelle Townsend, E.G.Weagel, W. Meng, R.A. Brog, E.J. Velazquez, R. A. Robison, K.L. O'Neill.

2016 Presented poster at the 55th Midwinter Conference of Immunologists at Asilomar Pacific Grove, CA, January, entitled, The Effect of Prostate Tumor Microenvironment on Macrophage Aggressiveness. W. Meng, E.G.Weagel, R.A. Brog, M.H. Townsend, E.J. Velazquez, , R. A. Robison, K.L. O'Neill.

2016 Poster presentation given at the 11th Annual Undergraduate Student Caucus and Poster Competition at the annual American Association for Cancer Research (AACR) April 2015 held in New Orleans, Louisiana. Presentation entitled "Thymidine kinase 1 is on the cell surface of prostate cancer cells." Evita G. Weagel, Roger P. Chu, Wei Meng, Rachel A. Brog, Michelle H. Townsend, Richard A. Robison, and Kim L. O'Neill.

2016 Presented poster at the 11th Annual Undergraduate Student Caucus and Poster Competition at the annual American Association for Cancer Research (AACR) April 2015 held in New Orleans, Louisiana. entitled 'Thymidine kinase 1 exposure on breast cancer cells uncovers a new target for immunotherapy.' T. A. L. Becker, R. A. Brog, E. G. Weagel, W. Meng, M. H. Townsend, E. J. Velazquez, C. A. Mejia, M. R. Downey, J. A. Arroyo, R. A. Robison, and K. L. O'Neill.

2016 Presented poster at the 11th Annual Undergraduate Student Caucus and Poster Competition at the annual American Association for Cancer Research (AACR) April 2015 held in New Orleans, Louisiana. Presentation entitled 'Glyphosate, a common weed killer may be carcinogenic. Anne R. Dunn[a], Michelle H. Townsend[a], Connor J. Peck[a], Wei Meng[a], Matthew Heaton[b], Richard A. Robison[a], and Kim L. O'Neill[a,*]

2016 Presented poster at the 11th Annual Undergraduate Student Caucus and Poster Competition at the annual American Association for Cancer Research (AACR) April 2015 held in New Orleans, Louisiana. Presentation entitled 'Killing cancer one cell at a time: Development and characterization of a novel antibody drug conjugate. Michael Xiao, Roger Chu, Jayson Pagaduan, and Kim L. O'Neill.

2016 Presented poster at the 11th Annual Undergraduate Student Caucus and Poster Competition at the annual American Association for Cancer Research (AACR) April 2015 held in New Orleans, Louisiana. Presentation entitled 'Cancer Immunotherapy: Could TK1 be Used as a Target for Colon Cancer? M. Townsend, E. G. Weagel, W. Meng, R.A. Brog, C. Chandler, R.A. Robison and K.L. O'Neill.

2016 Poster presentation and abstract publication at the AACR 107th annual meeting April 2016 held in New Orleans, Louisiana. Presentation entitled "Thymidine kinase 1 is on the cell surface of prostate cancer cells." Evita G. Weagel, Roger P. Chu, Wei Meng, Rachel A. Brog, Michelle H. Townsend, Richard A. Robison, and Kim L. O'Neill.

2016 Poster presentation and abstract publication at the AACR 107th annual meeting April 2016 held in New Orleans, Louisiana. entitled 'Thymidine kinase 1 exposure on breast cancer cells uncovers a new target for immunotherapy.' T. A. L. Becker, R. A. Brog, E. G. Weagel, W. Meng, M. H. Townsend, E. J. Velazquez, C. A. Mejia, M. R. Downey, J. A. Arroyo, R. A. Robison, and K. L. O'Neill.

2016 Poster presentation and abstract publication at the AACR 107th annual meeting April 2016 held in New Orleans, Louisiana. Presentation entitled 'Killing cancer one cell at a time: Development and characterization of a novel antibody drug conjugate. Michael Xiao, Roger Chu, Jayson Pagaduan, and Kim L. O'Neill.

2016 Poster presentation and abstract publication at the AACR 107th annual meeting April 2016 held in New Orleans, Louisiana. Presentation entitled 'Cancer Immunotherapy: Could TK1 be Used as a Target for Colon Cancer? M. Townsend, E. G. Weagel, W. Meng, R.A. Brog, C. Chandler, R.A. Robison and K.L. O'Neill.

2016 Oral presentation given to Impact Investing Group in Salt Lake City Utah on March 31, 2016 entitled, "TK1 as a novel biomarker for cancer treatment."

2016 Poster Presentation given at the American Society for Microbiology Intermountain Branch Meeting held on April 23, 2016 at the University Of Utah School Of Medicine, Salt Lake City, Utah entitled, "A Study on Glyphosate Carcinogenicity." Seth Hill, Michelle Townsend, Connor Peck, Taylor Nicholls, Wei Meng, Matthew Heaton, Richard Robison, and Kim O'Neill.

2016 Oral Presentation given to the Salt Lake City Angels in Salt Lake City Utah on May 10, 2016 entitled, "TK1 and its impact on Future Cancer Treatment."

2016 Presented poster at the Beatson International Cancer Conference July 3-7th Glasgow, Scotland, entitled, 'The effects of prostate cancer exosomes on macrophage engulfment and polarization.' E. G. Weagel, W. Meng, R. A. Robison, and K. L. O'Neill

2017 Poster presentation at the 2017 January Midwinter conference of immunologists in Asilomar, California entitled, "Is Interleukin-10 a key factor in colon cancer metastasis?" Michelle H. Townsend, Abi M. Felsted, Edwin J. Velazquez, Evita G. Weagel, Richard A. Robison, and Kim L. O'Neill.

2017 Poster presentation and abstract publication at the American Association for Cancer

Research 108th annual meeting April 2017 held in Washington D.C. Presentation entitled, "HPRT Expression in Breast Carcinoma and its use as a Diagnostic Biomarker." Michelle H. Townsend, Abigail M. Felsted, Jacob Clarke, Richard Robison,and Kim O'Neill.

2017 Poster presentation at the AACR Annual Undergraduate Meeting and Student Caucus April 2017 held in Washington D.C. Presentation entitled "Diagnostic Potential and Expression o f HPRT in Breast Cancer." Michelle H. Townsend, Abigail M. Felsted, Jacob Clarke, Richard Robison, and Kim O'Neill.

2017 Poster presentation at the 2017 American Association for Cancer Research Undergraduate Student Caucus and Poster Competition in Washington D.C. Presentation entitled, 'HPRT: Could it be used as a biomarker for future immunotherapies?' Michelle H. Townsend**,** Weston Burrup, Evita Weagel, Abigail Felsted, Michael D. Anderson, Edwin J. Velazquez, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill.

2017 Poster presentation at the 2017 American Association for Cancer Research Undergraduate Student Caucus and Poster Competition in Washington D.C. Presentation entitled, 'Biomarker analysis of salvage pathway enzymes for the treatment of lung cancer" Michelle H. Townsend, Abigail Felsted, Evita G. Weagel, Edwin J. Velazquez, Richard A. Robison, and Kim L. O'Neill**.**

2017 Poster presentation at the 2017 American Association for Cancer Research Undergraduate Student Caucus and Poster Competition in Washington D.C. Presentation entitled, "Resveratrol and pterostilbene selectively chemosensitize Burkitt's lymphoma cells to 5-Flourouracil." Connor J. Peck, Michelle H. Townsend, and Kim L. O'Neill.

2017 Poster presentation and abstract publication at the AACR 108th annual meeting April 2017 held in Washington D.C. Presentation entitled, "The expression of salvage pathway enzymes in non-small cell lung cancer cells." Michelle H. Townsend, Evita G. Weagel, Michael D. Anderson, Edwin J. Velazquez, Richard A. Robison, and Kim L. O'Neill.

2017 Poster presentation and abstract publication at the AACR 108th annual meeting April 2017 held in Washington D.C. Presentation entitled, "Resveratrol and pterostibene selectively chemosensitize Burkitt's lymphoma cells to 5-Fluorouracil." Connor J. Peck, Michelle H. Townsend, and Kim L. O'Neill.

2017 Poster presentation and abstract publication at the AACR 108th annual meeting April 2017 held in Washington D.C. Presentation entitled, "Development of a TK1 specific chimeric antigen receptor T-cell for the treatment of non-small cell lung cancer." Edwin J. Velazquez, Kiara Vaden, Michelle H. Townsend, Evita G. Weagel, Scott weber, Richard A. Robison, and Kim L. O'Neill.

2017 Poster presentation and abstract publication at the AACR 108th annual meeting April 2017 held in Washington D.C. Presentation entitled, "Unusual HGPRT expression on the surface of the colorectal cancer cell lines HT29 and SW620." Michelle H. Townsend, Michael D. Anderson, Evita G. Weagel, Edwin J. Velazquez, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill.

2017 Poster presentation and abstract publication at the AACR 108th annual meeting April 2017 held in Washington D.C. Presentation entitled, "Salvage pathway enzyme HPRT as a molecular marker for Burkitt's Lymphoma." MH Townsend, JE Lattin, MD

Anderson, AM Felsted, E Weagel, E Velasquez, R Robison, KL O'Neill.

2017 Presented at the American Society of Microbiologists Intermountain Branch 2017 Meeting in Ogden Utah, Presentation entitled, 'HPRT: a promising biomarker for diagnosing and treating colorectal cancer" Michelle H. Townsend, Abigail M. Felsted, Evita G. Weagel, Edwin J. Velazquez, Richard A. Robison, and Kim L. O'Neill.

2017 Presented at the American Society of Microbiologists Intermountain Branch 2017 Meeting in Ogden Utah, Presentation entitled, 'Metastatic colorectal cancer tumors express higher levels of IL-10 than primary colorectal tumors.' Michelle H. Townsend, Eric Olson, Abigail Felsted, Richard A. Robison, and Kim L. O'Neill.

2017 Presented at the American Society of Microbiologists Intermountain Branch 2017 Meeting in Ogden Utah, Presentation entitled, 'Evaluation of Hypoxanthine Guanine Phosphoribosyltransferase expression in prostate cancer and it's implication on therapy.' Michelle H. Townsend, Taylor D. Brindley, Abigail M. Felsted, Evita G. Weagel, Edwin J. Velazquez, Richard A. Robison, and Kim L O'Neill.

2017 Presented at the American Society of Microbiologists Intermountain Branch 2017 Meeting in Ogden Utah, Presentation entitled, 'A pre-clinical study of chimeric antigen receptor (CAR) T cells targeting Thymidine Kinase 1 (TK1) in lung cancer cell lines.' Edwin J. Velazquez, Zachary D. Ewell, Jake E. Lattin, Kiara Vaden, Michelle H. Townsend, Evita G. Weagel, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill.

2017 Presented talk at the Autumn Immunology meeting Chicago November 2017 entitled, 'Generation and metabolic characterization of TK-1 specific 2nd and 3rd Generation CAR Vectors Josie A. Tueller, Kiara V. Whitley, Edwin J. Velazquez, Evita G. Weagel, Kim L. O'Neill, and K. Scott Weber

2018 Invited talk given to a Clinical Anatomy of Cancer seminar on April 6, 2018 entitled, "Cancer biomarkers as targets for immunotherapy."

2018 Invited speaker at the Office Professionals Association Conference, (OPAC) Talk entitled 'From Ireland to Utah, why did I come to BYU?' Room 3380 WSC March 16th 2018.

2018 Surface Localization of HPRT and it's implication as an immunotherapy target for B cell malignancies. Michelle H. Townsend, Abigail M. Felsted, Taylor P. Cox, Zachary E. Ence, John E. Lattin, Michael K. Boyer, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Presented at the 2018 Simmons Center for Cancer Research Annual Donor Appreciation Dinner held in Provo, Utah.

2018 Mechanistically Minded: A study of the surface co-localization of salvage pathway enzymes. Michelle H. Townsend, Kelsey Bennion, Evita Weagel, Kiara Whitley, Edwin Velazquez, Scott Weber, and Kim O'Neill. Presented at the 2018 National Symposium for Undergraduate Research hosted by St. Jude Children's Research Hospital in Memphis, Tennessee.

2018 HPRT's surface expression and biochemical connection tp53 in prostate cancer. Michelle H. Townsend, Taylor P. Cox, Abigail M. Felsted, John E. Lattin, Zac Ence, Richard A. Robison, Stephen R. Piccolo, and Kim L. O'Neill. Presented at the 2018 BYU Biomedical Symposium held in Provo, Utah.

2018 HPRT Upregulation in cancer and its potential use as a diagnostic and prognostic biomarker. Michelle H. Townsend, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Presented at the 2018 BYU Biomedical Symposium held in Provo Utah.

2018 Potential B cell malignancy biomarker: the upregulation and surface expression of hypoxanthine guanine phosphoribosyltransferase. Michelle H. Townsend, Kelsey A. Bennion, Abigail M. Felsted, Taylor P. Cox, Zac E. Ence, John E. Lattin, Michael K. Boyer, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Presented at the 2018 BYU Biomedical Symposium held in Provo Utah.

2018 Evaluating HPRT as a potential Immunotherapeutic target in colon cancer cells. Michelle H. Townsend, Thomas B. Clay, Abigail M. Felsted, Weston Burrup, Evita G. Weagel, Edwin J. Velazquez, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. Presented at the 2018 BYU Biomedical Symposium held in Provo Utah.

2018 Evaluation of the upregulation and surface presentation of HPRT as an immunotherapy target for the treatment of B cell malignancies. Michelle H. Townsend, Zach E. Ence, Taylor P. Cox, John E. Lattin, Weston Burrup, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Presented at the 2018 Cancer and Immunotherapy Symposium at the American Association of Cancer Research Annual Meeting held in Chicago, Illinois.

2018 Evaluation of TGF-β and IL-10 as potential prognostic biomarkers in primary and metastatic colorectal adenocarcinoma. Michelle H. Townsend, Taylor Brindley, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L O'Neill. Presented at the 2018 American Association of Microbiologist Tri-Branch Meeting in Durango, Colorado.

2018 Upregulation of housekeeping HPRT1 gene in malignancies hinders subsequent use as endogenous control. Michelle H. Townsend, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Presented at the 2018 President's Leadership Council semi-annual meeting in Provo, Utah.

2018 Expression of IL-10 and TGF-B in Primary and Metastatic Colorectal Adenocarcinoma Tumors. Michelle H. Townsend, Taylor D. Brindley, Rachel A. Uhl, Abigail M. Felsted, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Determining the Molecular Mechanism of HPRT Surface Expression in Prostate Cancer. Michelle H. Townsend, Taylor P. Cox, Abigail M. Felsted, John E. Lattin, Zac Ence, Richard A. Robison, Stephen R. Piccolo, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Evaluation of Potential Protein Biomarkers for Burkitt's Lymphoma. Michelle H. Townsend, Zachary D. Ewell, Zachary Ence, Weston Burrup, Edwin J. Velazquez, Richard A. Robison, Stephen R. Piccolo, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Unusual HPRT1 Upregulation in Malignant Tissue and Potential Use as a Diagnostic Biomarker. Michelle H. Townsend, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Evaluating surface expression of the nucleotide salvage pathway enzyme HPRT on colorectal cancer cells. Michelle H. Townsend, Thomas Clay, Abigail M. Felsted,

Weston S. Burrup, Evita G. Weagel, Edwin J. Velazquez, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 HPRT surface localization on prostate cancer cells as a biomarker for Immunotherapy. Michelle H. Townsend, Abigail M. Felsted, Taylor P. Cox, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation and *abstract publication* at the AACR 109th annual meeting April 2018 in Chicago, IL.

2018 IL-10 as an indicator of metastatic potential in colorectal carcinoma Michelle H. Townsend, Taylor P. Cox, Abigail M. Felsted, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation and *abstract publication* at the AACR 109th annual meeting April 2018 in Chicago, IL.

2018 Unique HPRT1 upregulation in malignant tissue: Potential use as a diagnostic biomarker. Michelle H. Townsend, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation and *abstract publication* at the AACR 109th annual meeting April 2018 in Chicago, IL.

2018 HPRT: A biomarker and potential target for detection and treatment of colorectal cancers. Michelle H. Townsend, Eric Olson, Evita G. Weagel, Edwin J. Velazquez, Abigail M. Felsted, Weston Burrup, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. Poster presentation and *abstract publication* at the AACR 109th annual meeting April 2018 held in Chicago, IL.

2018 Development of a predictive, diagnostic sandwich ELISA against Thymidine Kinase I Taylor D. Brindley, Rachel A. Uhl, Michelle H. Townsend, Edwin J. Velazquez, Eliza Lawrence, and Kim L. O'Neill. Presented at the 2018 National Symposium for Undergraduate Research hosted by St. Jude Children's Research Hospital in Memphis, Tennessee.

2018 Suppression of macrophage phagocytosis with low frequency electromagnetic field. Evita G. Weagel, Weston Burrup, Michelle H. Townsend, Richard A. Robison, and Kim L. O'Neill. Poster Presentation and *abstract publication* at the 2018 American Association for Cancer Research in Chicago, Illinois.

2018 Identifying TK1 Localization in Immortalized Placental Cell Lines and in Conditioned Placental Tissue. Eliza E.K. Lawrence, Michelle H. Townsend, Juan Mejia, Zac E. Ence, Roman Kovtun, Joshua Keller, Evita Weagel, Juan Arroyo, and Kim L. O'Neill. Presented at the 2018 Cancer and Immunotherapy Symposium at the American Association of Cancer Research Annual Meeting held in Chicago, Illinois.

2018 Differential polarization of macrophages after varying lengths of EMF exposure. Weston Burrup, Michelle H. Townsend, Evita G. Weagel, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Identifying TK1 localization in immortalized placental cell lines and in conditioned placental tissue. Eliza E.K. Lawrence, Michelle H. Townsend, Juan Mejia, Zac. E. Ence, Roman Kovtun, Joshua Keller, Evita Weagel, Juan Arroyo, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Harnessing the immune system: a human engineered antibody specific to TK1. Kelsey

Bennion, Brianne Kingery, Michelle Townsend, Kiara Whitley, Edwin Velazquez, K. Scott Weber, Kim O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.

2018 Chimeric antigen receptor modified macrophages harnessing toll/IL-1 receptor signaling for the treatment of solid tumors. Edwin J. Velazquez, John E. Lattin, Zachary D. Ewell, Taylor D. Brindley, Zachary Z. Reinstein, Michelle H. Townsend, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2018 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Chicago, Illinois.
*** *This presentation won an honorable mention and the people's choice award.*

2018 Macrophage toll-like receptor-chimeric antigen receptors (MOTO-CARs) as a novel adoptive cell therapy for the treatment of solid malignancies. Edwin J. Velazquez, John E. Lattin, Taylor D. Brindley, Zachary Z. Reinstein, Roger Chu, Lu Liu, Evita G Weagel, Michelle H. Townsend, Kiara V. Whitley, E. L. Lawrence, Brandon T. Garcia, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. Poster presentation and *abstract publication* at the AACR 109th annual meeting April 2018 in Chicago, IL.

2018 Identifying TK1 localization in immortalized placental cell lines and in conditioned placental tissue. Eliza E.K. Lawrence, Michelle H. Townsend, Juan Mejia, Roman Kovtun, Joshua Keller, Evita Weagel, Juan Arroyo, and Kim L. O'Neill. Poster presentation and *abstract publication* at the AACR 109th annual meeting April 2018 in Chicago, IL.

2018 Invited Keynote speaker at the 109th Annual meeting of the American Association for Cancer Research, April Chicago, Il. Gave a talk entitled, "Understanding Cancer".

2018 Keynote speaker at the Global Oncology Group Meeting October, Brigham Young University, Entitled, "Global Oncology."

2019 Oral Talk given at the intermountain branch meeting of the American Society of Microbiologists on April 13th, 2019 entitled, "The where, what, and why of HPRT and cancer: its presence, mechanism, and target potential.

2019 Invited talk given at the BYU Cancer Symposium on March 8, 2019 entitled, "Understanding Cancer".

2019 "HPRT may modulate the tumor microenvironment via guanosine overproduction." Michelle H. Townsend, Zachary D. Ewell, Claudia M. Tellez Freitas, Dallas J. Larsen, Eliza L. Lawrence, Kelsey B. Bennion, Stephen R. Piccolo, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the inaugural 2019 BYU Cancer Symposium sponsored by the American Association for Cancer Research held in Provo UT.

2019 "Potential prostate cancer therapeutic target: Hypoxanthine Guanine phosphoribosyltransferase." Michelle H. Townsend, Kelsey A. Bennion, Zachary E. Ence, Erica Suh, Abigail M. Felsted, John E. Lattin, Stephen R. Piccolo, Richrad A. Robison, and Kim L. O'Neill. Presented at the inaugural 2019 BYU Cancer Symposium sponsored by the American Association for Cancer Research held in Provo, UT.

2019 "The immunosuppressve tumor microenvironment may be affected by HPRT overexpression." Michelle H. Townsend, Zachary D. Ewell, Claudia M. Tellez Freitas, Dallas J. Larsen, Eliza L. Lawrence, Kelsey B. Bennion, Stephen R. Piccolo, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill.

2019 Poster presentation at the 2019 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Atlanta, Georgia. Prospective biomarkers for endometrial cancer." Michelle H. Townsend, Rachel C. Palmer, Zac E. Ence, Abigail M. Felsted, Alyssa C. Parker, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2019 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Atlanta, Georgia.

2019 "Exploring the use of hypoxanthine-guanine phosphoribosyltransferase (HPRT) antibodies for immunotherapeutic application in prostate cancer." Michelle H. Townsend, Kelsey A. Bennion, Zac E. Ence, Erica Suh, Abigail M. Felsted, John E. Lattin, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Poster presentation at the 2019 American Association for Cancer Research in the Undergraduate Student Caucus and Poster competition in Atlanta, Georgia.

2019 "HPRT Overexpression May Contribute to the Immunosuppressive Tumor Microenvironment." Michelle H. Townsend, Zachary D. Ewell, Claudia M. Tellez Freitas, Dallas J. Larsen, Eliza L. Lawrence, Kelsey B. Bennion, Stephen R. Piccolo, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. Presented at the 2019 American Association for Cancer Research Annual meeting held in Atlanta, Georgia.

2019 "Differential expression of HPRT in prostate cancer leads to investigation of its ADCC effects." Michelle H. Townsend, Kelsey A. Bennion, Zac E. Ence, Eliza E. Bitter, Abi M. Felsted, John E. Lattin, McKay D. Reese, Stephen R. Piccolo, Kim L. O'Neill. Presented at the 2019 American Association for Cancer Research Annual meeting held in Atlanta, Georgia.

2019 "HPRT impact on immune regulation influences the tumor microenvironment." Michelle H. Townsend, Eliza EK. Bitter, Dallas Larsen, Claudia M. Tellez, Stephen R. Piccolo, K. Scott Weber, Richard A. Robison, Kim L. O'Neill. Presented at the Midwinter Conference of Immunologists held in Monterey, California.

2019 "Stepping into the ring of cancer immunotherapy: HPRT as a therapeutic target." Michelle H. Townsend, Kelsey A. Bennion, Zac E. Ence, Erica Suh, Abigail M. Felsted, John E. Lattin, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Presented at the Midwinter Conference of Immunologists held in Monterey, California.

2019 "Upregulation of housekeeping HPRT1 gene in malignancies hinders subsequent use as an endogenous control." Michelle H. Townsend, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Invited presentation at the President's Leadership Council Annual Meeting at Brigham Young University held in Provo, UT.

2019 "HPRT's surface expression and biochemical connection tp53 in prostate cancer." Michelle H. Townsend, Taylor P. Cox, Abigail M. Felsted, John E. Lattin, Zac Ence, Richard A. Robison, Stephen R. Piccolo, and Kim L. O'Neill. Presented at the 2018 BYU Biomedical Symposium held in Provo, Utah.

2019 Thymidine Kinase 1 variability in primary and metastatic human breast cell lines and its correlation to metastatic potential. Eliza E Bitter, Michelle H Townsend, Kelsey A Bennion, Juan Mejia, Gajendra Shrestha, Kelsey Hirschi, Juan Arroyo, and Kim O'Neill. Presented at the American Association for Cancer Research Annual Meeting held in Atlanta, Georgia.

2019 Invited Keynote speaker at the 110th Annual meeting of the American Association for

Cancer Research, April Atlanta, l. Gave a talk entitled, "Understanding Cancer".

2019 Invited Keynote speaker at the 9th World Congress on Breast Cancer April 25th-26th London, England. Gave a talk entitled, "Developing MOTO-CARs to treat Breast Cancer".

2019 Selection and Evaluation of Human Nanobodies against the Tumor Biomarker Thymidine Kinase 1 with Phage Display Technology. Edwin J. Velazquez, Jordan D. Cress, Kathryn R. Smith, Jonathan R. Skidmore, Tyler B. Humpherys, Michelle H. Townsend, Zach D. Ewell, Richard A. Robison and Kim L. O'Neill. Poster presentation at the 2019 Intermountain Biological Engineering Conference November 11, in Logan, Utah.* Poster won fourth place.

2020 Honored Mentor at the AACR Professional Advancement Session 'Navigating the Path of a Successful Career in Cancer Research' Talk entitled "Finding a Mentor and Building an effective relationship with them" Monday April 27th 6:30-8:30pm San Diego, CA. CANCELLED DUE TO COVID

2020 "Preclinical Evaluation of Anti-TK1 Antibodies for the Treatment of Colorectal Malignancies". Edwin J. Velázquez, Tyler B. Humpherys, Jordan D. Cress, David M. Bellini, Kathryn R. Smith, Rachel A. Skabelund, and Kim L. O'Neill
Oral and poster presentation at College of Life Sciences Undergraduate Research Poster Competition on March 26, 2020 at Brigham Young University, Provo, Utah.

2020 Edwin J. Velázquez, Tyler B. Humpherys, Jordan D. Cress, David M. Bellini, Kathryn R. Smith, and Kim L. O'Neill
"Immunotargeting of Membrane Associated Thymidine Kinase 1 in Colorectal Malignancies".
Oral presentation at 2020 American Society of Microbiology Intermountain Branch virtual meeting on December 5, 2020.

2020 Velazquez, E.J., Cress, J.D**.,** Smith, K.R., Skidmore, J.R., Humpherys, T.B., Bellini, D.M., Ewell, Z.D., Robison, R.A., and O'Neill, K.L. Exploring the potential of human nanobodies against thymidine kinase 1 for the targeting of lung cancer cells. Poster presented at the

2020 Velazquez, E.J., Cress, J.D**.,** Smith, K.R., Brindley, T.D., Shrestha, G., Robison, R.A., O'Neill, K.L. Monoclonal antibodies against thymidine kinase 1 (TK1) for the immunotargeting of lung, breast and colon cancer cells, a preclinical evaluation. Poster presented at the American Association for Cancer Research Virtual Annual Meeting. June 22-24, 2020.

2020 Velazquez, E.J., Cress, J.D**.,** Smith, K.R., Skidmore, J.R., Humpherys, T.B., Townsend, M.H., Ewell, Z.D., Robison, R.A., and O'Neill, K.L. Isolation of heavy chain variable domain antibodies (dAbs) against thymidine kinase 1 for the immunotargeting of cancer. Poster presented at the BYU Life Sciences CURA Grant Poster Presentation, Brigham Young University. April 22, 2020.

2021 Rachel M. Morris, Kathryn R. Smith, Edwin J. Velazquez, David M. Bellini, and Kim O'Neill. *Surface Expression of Thymidine Kinase 1 (TK1) And Its Potential Role As An Immunosuppressant*. Poster presentation at the virtual American Association for Cancer Research Undergraduate Student Caucus and Poster Competition; May 2021; Washington D.C.

2021 Kathryn R. Smith, Rachel M. Morris, Edwin J. Velazquez, David M. Bellini, and Kim O'Neill. *Elevated Thymidine Kinase 1 (TK1) In Cancer Serum May Suppress Immune*

Function. Poster presentation at the virtual American Association for Cancer Research Annual Meeting; April 2021; Washington D.C.

2021 Edwin J. Velazquez, Tyler B. Humpherys, Toni O. Mortimer, David M. Bellini, Kathryn R. Smith, Rachel M. Morris, Abigail Goodman, and Kim L. O'Neill. *Isolation and evaluation of human nanobodies against hypoxanthine guanine phosphoribosyltransferase (HPRT) and their potential use for the detection and targeting of lung, breast and colon cancer cells*. Poster presentation at the virtual American Association for Cancer Research Annual Meeting; April 2021; Washington D.C.

2021 Edwin J Velazquez, David M Bellini, Rachel A. Skabelund, Tyler B Humpherys, Jonathan R Skidmore, Brett E Pickett, Stephen R Piccolo, Kim L O'Neill. Bioinformatic analysis of the tumor biomarker thymidine kinase 1: elucidating its cancer gene network and membrane expression across all cancers. American Association for Cancer Research annual meeting 2021. Virtual meeting.

2021 Johnson A, Lindsay H. (October 2021) Selection and Characterization of High-Affinity HPRT Antibodies Using Yeast Display for Use in Cancer Immunotherapy. American Society for Microbiology – Rocky Mountain Branch. **Awarded first place for undergraduate oral presentation*

2022 Invited speaker and mentor in Careers session of the annual meeting of the AACR entitled, **"**Navigating the Path to a Successful Career in Cancer Research" CST New Orleans April 11th 2022 7-9pm

2022 Invited mentor to lead a discussion entitled, "Finding a Mentor and Building an Effective Relationship with Them". Careers session at the annual meeting of the AACR entitled," CST New Orleans April 11th 2022

2022 Bitter, E.E.; Morris, R.M.; Mortimer, T.O.; Barlow, K.; Schekall, A.; Townsend, M.H.; Skidmore, J.; Pickett, B.E.; & O'Neill, K.L. (April 11, 2022). The Potential Effects of Thymidine Kinase 1 on Breast Cancer Invasion. American Association for Cancer Research Annual Meeting 2022. New Orleans, Louisiana, USA.

2022 Bitter, E.E.; Mortimer, T.O.; Morris, R.M.; Skidmore, J.; Barlow, K.; Schekall, A.; Townsend, M.H.; Pickett, B.E.; & O'Neill, K.L. (April 10, 2022). Thymidine Kinase 1 and Cell Cycle Control in Breast Cancer. American Association for Cancer Research Annual Meeting 2022. New Orleans, Louisiana, USA.

2022 Bitter, E.E.; Morris, R.M.; Mortimer, T.O.; Barlow, K.; Schekall, A.; Townsend, M.H.; Skidmore, J.; Pickett, B.E.; & O'Neill, K.L. (April 9, 2022). Thymidine Kinase 1 Potential Impact on Breast Cancer Invasion. 17th Annual AACR Undergraduate Student Caucus and Poster Competition. New Orleans, Louisiana, USA.

2022 Bitter, E.E.; Morris, R.M.; Mortimer, T.O.; Barlow, K.; Schekall, A.; Townsend, M.H.; Skidmore, J.; Pickett, B.E.; & O'Neill, K.L. Thymidine Kinase 1 May Modify Breast Cancer Invasion. BYU Biomedical Engineering Conference. January 20, 2022. Provo, UT.

2022 Bitter, E.E.; Mortimer, T.O.; Morris, R.M.; Skidmore, J.; Barlow, K.; Schekall, A.; Townsend, M.H.; Pickett, B.E.; & O'Neill, K.L. January 20, 2022 Thymidine Kinase 1 as a Cell Cycle Regulator and Biomarker for Breast Cancer. BYU Biomedical Engineering Conference. January 20, 2022. Provo, UT.

2022 *Johnson A, Lindsay H, Hansen M, Bennett J, O'Neill K, Weber KS. (October 2022) Specific elimination of autoreactive B cells in Graves' disease by chimeric autoantigen

receptor (CAAR) T cells. American Society for Microbiology – Rocky Mountain Branc

2022 Bitter, E.E.; Morris, R.M.; Mortimer, T.O.; Barlow, K.; Schekall, A.; Townsend, M.H.; Skidmore, J.; Pickett, B.E.; & O'Neill, K.L. (March, 2022). Potential Regulation of Breast Cancer Invasion by Thymidine Kinase 1. HBLL 2022 College of Life Sciences Undergraduate Poster Competition. March 24, 2022. Provo, UT.

2022 Johnson A, Lindsay H. (February 2022) Selection and Characterization of High-Affinity HPRT Antibodies Using Yeast Display for Use in Cancer Immunotherapy. Utah Conference for Undergraduate Research

2022 Johnson A, Haynie C, Weber KS. (April 2022) Selection of High-Affinity scFvs Against Tumor Antigen HPRT for Use in Cancer Immunotherapies. American Society for Microbiology – Intermountain Branch **Awarded first place for undergraduate poster presentation*

2022 Johnson A, Haynie C, Weber KS. (March 2022) Selection of High-Affinity scFvs Against Tumor Antigen HPRT for Use in Cancer Immunotherapies. Brigham Young University Life Sciences Poster Competition

2023 Hansen M, Johnson A, O'Neill K, Weber KS. (March 2023) Chimeric Autoantigen Receptor (CAAR) T Cell Therapy as a Novel Immunotherapy for Autoreactive B Cells in Graves' Disease. Utah Academy of Sciences, Arts and Letters Conference, Waterford School

2023 Johnson A**,** Lindsay H, Hansen M, Bennett J, O'Neill K, Weber KS. (April 2023) Chimeric autoantigen receptor (CAAR) T cell therapy: The road to the cure for Grave's Disease. American Society for Microbiology – Intermountain Branch

2023 *****Cheever A, Lindsay H, Hansen M, Kang C, O'Neill K, Weber KS. (November 2023) Eliminating autoreactive B cells using Chimeric autoantigen receptor (CAAR) T cells: A potential cure for Grave's Disease. Autumn Immunology Conference. Chicago, IL******Awarded an American Association of Immunologists Young Investigator Award*

2023 Cheever A, Lindsay H, Hansen M, Kang C, O'Neill K, Weber KS. (November 2023) Eliminating autoreactive B cells using Chimeric autoantigen receptor (CAAR) T cells: A potential cure for Grave's Disease. Autumn Immunology Conference. Chicago, IL

2023 Johnson A, Lindsay H, Hansen M, Bennett J, Townsend M, O'Neill K, Weber KS. (January 2023) Specific elimination of autoreactive B cells in Graves' disease by chimeric autoantigen receptor (CAAR) T cells. Midwinter Conference of Immunologists ******Awarded an American Association of Immunologists Young Investigator Award*

2023 Johnson A, Lindsay H, Hansen M, Bennett J, Townsend M, O'Neill K, Weber KS. (January 2023) Specific elimination of autoreactive B cells in Graves' disease by chimeric autoantigen receptor (CAAR) T cells. Biomedical Research Conference, Brigham Young University

2024. Cheever A, Lindsay H, Hansen M, Kang C, O'Neill K, Weber KS. (April 2024) Applying CAR T cell technology to autoimmune disease: A potential cure for Graves' Disease. American Society for Microbiology – Intermountain Branch. Provo, UT******Awarded first place for graduate oral presentations*

2024 Cheever A. (February 2024) Retraining T cells to eliminate Graves' Disease causing B cells. Three Minute Thesis Competition. Provo, UT

2024 Kang C, Cheever A, Lindsay H, Hansen, M, O'Neill K, Weber KS. (April 2024) Targeting Graves' Disease with chimeric autoantigen receptor (CAAR) T cells. American Society for Microbiology – Intermountain Branch. Provo, UT

2024 Cheever A**,** Lindsay H, Hansen M, Kang C, Weber KS, O'Neill K. (April 2024) Engineering chimeric antigen receptor (CAR) T cells using autoantigen binding domains for treatment of B cell malignancies with increased specificity. American Association of Cancer Research Annual Meeting. San Diego, CA

2024 Boyer M, Townsend M, Phares T, Blaszczak A, Garlick R, Katschke K, Shrestha G, Mortimer T, Cowager A, Jensen M, Cheever A, O'Neill K. (April 2024) Chimeric antigen receptor macrophages (MOTO CARs) driving repolarization of macrophages in solid tumors. American Association of Cancer Research Annual Meeting. San Diego, CA

2024 Cheever A, Kang C, Lindsay H, Hansen M, O'Neill K, Weber KS. (April 2024) Using chimeric autoantigen receptor (CAAR) T cells to target autoreactive B cells: a cancer preventative treatment for Graves' Disease. American Association of Cancer Research Undergraduate Caucus. San Diego, CA

2024 Cheever A, Kang C, Lindsay H, Hansen M, O'Neill K, Weber KS. (February 2024) Using Chimeric autoantigen receptor (CAAR) T cells to eliminate autoreactive B cells in autoimmune diseases. Brigham Young University Life Sciences Poster Competition. Provo, UT

2024 Cheever A, Kang C, Lindsay H, Hansen, M, O'Neill K, Weber KS. (February 2024) Using Chimeric autoantigen receptor (CAAR) T cells to eliminate autoreactive B cells in autoimmune diseases. Utah Conference for Undergraduate Research. Orem, UT

2024 Cheever A, Lindsay H, Hansen M, Kang C, Weber KS, O'Neill K. (January 2024) Eliminating Graves' Disease causing B cells with Chimeric autoantigen receptor (CAAR) T cells. Midwinter Conference of Immunologists. Asilomar, CA

2024 O'Neill K, Townsend M, Phares T, Blaszczak A, Garlick R, Katschke K, Cheever A, Shrestha G, Brindley T, Mortimer T, Boyer M. (January 2024) Repolarizing macrophages in solid tumors to kick-start an anti-tumor immune response with chimeric antigen receptor macrophages (MOTO-CARs). Midwinter Conference of Immunologists. Asilomar, CA

2024 Cheever A**,** Kang C, Lindsay H, Hansen, M, O'Neill K, Weber KS. (January 2024) Engineering chimeric autoantigen receptor T cells in treatment of Graves' Disease. Biomedical Research Conference, Brigham Young University. Provo, UT

2025 Cheever A, O'Neill K, and Weber S, Targeting autoreactive B cells in Graves' Disease with chimeric autoantigen receptor (CAAR) T cells. Presented at the BYU Biomedical Conference. January 2025

2025 Cheever A, O'Neill K, and Weber S, Targeting autoreactive B cells in Graves' Disease with chimeric autoantigen receptor (CAAR) T cells. Presented at the Midwinter Meeting of Immunologists. January 2025

2025 Cheever A, O'Neill K, and Weber S, Bispecific LINK CAR T cells improve specificity and safety of CAR T cell therapy for autoimmune diseases. Presented at the Midwinter Meeting of Immunologists. January 2025

2025 Kang C, Cheever A, Lindsay H, Demars K, O'Neill K, Weber KS. (February 2025) Logic-gated LINK CAR to increase the specificity of chimeric antigen receptor T

cells in autoimmune disease. Utah Conference for Undergraduate Research. Cedar City, UT

2025 Cheever **A**, Kang C, Lindsay H, Demars K, O'Neill K, Weber K. (November 2024) Bispecific LINK CAR T cells improve specificity and safety of CAR T cell therapy for autoimmune diseases. Autumn Immunology Conference. Chicago, IL

2025 Demars K, Cheever A, Kang C, Lindsay H, Hansen M, O'Neill K, Weber S. (February 2025) Applying chimeric antigen receptor (CAR) T cell therapy as a potential cure for Graves' Disease. Utah Conference for Undergraduate Research. Cedar City, UT.

2025 Cheever A, Kang C, Lindsay H, Demars K, O'Neill K, Weber S. (April 2025) Chimeric autoantibody receptor (CAAR) T cells eliminate autoreactive B cells in Graves' Disease, without harming healthy B cells. American Society for Microbiology – Intermountain Branch. Pocatello, ID

2025 Cheever A, Kang C, Lindsay H, Demars K, O'Neill K, Weber S. (May 2025) Using chimeric antigen receptor (CAR) T cells to specifically eliminate autoreactive B cells in Graves' Disease. American Association of Immunologists – Immunology2025. Honolulu, HI

2025 Cheever A, Demars K, Kang C, Lindsay H, Hansen M, Weber S, O'Neill K. (April 2025) Engineered chimeric autoantibody receptor (CAAR) T cells are a potential cure for Graves' Disease. American Society for Microbiology – Intermountain Branch. Pocatello, ID

2025 Kang C, Cheever A, Lindsay H, Hansen M, Demars K, O'Neill K, Weber KS. (April 2025) Eliminating autoreactive B cells in Graves' Disease with CAAR T cells. Life Sciences Leadership Council. Provo, UT

2025 Demars K, Cheever A, Kang C, Lindsay H, O'Neill K, Weber S. (March 2025) Chimeric autoantibody receptor (CAAR) T cell therapy as a potential treatment for Graves' Disease. BYU Life Sciences Poster Competition. Provo, UT

2025 Cheever A, Kang C, Lindsay H, Demars K, Weber K, O'Neill K. (January 2025) Bispecific LINK CARs increase the specificity of CAR T cells for treatment of Graves' Disease. Midwinter Conference of Immunologists. Asilomar, CA

2025 Kang C, Cheever A, Lindsay H, Hansen M, O'Neill K, Weber KS. (January 2025) Chimeric autoantigen receptor (CAAR) T cells effectively eliminate autoreactive B cells in Graves' Disease. Midwinter Conference of Immunologists. Asilomar, CA

2025 Kang C, Cheever A, Lindsay H, Demars K, O'Neill K, Weber KS. (January 2025) Logic-gated chimeric antigen receptor (CAR) T cells increase the specificity of CAR T cells in autoimmune disease. BYU Biomedical Research Conference. Provo, UT

2025 *Cheever A, Kang C, Demars K, Lindsay H, Hansen M, O'Neill K, Weber S. (January 2025) Engineering chimeric autoantibody receptor (CAAR) T cells, a potential cure for Graves' Disease. BYU Biomedical Research Conference. Provo, UT

**Awarded second place for poster presentations*

Peer Reviewed Publications

1. K.L. O'Neill, P.G. McKenna, and W.P. Abram (1985). Lymphocyte thymidine kinase levels in cancer patients and control patients. Heredity, 54: 424-425.
2. P.G. McKenna, K.L. O'Neill, and W.P. Abram (1985). Elevated thymidine kinase levels in mononuclear leukocytes of cancer patients. Journal of Clinical Hematology and Oncology, 15: 71-76.
3. B.M. Hannigan, K.L. O'Neill, R.H. Pearce, P.G. McKenna, and W.P. Abram (1985). Lymphocyte DNA synthesis in malignancy. Biochemical Society Transactions, 14: 81-82.
4. W.P. Abram, B.M. Hannigan, K.L. O'Neill, and P.G. McKenna, (1985) Leukocyte thymidine kinase activities in cancer patients. Cancer Prevention and Detection 8, (5/6), 589.
5. K.L. O'Neill Thymidine kinase activities in white blood cells and serum in cancer patients. (1986) Ph.D. dissertation. New University of Ulster. Coleraine.
6. K.L. O'Neill, W.P. Abram, and P.G. McKenna (1986). Serum thymidine kinase levels in cancer patients. Irish Journal of Medical Science, 155: 272-274.
7. K.L. O'Neill, P.G. McKenna, B.M. Hannigan, and W.P. Abram (1986). Isozymes of leukocyte thymidine kinase in malignancy. Biological Chemistry, 367: 238.
8. BH Hannigan, KL O'Neill, RH Pearce, PG McKenna, WP Abram (1986) Lymphocyte DNA synthesis in malignancy Biochechemical Society Transactions 14 (1), 81-82
9. I. Hickey, S. Jones, and K.L. O'Neill (1986). Azacytidine induces reversion of thymidine kinase deficiency in friend erythroleukemia cells. Exp. Cell Res. 164, 251-255
10. K.L. O'Neill, W.P. Abram, and P.G. McKenna (1986). Deoxythymidine kinase activities in sera from cancer and non-cancer patients. Tumour Biology, 7: 236.
11. K.L. O'Neill, W.P. Abram, and P.G. McKenna (1987). Serum thymidine kinase levels in cancer patients. Internal Medicine Digest, 3: 13-14.
12. K.L. O'Neill, W.P. Abram, B.M. Hannigan, and P.G. McKenna (1987). Elevated serum and mononuclear leukocyte thymidine kinase activities in patients with cancer. Irish Medical Journal, 80: 264-265.
13. P.G. McKenna, K.L. O'Neill, W.P. Abram, and B.M. Hannigan (1988). Thymidine kinase activities in mononuclear leukocytes and serum from breast cancer patients. British Journal of Cancer, 57: 619-622.
14. H. Bristow, K.L. O'Neill, B.M. Hannigan, and P.G. McKenna (1988). Leakage of thymidine kinase from proliferating cells. Biochemical Society Transactions, 16: 55-56.
15. K.L. O'Neill, P.G. McKenna, W.P. Abram, and B.M. Hannigan, (1988). Elevated levels of thymidine kinase in serum and mononuclear leukocytes from patients. Tumour Biology, 8: 303-304.
16. G.B. Nevin, K.L. O'Neill, and P.G. McKenna (1988). Thymidine kinase activities in pleural effusions. British Journal of Cancer, 58: 252-255.
17. J.F.R. Robertson, K.L. O'Neill, P.G. McKenna, and R.W. Blamey (1988). Serum thymidine kinase in advanced breast cancer. British Journal of Surgery, 75: 1271.

18. J.F.R. Robertson, K.L. O'Neill, P.G. McKenna, and R.W. Blamey (1988). Serum thymidine kinase - a marker for breast cancer. Breast Cancer Research and Treatment, 12: 134.
19. P.G. McKenna, K.L. O'Neill, W.P. Abram, J.F.R. Robertson, and R.W. Blamey (1988). Serum total thymidine kinase levels in the management of breast cancer. Thymidine Kinase, a Marker for Neoplastic and Viral Diseases. Book chapter.
20. J.F.R. Robertson, K.L. O'Neill, P.G. McKenna, and R.W. Blamey (1989). Serum thymidine kinase - a tumour marker in advanced breast cancer. British Journal of Cancer, 60: 487.
21. K.L. O'Neill, A. Taylor, M. Hoper, and P.G. McKenna (1989). Thymidine kinase (TK) isozyme levels in tumors and serum samples from breast cancer patients. Proc Int. Soc. Onco. Dev. Bio. and Med., 17: 89.
22. J.F.R. Robertson, K.L. O'Neill, P.G. McKenna, R.W. and Blamey (1990). Thymidine kinase in breast cancer. British Journal of Cancer, 62: 663-667.
23. B. Armstrong, H. Modjtahedi, K.L. O'Neill, B.M. Hannigan, and P.G. McKenna (1990). Selective inhibition of thymidine kinase isozymes by (E)-5-(2-Bromovinyl)-2-deoxyuridine. Biochemical Society Transactions, 18: 270.
24. K.L. O'Neill, M. Hoper, G.W. Odling-Smee, W.P. Abram, and P.G. McKenna (1990). Tumour thymidine kinase levels, estrogen receptor status and recurrence, in breast cancer patients. British Journal of Cancer, 62 (12): 28.
25. M. Hoper, K.L. O'Neill, J.M. Sloan, J.J.A. McAleer, P.G. McKenna, and W. Odling-Smee (1991). The value of prognostic indicators in predicting metastatic spread of breast cancer. Journal of Pathology, 163(2): 180.
26. TH Lynch, B Waymont, JA Dunn, MA Hughes, D MA Wallace, LH Stewart, KL O'Neill, ES Gillespie, SR Johnston, VJ McKelvey, PG McKenna, V Srinivasan, AG Turner, HN Blackford, C JE Watson, KN Bullock, PT Doyle, JA Thomhill, JP Donoghue, DW Mulvin, J Wilkie, B Jones, J Reynolds, WA Tanner, MR Butler (1992) Bladder cancer Urology II Irish Journal of Medical Science 161, 32-33
27. L.H. Stewart, K.L. O'Neill, V.J. McKelvey, E. Gillespie, S.R. Johnston, and P.G. McKenna (1992). Thymidine kinase activities in bladder cancer. Journal of Biomedical Sciences, 3(1): 13-17.
28. K.L. O'Neill, M. Hoper, and G.W. Odling-Smee (1992). Can thymidine kinase levels in breast tumors predict disease recurrence? Journal of The National Cancer Institute, 84(23): 1825-1828.
29. K.L. O'Neill, V.J. McKelvey, M. Hoper, H. Monteverde, G.W. Odling-Smee, H. Logan, W.P. Abram, and P.G. McKenna (1992). Breast tumor thymidine kinase levels and disease recurrence. The Journal of Medical Laboratory Sciences, 49: 244-247.
30. G. Nevin, J. Boyce, K.L. O'Neill, and P.G. McKenna (1992). Thymidine kinase activities in effusions from patients with lung cancer. Journal of Tumor Marker Oncology, 7, No.4: 35-39.
31 L.H. Stewart, K.L. O'Neill, V.J. Mckelvey, E. Gillespie, S.R. Johnston, and P.G. McKenna (1992). Why do most primary neoplasms first appear around the ureteric orifices? Journal of Biomedical Sciences, 3(1): 13-17.
32. K.L. O'Neill, D.W. Fairbairn, and M.D. Standing (1993). Analysis of single cell gel electrophoresis using laser scanning microscopy. Mutation Research, 319: 129-134.

33. D.W. Fairbairn, K.L. O'Neill, and M.D. Standing (1993). Application of confocal laser scanning microscopy to analysis of H2O2 induced DNA damage in human cells. Scanning, 15: 136-139.
34. D.W. Fairbairn, K.L. O'Neill, C.D. Meyers, and M.D. Standing, (1993). Accurate detection of DNA single-stranded breaks by laser scanning microscopic analysis of the single cell gel assay is subject to several parameters. Molecules and Cells, 3: 65-69.
35. J Catalan, C Moreno, MV Arruga, Z You, MD Brezzell, SK Das, MC Espadas-Torre, BH Hooberman, JE Sinsheimer, VMF Vargas, VEP Motta, JAP Henriques, H Fritzenschaf, M Kohlpoth, B Rusche, D Schiffmann, L Padovani, D Caporossi, B Tedeschi, P Vernole, B Nicoletti, F Mauro, AM Seifert, C Demers, H Dubeau, K Messing, GE Cosgrove, PB Selby, AC Upton, TJ Mitchell, MH Steele, WL Russell, Frederik Hendrik Sobels, K Sankaranarayanan, PHM Lohman, H Hirota, M Kubota, H Hashimoto, S Adachi, K Matsubara, K Kuwakado, Y Akiyama, T Tsutsui, H Mikawa, XX Zhang, S Chakrabarti, MA Malick, CL Richer, KL O'Neill, DW Fairbairn, MD Standing, JR Gurr, YC Lin, IC Ho, KY Jan, TC Lee, Y Kasahara, Y Nakai, D Miura, H Kanatani, K Yagi, K Hirabayashi, Y Takahashi, Y Izawa (1993) Isolation of substances from glossy privet (Ligustrum lucidum Ait) inhibiting the mutagenicity of benzo [a] pyrene in bacteria. Mutation Research 319. 331-332
36. C.D. Meyers, Fairbairn, D.W., and K.L. O'Neill (1993). Measuring the repair of H2O2–induced DNA single strand breaks using the single cell gel assay. Cytobios, 74: 147-153.
37. A. Borrowman, M. Rogers, and K.L. O'Neill (1993). An improved washing apparatus for nucleoside phosphorylation assays. Biotechniques, 15: 402-406.
38. R.V. Grigsby, D.W. Fairbairn, and K.L. O'Neill (1993). A method for rescue of hybridomas from freezer failure. In Vitro Cell Dev. Biol., 29: 838-839.
39. R.V. Grigsby, D.W. Fairbairn, and K.L. O'Neill (1993). Differential DNA damage detected in hybridomas. Hybridoma, 12, No 6: 755-761.
40. M.K. Winters, D.W. Fairbairn, M.D. Standing, and K.L. O'Neill (1993). Determing DNA strand breaks using the laser scanning microscope. Proc 51st Annual Meeting of the Microscopy Society of America, 51: 272-3.
41. L.H. Stewart, K.L. O'Neill, V.J. McKelvey, E. Gillespie, S.R. Johnston, and P.G. McKenna (1993). Why do most primary bladder neoplasm's occur around the ureteric orifices? British Journal of Urology, 71: 34-37.
42. D.W. Fairbairn, W.A. Reyes, and K.L. O'Neill (1994). Alkali-labile sites are prevalent in kidney tissue DNA. Cancer Letters, 81(1): 67-76
43. D.W. Fairbairn, K.G. Carnahan, R.N. Thwaits, R.V. Grigsby, G.R. Holyoak, and K.L. O'Neill (1994). Detection of apoptosis-induced DNA damage in scrapie infected sheep brain. FEMS Microbiology Letters, 115: 341-346.
44. D.W. Fairbairn, W.A. Reyes, R.V. Grigsby, and K.L. O'Neill (1994). Laser Scanning microscopic analysis of DNA damage in frozen tissues. Cancer Letters, 76: 127-132.
45. D.W. Fairbairn and K.L. O'Neill (1994). The effect of electromagnetic field exposure on the formation of DNA single strand breaks in human cells. Cellular and Molecular Biology, 40 (4): 561-567.
46. D.W. Fairbairn, K. Rowe, and K.L. O'Neill (1994). Video enhanced laser scanning microscopic analysis of DNA comet formation. Cell Biology International, 18 (3): 195-200.

47. D.W. Fairbairn and K.L. O'Neill (1994). DNA strand break repair involvement in hydorgen peroxide induced damage. Molecules and Cells, 4, No 3: 343-348
48. K.L. O'Neill, M. Hoper, and G.W. Odling-Smee (1994) Pueden los niveles de timidincinasa predecir la recurrencia de la enfermedad en los tumores de mama? Breast Cancer Digest, 4:27-28.
49. K.L. O'Neill, X. Shao, Z. Zhao, A. Malik, and M. Lee(1994). Capillary electrophoresis of nucleotides on Ucon-Coated fused silica columns. Analytical Biochemistry, 222: 15-189.
50. X. Shao, K.L. O'Neill, X. Zhao, S. Anderson, A. Malik, and M. Lee (1994). Analysis of nucleotide pool in human lymphoma cells by capillary electrophoresis. Journal of Chromatography, 680: 463-468.
51. D.W. Fairbairn, R.N. Twaits, G.R. Holyoak, and K.L. O'Neill (1994). Spongiform encephalopathies and prions: An overview of pathology and disease mechanisms. (A review) FEMS Microbiology Letters, 123: 233-240.
52. D.W. Fairbairn, C.D. Meyers, and K.L. O'Neill (1994). Detection of DNA damaging agents in environmental water samples. Bulletin of Environmental contamination and Toxicology, 52, 5: 687-690.
53. D.W. Fairbairn, and K.L. O'Neill (1995). Necrotic DNA degradation mimics apoptotic nucleosomal fragmentation comet tail length. In Vitro Cell Dev. Biol.,31: 171-173.
54. K.L. O'Neill, R.V. Grigsby, and D.W. Fairbairn (1995). A review of thymidine kinase: the future of breast cancer prognosis. The Breast, 4: 79-83.
55. D.W.Fairbairn, P.L. Olive, and K.L. O'Neill (1995). The Comet assay: A comprehensive review. Mutation Research, 339: 37-59.
56. J.J. Fairbairn, M.W. Khan, K.J. Ward, B.W. Loveridge, D.W. Fairbairn, and K.L. O'Neill (1995). Induction of apoptotic cell DNA fragmentation in human cells after treatment with hyperthermia. Cancer Letters, 89: 183-188.
57. D.L. Barnard, D.W. Fairbairn, K.L. O'Neill, T.L. Gage, and R.W. Sidwell (1995). Anti-human cytomegalovirus and toxicity of sulfonated anthraquinones and anthraquinone derivatives. Antiviral Research, 28: (4) 317-329.
58. W.M. Thomas, J.F.R. Robertson, P.G. McKenna, K.L. O'Neill, M.H.E. Robinson and J.D Hardcastle (1995). Serum thymidine kinase in colorectal neoplasia. European Journal of Surgical Oncology, 21: (6) 632-634.
59. D.W. Fairbairn, D.K. Walburger, J.J. Fairbairn, and K.L. O'Neill (1996). Key morphological changes and DNA strand breaks in human lymphoid cells: discriminating apoptosis from necrosis. Scanning, 18: (6) 407-416.
60. D.W. Fairbairn and K.L. O'Neill (1996). Failure of zinc to inhibit hyperthermia-induced apoptosis predicts differential nuclease activity detection by comet assay. Apoptosis, 1: 81-90.
61. D.W. Fairbairn and K.L. O'Neill (1996). The neutral comet assay is sufficient to identify an apoptotic 'window' by visual inspection. Apoptosis, 1: 91-94.
62. X. Lu, D.W. Fairbairn, W.S. Bradshaw, K.L.O' Neill, D.L. Ewert, and D.L. Simmons (1997). NSAID-induced apoptosis in rous sarcoma virus-transformed chicken embryo fibroblasts is dependent on v-src c-myc and inhibited by bcl-2. Prostaglandins, 54: (2) 549-568.
63. D.W. Fairbairn, M.D. Standing, K.L. O'Neill (1996). Absence of temporal ordering of apoptotic features in heat-shock treated leukemia and lymphoma cell lines. Pro. Microscopy and Microanalysis, 758-759.

64. B.S. Poe and K. L. O'Neill, (1997). Caffeine modulates heat shock induced apoptosis in the human promyelocytic leukemia cell line HL-60. Cancer Letters, 121: (1) 1-6.
65. B.S. Poe and K.L. O'Neill (1997). Inhibition of protein synthesis sensitizes thermotolerant cells to heat shock induced apoptosis. Apoptosis 2, No. 6: 1-8.
66. M.J. Smith and K.L. O'Neill, (1998). Microscope Slide for Enhanced Analysis of DNA Damage Using the Comet Assay. Biotechniques, 25 (1) 49-50.
67. X. Shao, Y. Shen, M.L. Lee, and K.L. O'Neill (1998). Electrochromatographic contributions in capillary electrophoresis of biomolecules. Journal of Chromatography A, 809: 173-179.
68. X. Shao, Y. Shen, K.L. O'Neill, and M.L. Lee (1998). Plexiglas column coatings for capillary electrophoresis of Biomolecules. Microcolumn Separations, 11(5): 325-329.
69. X. Shao, Y. Shen, K.L. O'Neill, and M. L. Lee (1999). Column wall modifications using polyethylene oxide for capillary electrophoresis of ribonucleotides. Chromatographia, 49, No. 5/6:P 299-305.
70. Xiaowen Shao, Yufeng Shen, Kim O'Neill, Milton L Lee (1999) Capillary electrophoresis using diol-bonded fused -silica capillaries. Journal of Chromatography A 830 (2) 415-422
71. K.L. O'Neill, D.W. Fairbairn, M.J. Smith, and B.S. Poe (1999). Critical parameters influencing hyperthermia-induced apoptosis in human lymphoid cell lines. Apoptosis, 3: 369-375.
72. M.J. Smith, P.F. Inserra, R.R. Watson, J.A. Wise, and K.L. O'Neill (1999). Supplementation with fruit and vegetables extracts may decrease DNA damage in the peripheral lymphocytes of an elderly population. Nutrition Research, 19, No. 10: 1507-1518.
73. G.A. Abd-Allah, R.I. El-Fayoumi, M.J. Smith, R.A. Heckmann, and K.L. O'Neill (1999). A comparative evaluation of aflatoxin B1 genotoxicity in fish models using the comet assay. Mutation Research, 446: 181-188.
74. T.R. Seo, M.L Smith, S.S. Han, D.W. Fairbairn, K.L. O'Neill, J.C. Ryu. (1999). Mild hyperthermia-induced apoptosis is dependent on p53 in human lymphoid cells. Research Communications in Molecular Pathology and Pharmacology, 104(3): 285-292.
75. K.H. Nielson, C.A. Olsen, D.V. Allred, K.L. O'Neill, G.F. Burton, and J.D. Bell. (2000). Susceptibility of S49 lymphoma cell membranes to hydrolysis by secretory phospholipase A2 during early phase of apoptosis. Biochemica Biophysica Acta, 1484:163-174.
76. Y. Shen, X. Shao, K.L. O'Neill, J.S. Bradshaw, and M.L. Lee (2000). Reversed-phase liquid chromatograph of protein and peptides using multimodal copolymer-encapsulated silica. J. Chromatograph, 866: (1) 1-14.
77. G.A. Husseini, R.I. El-Fayoumi, K.L. O'Neill, N.Y. Rapoport, and W.G. Pitt (2000). DNA damage induced by micellar-delivered doxorubicin and ultrasound: Comet assay study. Cancer Letters, 154: 211-216.
78. K.L. O'Neill, S. Standage, B.G. Hughes, and B.K. Murray. (2000) Fruits and vegetables and the prevention of oxidative DNA damage. In: Vegetables, Fruits and Herbs in Health Promotion, 135-146. Ed R.R. Watson, CRC Press, New York.
79. S Nirmalraj, K Perinbam, A Yildirim, M Oktay, V Bilaloglu, KJA Davies, EE Robinson, SRJ Maxwell, GHG Thorpe, ME Buyukokuroglu, I Gulcin, M Oktay, OI Kufrevioglu, JL Farber, YZ Fang, S Yang, GY Wu, J Lee, N Koo, DB Min, S Cuzzocrea, DP Riley, AP

Caputi, D Salvemini, K Periyanayagam, B Umamaheswari, L Suseela, M Padmini, M Ismail, KL Krishna, TA Mehta, JA Patel, GE Trease, WC Evans, JB Harborne, K Shetty, OF Curtis, RE Levin, R Witkowsky, W Ang, AR Garrett, BK Murray, RA Robison, KL O'Neill, DC Garrat, AM Bidchol, A Wilfred, P Abhijna, R Harish, G Miliauskas, PR Venskutonis, TA van Beek, SV Chanda, KV Nagani, YS Velioglu, G Mazza, L Gao, BD Oomah, J Javanmardi, C Stushnoff, E Locke, JM Vivanco, MP Kahkonen, AI Hopia, HJ Vuorela, JP Rauha, K Pihlaja, TS Kujala, M Heinonen, M Oyaizu, IFF Benzie, JJ Strain (2001) The Ferric reducing ability of plasma (FRAP) as a measure of antioxidant power: The FRAP assay Research Journal of Botany 10 (1) 23-27

80. B.E. Shepherds, G.B. Schaalje, M.J. Smith, R.W., B.K. Murray, and K.L. O'Neill. (2000) Statistical analysis of the comet assay using a mixture of Gamma distributions. Quantitative Microbiology vol. 2. P69-79.
81. H.A. Wilson, D.V. Allred, K.L. O'Neill, and J.D. Bell**.** (2000). Activities and Interactions Among Phospholipases A_2 During Thapsigargin-induced S49 Cell Death**.** Apoptosis Vol. 5: 389-396
82. F. Zhang, H. Li, A.R. Pendleton, J.G. Robison, K.O. Monson, B.K.Murray, and K.L. O'Neill. (2001). Thymidine Kinase Immunoassay: A potential marker for breast cancer. Cancer Detection and Prevention. Vol. 25(1) p8-15
83. F Zhang, X Shao, H Li, JG Robison, BK Murray, and K.L. O'Neill. (2001) A Monoclonal Antibody Specific for Human Thymidine Kinase 1. Hybridoma**,** Vol. 20 Number 1
84. K.L. O'Neill, M.R. Buckwalter, and B.K. Murray. (2001) Thymidine Kinase: diagnostic and prognostic potential (review) Expert Rev. Mol Diagn. 1 (4) p428-433
85. M.H.Taylor, M.R. Buckwalter, A.C. Stephenson, J.L. Hart, B.J. Taylor, and K.L. O'Neill (2002) Radiation induced apoptosis in MOLT-4 cells requires de novo protein synthesis independent of de novo RNA synthesis. FEBS letters 514 p119-203.
86. J. G. Robison, A.R.Pendleton, K.O.Monson, B.K. Murray, and K.L. O'Neill (2002) Decreased DNA repair rates and protection from heat shock induced apoptosis mediated by electromagnetic field exposure. Bioelectromagnetics 23: 106-112
87. R.D. Bowden, M.R. Buckwalter, J.F. McBride, D. A. Johnson, B.K. Murray, and K.L. O'Neill (2003) Tail Profile: a more accurate system for analyzing DNA damage using the Comet assay. Mutation Research 537:1-9
88. J.K. Harper, A.M. Arif, E.J. Ford, G.A. Strobel, J.A. Porco, Jr., D.P. Tomer, K.L. O'Neill, E.M. Heider, and D.M. Grant (2003) Pestacin: a 1,3-dihydro isobenzofuran from *Pestalotiopsis microspora* possessing antioxidant and antimycotic activities. Tetrahedron 59:2471-2476
89. Asmaa S Salman, Dalia M Aboelhassan, Eman R Zaki, Nevein SM Saleh, Karima F Mahrous, B Barrett, J Barnes, LA Anderson, S Gibbons, JD Phillipson, TT Lee, CC Huang, XH Shieh, CL Chen, LJ Chen, BI Yu, I El-Sharkawy, W El Kayal, D Prasath, H Fernandez, M Bouzayen, AM Svircev, S Jayasankar, A Manayi, M Vazirian, S Saeidnia, SA Cichello, Q Yao, XQ He, JA Rininger, S Kickner, P Chigurupati, A McLean, Z Franck, Z Shi, N Dragin, M Galvez-Peralta, LF Jorge-Nebert, ML Miller, B Wang, DW Nebert, IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, M Gajecka, LM Kujawski, J Gawecki, K Szyfter, T Frankic, K Salobir, J Salobir, MH Emre, G Aktay, A Polat, F Ozturk, GE Paget, JM Barnes, TH Yosida, K Amano, EP Evans, G Breckon, CE Ford, CE Perandones, AV Illera, D Peckham, LL Stunz, RF Ashman, K

Burton, NP Singh, MT McCoy, RR Tice, EL Schneider, KB Mullis, FA Faloona, WH Habig, MJ Pabst, WB Jakoby, MM Bradford, HE Aebi, B Saville, H Ohkawa, N Ohishi, K Yagi, VL Singleton, JA Rossi, MS Blois, RM Samarth, M Panwar, M Kumar, A Kumar, E Smalls, RM Patterson, LMG Antunes, CS Takahashi, G Slapsyte, J Mierauskiene, S Uleckiene, J Didziapetriene, AM Hassan, SS Alam, SH Abdel-Aziem, KA Ahmed, DW Fairbairn, PC Olive, KL O'Neill, W Xue, D Warshawsky, K Mahmoud, WKB Khalil, OA Elmoniem, KF Mahrous, N Bozina, V Bradamante, M Lovric, M Taningher, D Malacarne, A Izzotti, D Ugolini, S Parodi, H Autrup, J Zhou, JA Cidlowski, NZ Lu, SE Wardell, KL Burnstein, D Defranco, PJ Fuller, JA Daniel, J Yoo, BT Bettinger, DC Amberg, DJ Burke, P Sartorato, F Cluzeaud, J Fagart, S Viengchareun, M Lombes, MC Zennaro, T Matsumoto, KI Takeyama, T Sato, S Kato, T Shimada, K Hanzalova, P Rossner, RJ Sram, H Yang, L Zhou, Z Wang, LJ Roberts, X Lin, Y Zhao. (2003) Flavonoid, hesperidine, total phenolic contents and antioxidant activities from Citrus species. Jpournal of Biological Sciences 18 (4) 66-86.

90. K Nirmala, T Prasanna Krishna, K Polasa, OI Aruoma, SB Astley, AC Pinder, S Southon, SB Astley, RH Elliot, DB Archer, S Southon, TG Bieri, TJ Tolliver, GL Catignani, WS Chang, YH Chang, FJ Lu, HC Chiang, A Collins, B Olmedilla, S Southon, F Granado, SJ Duthie, S Deflora, FD Agostini, R Balansky, A Camorians, C Bennicelli, M Bagnasco, C Cartiglia, E Tampa, MG Longobardi, RA Lubet, A Izzot, S De, C Ganguly, A Dipple, DW Fairbairn, PC Olive, KL O'Neill, LR Ferguson, G Frenzilli, C Betti, T Davini, M Desideri, E Fornai, S Fulder, VF Goethem, D Lison, M Kirsch-Volders, MPA Hannon, C Hughes, MJO Kana, KW Moles, CR Barnett, Y Barnett, I Hininger, M Chopra, D Thurnam, F Laporte, MJ Richard, A Favier, AM Roussel, SK Katiyar, R Agarwal, H Mukhtar, WL Johanna, E Lee, YJ Surh, CL Limoli, ML Kaplan, JW Philips, GM Adair, WF Morgan, Z Ly, K Stone, WA Pryor, J Middle Brooks, KK Park, KS Chun, JM Lee, SS Lee, YJ Surh, EJ Park, JM Pezzuto, DH Phillips, K Polasa, AN Naidu, K Krishnaswamy, K Polasa, S Sardas, M Yilmaz, U Oztok, N Cakir, AE Karakaya, S Shobana, KA Naidu, M Soni, M Madurantakan, K Krishnaswamy, YJ Surh, YJ Surh, AC Torbergsen, AR Collins, M Warholm, C Guthenberg, B Mannervik, MS Weidner, K Sigwart, M Wojewodzska, M Kuszewski, T Iwanenko, AR Collins, I Szumiel, V Zannoni, M Lynch, S Goldstein, P Sato, NP Singh, MT McCoy, RR Tice, EL Schneider, (2003) A simple technique for quantitation of low levels of DNA damage in individual cells. Journal of Cancer Research 3 (1) 9-20

91. Seiga Ohmine, Lee D McLeman, David P Tomer, Kim L O'Neill, Byron K Murray (2004) Stress-mediated induction of C-reactive protein in human cancer cells Cancer Research 64 (7) 1267-1268

92. G. A. Husseini, K.L. O'Neill and W. G. Pitt (2005). The Comet assay to determine the mode of cell death for the ultrasonic delivery of Doxorubicin to human Leukemia (HL-60 Cells) from pluronic P105 Micelles. Technology in Cancer Research and Treatment. Vol 4 #6 707-711

93. Elizabeth M. Heider, James K. Harper, David M Grant, Angela Hoffman, Frank Dugan, David P Tomer and Kim L. O'Neill. (2006) Exploring unusual antioxidant activity in a benzoic acid derivative: a proposed mechanism for citrinin. Tetrahedron 62: (6) 1199-1208

94. L. Abdel-Latif, B. K. Murray, R.L. Renberg, K.L. O'Neill, H. Porter, J.B. Jensen and F. B. Johnson. (2006) Cell death in bovine parvovirus-infected embryonic bovine tracheal

cells is mediated by necrosis rather than apoptosis. Journal of General Virology, 87, 2539-2548

95. B.K. Murray, B. Brown, P.Scherer, D. Tomer, K. Garvin, B. Hughes, and K.L. O'Neill (2006) Induction of apoptosis in HT29 human colon adenocarcinoma cells by 13-cis-retinoic acid and vitamin E succinate. Nutritional Research 26. 186-192
96. K L O'Neill, F Zhang, H Li, D G Fuja, and B K Murray (2007) Thymidine kinase 1 – A prognostic and diagnostic indicator in ALL and AML patients. Leukemia 21,(3) 560-563
97. Tomer DP, McLeman LD, Ohmine S, Scherer PM, Murray BK, and O'Neill KL (2007) A comparison of the total oxyradical scavenging capacity and oxygen radical absorbance capacity antioxidant assays. Journal of Medicinal Food 10 (2): 337-344
98. Stewart, A., B. Satterfield, M. Cohen, K. O'Neill, and R. Robison. (2008). A quadruplex real-time PCR assay for the detection of *Yersinia pestis* and its plasmids. Journal of Medical Microbiology 57(3):324-331.
99. B. K. Murray, S. Ohmine, D.P. Tomer, K.J. Jensen, F. B. Johnson, J.J. Kirsi, R.A. Robison, and K.L. O'Neill. (2008). Virion disruption by ozone-mediated reactive oxygen species. J. Vir. Methods 153: 74-77.
100. C.J. Capua, N.P. Hopson, M.L.Stewart, G.R. Johnson, K.L. O'Neill, G. B. Schaalje, G.M. Booth. (2009). Cytotoxicity of Atriplex confertifolia. Pharmaceutical Biology Journal of Toxicology, Volume 2010, Article ID 976548, 7 pages
101. A quadruplex real-time PCR assay for rapid detection and differentiation of the Clostridium botulinum toxin genes A, B, E and F. B. A. Satterfield,1 A. F. Stewart,1 C. S. Lew, D. O. Pickett, M. N. Cohen, E. A. Moore, P. F. Luedtke, K. L. O'Neill1 and Richard A. Robison. (2010) Journal of Medical Microbiology (2010), 59, 55–64
102. A R. Garrett, Byron K. Murray, Richard A. Robison, and Kim L. O'Neill, 2010. Measuring Antioxidant Capacity Using the ORAC and TOSC Assays. Methods in Molecular Biology 2010; 594:251-62, Advanced Protocols in Oxidative Stress II, Humana Press Ch 17.
103. Satterfield, B.A., A.F. Steward, C.S. Lew, D.O. Pickett, M.N. Cohen, E.A. Moore, P.F. Luedtke, K.L. O'Neill, and R.A. Robison. (2010). A quadraplexed real-time PCR assay for rapid detection and differentiation of the Clostridium botulinum toxin genes A, B, E and F. Journal of Medical Microbiology 59:55-64. Note: This paper was featured in the 'Highlights of Hot papers in Recent SGM Journals" section of *Microbiology Today*, February, 2010, p. 60.
104. Gaytri Gupta Elera, B.Sc.; Andrew R Garrett, B.Sc; Martinez Martinez, B.Sc; Richard A. Robison, Ph.D.; Kim O'Neill, (2010). The antioxidant properties of the Cherimoya (Annona cherimola) fruit. Food Research International Volume 44, Issue 7, August 2010, Pages 2205-2209.
105. A. R Garrett, A. D Martinez, M. Heaton, R. A Robison, K. L O'Neill (2011) A novel method for predicting antioxidant activity based on amino acids as a simplest-case model. Journal of Antioxidants in Cancer Research and Prevention: Chapter II Assay Comparison, Structure-Function Analysis, and Food Product Analysis p26 -47
106. Andrew R Garrett, Gaytri Gupta-Elera, Mary E Keller, Richard A Robison, Kim L O'Neill (2011) Bioactive Foods in Aging: Role in Cancer Prevention and Treatment Chapter V p70 -89
107. Gupta-Elera, Gaytri; Garrett, Andrew R.; Robison, Richard A.; O'Neill, Kim L.

2012 The role of oxidative stress in prostate cancer. European Journal of Cancer Prevention. 21(2):155-162, March 2012.

108. Gaytri Gupta-Elera, Andrew Garrett, Andres Martinez, Ryan D. Kraus, Richard Robison and Kim O'Neill 2012. A Comparison of Antioxidant Properties in Organic and Conventional Blueberries. Journal of Food Research, Vol 1, #3 p1-7
109. M. Alegre, R. Robison, and K.L. O'Neill 2012 Thymidine kinase 1 upregulation is an early event in breast tumor formation. Journal of Oncology, Vol 2012, Article ID 575647, 5 pages.
110. Gunnell, M.K., C.D. Lovelace, B.A. Satterfield, E.A. Moore, K.L. O'Neill, and R.A. Robison. 2012. A multiplex real-time PCR assay for the detection and differentiation of *Francisella tularensis* subspecies. Journal of Medical Microbiology 61 (11):1525-1531.
111. March, J.K., M.N. Cohen, J.M. Lindsey, D.A. Millar, C-W Lowe, A.J. Bunnell, K.L. O'Neill, G.B. Schaalje, and R.A. Robison. (2012). The differential susceptibility of spores from virulent and attenuated *Bacillus anthracis* strains to aldehyde- and hypochlorite-based disinfectants. MicrobiologyOpen 1-8, doi: 10.1002/mbo3.45.
112. A.R. Garrett, G. Gupta-Elera, M.A. Keller, R.A. Robison, and K.L. O'Neill. (2013) Bioactive Foods in Aging: The Role in Cancer Prevention and Treatment. Chapter 3, P33-42, Bioactive Food as Dietary Interventions for the Aging Population. Academic Press, Elsevier Inc. ISBN: 978-0-12-397155-5
113 M. M. Alegre, R.A.Robison, and K.L. O'Neill. (2013) Thymidine Kinase 1: A Universal Marker for Cancer. Cancer and Clinical Oncology; Vol. 2, No. 1 p159-167
114. A.B Clifford, A. M. Elnaggar, R.A. Robison, and K.L. O'Neill (2013) Investigating the role of macrophages in tumor formation using a MaFIA mouse model. Oncology Reports Vol 30 (2) p890-896.
115. C.W. Lowe, J.K. March, A.J. Bunnell, K.L. O'Neill, R.A. Robison (2013) PCR-based methodologies used to detect and differentiate the Burkholderia pseudomallei complex: B. pseudomallei, B. mallei, and B. thailandensis. Current Issues in Molecular Biology Vol 16 p23-54.
116. MM Alegre, M.H. Knowles, R.A. Robison, K.L. O'Neill. (2013) The Mechanics behind Breast Cancer Prevention. Asian Pacific Journal of Cancer Prevention, Vol 14 (4)
117. MM Alegre, R.A. Robison, K.L. O'Neill. (2014) The Clinical significance and Biology of Thymidine Kinase 1. Oncology –Theory and Practice, iConcept Press Ltd. Australia.
118. Andrew R Garrett, Evita G Weagel, Andres D Martinez, M Heaton, Richard A Robison, Kim L. O'Neill. (2014) A novel method for predicting antioxidant activity based on amino acid structure. Journal of Food Chemistry,Vol 158 1st September p490-496
119. Melissa M Alegre[1], Michael J Weyant[2], Daine T Bennett[2], Jessica A Yu[2], Madison K Ramsden[1], Atif Elnaggar[1],[3,] Richard A Robison[1], Kim L O'Neill[1]. (2014). Serum Detection of Thymidine Kinase 1 as a Means of Early Detection of Lung Cancer Anticancer Research May 2014, Vol 54 No 5 p2145-2151.
120. Michael Xiao[a], b, Albert V. Helsing[a], Philip M. Lynch[c], Atif El-Naggara, [d], Melissa M. Alegre[a], Richard A. Robison[a], and Kim L. O'Neill[a], * (2014) DNA damage caused by inorganic particulate matter on Raji and HepG2 cell lines exposed to ultraviolet radiation, Mutation Research, Vol 771 p6-14
121. Trevor Memmott, Evita Weagel, Chris Hamilton, Richard A. Robison and Kim L. O'Neill, (2014). Oxidative Stress Imbalance in the Development of Prostate Cancer Book

Chapter 8 Free Radicals: The Role of Antioxidants and Pro-Oxidants in Cancer Development. Ed. William Stone, Nova Publications p233-256
122. Chris Hamilton, Lucas Aidukaitis, Pinggou Liu, Richard Robison, and Kim L. O'Neill Antioxidants. Chapter 17 Ed. Preedy, Elsevier Publishing P183-191
123. Gajendra Shrestha, [a, b] Atif M. El-Naggar, [c,d] Larry L. St. Clair, [a,b] and Kim L. O'Neill (2014). Anticancer activities of selected species of North American lichen extracts. Phytotherapy Research. 29 (1) 100-107
124. Jayson V. Pagaduan[1] Madison Ramsden[2] Kim O'Neill[2] and Adam T. Woolley[1] (2015). Microchip immunoaffinity electrophoresis of antibody thymidine kinase 1 complex. Elecrophoresis Vol 00 p1-6
125. Justin R. Livingston, Jacob J. Peterson, Gabriel A. Martinez, Connor J. Peck, Andrew R.Garrett, Rachel A. Uhl, Brett H. Thompson, Gajendra Shrestha, Richard A. Robison, and Kim L. O'Neill (2015) The Antioxidant and DNA Repair Activities of Resveratrol, Piceatannol, and Pterostilbene. Journal of Food Research, Vol 4, No 5 P 9-19
126. Jordon K. March[1], Michael D. Pratt[1], Chinn-Woan Lowe[1], Marissa N. Cohen[1], Benjamin A Satterfield[1], Bruce Schaalje[2], Kim L. O'Neill[1] and Richard A. Robison[1,*] (2015). The differential effects of heat-shocking on the viability of spores from *Bacillus anthracis*, *Bacillus subtilis*, and *Clostridium sporogenes* after treatment with peracetic acid- and glutaraldehyde-based disinfectants. MicrobiologyOpen. doi: 10.1002/mbo3.277
127. Evita Weagel, Curren Smith, Ping Guo Liu, Richard Robison, and Kim O'Neill. (2015) Macrophage polarization and its role in cancer. J. Clin. Cell Immunol. 2015 6:4 p1-8.
128. R. P. Steck, S.L. Hill, E. G Weagel, K. S. Weber, R. A. Robison, and K. L O'Neill (2015) Pharmacologic immunosuppression of mononuclear phagocyte phagocytosis by caffeine. Pharmacology Research and perspectives 3: 6
129. Shrestha G., St. Clair L. L., and O'Neill K. (2015) The Immunostimulating Role of Lichen Polysaccharides: A Review, Phytotherapy Res., 29, (3) 317–322, doi: 10.1002/ptr.5251.
130. M. Townsend, M.D. Anderson, E. Weagel, E.J. Velazquez, K.S. Weber, R.A. Robison, and K.L. O'Neill (2017), Non-small-cell lung cancer cell lines A549 and NCI-H460 express hypoxanthine guanine phosphoribosyltransferase on the plasma membrane. OncoTargets and Therapy 2017 10: 1921-1932.
131. M. Townsend, C. Peck, Wei Meng, M. Heaton, R.A. Robison, and K.L. O'Neill (2017), Evaluation of various glyphosate concentrations on DNA damage in human Raji cells and its impact on cyotoxicity. Regulatory Toxicology and Pharmacology 85: 79-85.
132. Michelle H. Townsend, Abigail M. Felsted, Zachary E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. Elevated expression of hypoxanthine guanine phosphoribosyltransferase within malignant tissue. Cancer and Clinical Oncology. 2017
133. Evita G. Weagel, Wei Meng, Michelle H. Townsend, Edwin J. Velazquez, Rachel A. Brog, Michael W. Boyer, K. Scott Weber, Richard A. Robison, and Kim L. O'Neill. (2017) Biomarker analysis and clinical relevance of Thymidine Kinase 1 on the cell membrane of Burkitt's lymphoma and acute lymphoblastic leukemia. OncoTargets and therapy, 10 p1-13.
134. A. B. Miller[1], R. G. Cates[1], K. L. O'Neill[1], J.A. F. Soria[2], L.V. Espinoza[3], B. F.Alegre[1], J.V. Martinez[4], D. A.Arbizú[5] 2018. Evaluation of essential oils from 22 Guatemalan medicinal plants for *in vitro* activity against cancer and established cell lines. Vol 12(3), pp 42-49.

135. Michelle H. Townsend, Richard A. Robison, and Kim L. O'Neill. (2018) A Review of HPRT and its Emerging Role in Cancer.*Medical Oncology*. 35 (6) 89-95 *DOI:https://doi-org/10.1007/212032-018-1144-1*
136. Michelle H. Townsend, Abigail M. Felsted, Weston Burrup, Richard A. Robison, and Kim L. O'Neill. (2018) Examination of Hypoxanthine Guanine Phosphoribosyltransferase as a biomarker for colorectal cancer patients. Molecular & Cellular Oncology. 5 (4) 1-14. *DOI:https://doi.org/10.1080/23723556.2018.1481810*
137. Evita G Weagel, Juan Mejía, Roman Kovtun, Joshua Keller, Juan A Arroyo, Richard A Robison, and Kim L. O'Neill (2018). TK1 Membrane expression may play a role in the invasion potential of A549 Lung cancer cells. Journal of Cancer Therapy 9 (8) 605-612
138. Michelle H. Townsend, Abigail M.Felsted, Stephen F. Piccolo, Richard A. Robison, and Kim L. O'Neill (2018) Metastatic colon adenocarcinoma has a significantly elevated expression of IL-10 compared to primary colon adenocarcinoma tumors. *Cancer Biology and Therapy*. 19 (10) 913-920. *DOI:https://doi.org/10.1080/15384047.2017.1360453*
139. Michelle H.Townsend**,** Gajendra Shrestha, Richard A. Robison, and Kim L. O'Neill. (2018) The expansion of targetable biomarkers for CAR T cell therapy. Journal of Experimental & Clinical Cancer Research. 37 (1) 163-186
140. Evita Weagel, Weston Burrup, Roman Kovtun, Edwin Velazquez, Abigail Felsted, Michelle Townsend, Zachary Ence, K. Scott Weber, Richard Robison, and Kim O'Neill. (2018) Membrane expression of thymidine kinase 1 and potential clinical relevance in lung, breast and colorectal malignancies. *Cancer Cell International*. 18 (1) 135-149
141. Michelle H. Townsend, Abigail M. Felsted, Zac E. Ence, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. (2019) Falling from Grace: HPRT is not suitable as an endogenous control for cancer-related studies. Molecular and Cellular Oncology 6 (2) 1-10.
142. Michelle H. Townsend, Zac E. Ence, Abigail M. Felsted, Alyssa C. Parker, Stephen R. Piccolo, Richard A. Robison, and Kim L. O'Neill. (2019) Potential new biomarkers for endometrial cancer. Cancer Cell International 19 (1) 19-37
143. Michelle H. Townsend, Kelsey Bennion, Richard Robison, and Kim L. O'Neill (2020) Paving the way towards a universal treatment with allogenic T cells. Immunologic Research. https://doi.org/10.1007/s12026-020-09119-7
144. Edwin J. Velazquez[1], Taylor D. Brindley[1], Gajendra Shrestha[2] , Eliza E. Bitter[1], Jordan D. Cress[1],Michelle H. Townsend[2], Bradford K. Berges[1], Richard A. Robison[1], K. Scott Weber[1] and Kim L. O'Neill[1] (2020) Novel monoclonal antibodies against thymidine kinase 1 and their potential use for the immunotargeting of lung, breast and colon cancer cells. Cancer Cell International 20, 127 p1-20. https://doi.org/10.1186/s12935-020-01198-8
145. Thymidine kinase 1 through the ages: a comprehensive review Eliza E. Bitter, Michelle H. Townsend, Rachel Erickson, Carolyn Allen & Kim L. O'Neill 2020 *Cell & Bioscience* volume 10, Article number: 138 (2020)
146. Edwin J Velazquez, Taylor D Brindley, Gajendra Shrestha, Eliza E Bitter, Jordan D Cress, Michelle H Townsend, Bradford K Berges, Richard A Robison, K Scott Weber, Kim L O'Neill. Novel Monoclonal Antibodies against Thymidine Kinase 1 and Their Potential Use for the Immunotargeting of Lung, Breast and Colon Cancer Cells. In: Heidari A, editor. Prime Archives in Cancer Research. Hyderabad, India: Vide Leaf. 2021.
147. Michelle H. Townsend, Claudia M Tellez Freitas, Dallas Larsen, Stephen R Piccolo, K. Scott Weber, Richard A. Robison, and Kim L O'Neill 2020, Hypoxanthine Guanine Phosphoribosyltransferase expression is negatively correlated with immune activity through its

regulation of purine synthesis. ImmunoBiology 225 (2020) 151931 Pages 1-14. https://doi.org/10.1016/j.imbio.2020.151931

148. Rachel Morris, Toni Mortimer, Abigail Goodman, Kai Barlow and Kim L. O'Neill 2021, An overview and molecular taste of oral squamous cell carcinoma. Global Dentistry 2021; 4(1) 138 DOI: 01.36879/GoD.20.000138

149. Rachel Morris, Shayna N. Scott, Toni Mortimer, et al. *The Impacts of Immunotherapy on Cancer*. Cancer Sci Res. 2021; 4(4): 1-6.

150. Toni O. Mortimer, Rachel Morris, Abigail Schekall, Kai Barlow, Kim L. O'Neill. *Thymidine Kinase 1: Making its Mark in Immunotherapy.* Journal of Dermatology and Skin Science. 2021;3(3):20-24

151. Edwin J. Velazquez, Jordan D. Cress, Tyler B. Humpherys, Toni O. Mortimer, David M. Bellini, Jonathan R. Skidmore, Kathryn R. Smith, Richard A. Robison, Scott K. Weber, and Kim L. O'Neill **(**2022**).** Selection of human single domain antibodies (sdAb) against thymidine kinase 1 and their incorporation into sdAb-Fc antibody constructs for potential use in cancer therapy**.** PLOS ONE. Volume: 17. Issue: 3. 2022 Published: March 3, 2022

152. Rachel M Morris, Shayna N Scott, Toni O Mortimer and Kim L O'Neill*. (2022) CAR-T Cell, a Therapeutic Tune-up for Colorectal Cancer Treatment. 6(5). NACS. 000650. 2022.
DOI: 10.31031/NACS.2022.06.000650

153. Rachel M Morris, Toni O Mortimer, and Kim L O'Neill 2022. Cytokines: Can Cancer get the Message? *Cancers* **2022**, *14*, 2178.

154. Abigail Johnson, Michelle Townsend, and Kim L O'Neill 2022. Tumor Microenvironment Immunosuppression: A roadblock to CAR T Cell Advancement in Solid Tumors. *Cells* **2022**, *11*, p1-27 3626. https://doi.org/10.3390/cells11223626

155. Morris, R.M.; Mortimer, T.O., and O'Neill, K.L. (2022). Cytokines Drive Angiogenesis. Encyclopedia. https://encyclopedia.pub/entry/22730

156. Hansen M*, Johnson A*, Weber KS, and O'Neill KL. Characterizing the Interplay of Lymphocytes in Graves' Disease. *Int J Mol Sci*. 2023;24(7):6835. Published **2023** Apr 6. doi:10.3390/ijms24076835. IF: 6.208

157. TK1 expression influences pathogenicity by cell cycle progression, cellular migration, and cellular survival in HCC1806 Breast Cancer Cells. Eliza E. Bitter,Jonathan Skidmore, Carolyn I. Allen,Rachel I. Erickson,Rachel M. Morris,Toni Mortimer,Audrey Meade,Rachel Brog,Tim Phares,Michelle Townsend, Brett E. Pickett, and Kim L. O'Neill, 2023 November 30, 2023 Plos one https://doi.org/10.1371/journal.pone.0293128

158. Naomi Rapier-Sharman; Sehi Kim; Madelyn Mudrow; Michael T. Told; Lane Fischer; Liesl Fawson; Joseph Parry; Brian D. Poole; Kim L. O'Neill; Stephen R. Piccolo; Brett E. PickettComparison of B-Cell Lupus and Lymphoma Using a Novel Immune Imbalance Transcriptomics Algorithm Reveals Potential Therapeutic Targets Genes 2024, Volume 15, Issue 9, 1215

159. Abigail Cheever, Chloe C. Kang, Kim L. O'Neill and K. Scott Weber 2024 Application of novel CAR technologies to improve treatment of autoimmune disease. Frontiers in Immunology, 15:1465191. doi: 10.3389/fimmu.2024.1465191

160. A. Cheever, H. Lindsay, C. Kang, M Hansen, K. Demars, K. O'Neill, and S. Weber 2025 Chimeric autoantibody receptor T cells specifically eliminate Graves' Disease autoreactive B cells. Front. Immunol. 16:1562662. doi: 10.3389/fimmu.2025.1562662

Papers in Preparation:

- Johnson A*, Lindsay H, Hansen M, Bennett J, O'Neill K, Weber KS. Chimeric Autoantigen Receptor T Cell Eliminates Autoreactive Pathogenic B Cells: An *In Vitro* Model for a Novel Graves' Disease Treatment.
- Haynie C*, Johnson A, Lindsay H, Meyer S, Baird L, Weber KS. Characterization of High-Affinity Antibody Fragment Against Novel Cancer Antigen HPRT for use in Cancer Immunotherapy.

BOOKS:

1. **K.L. O'Neill**, B.K. Murray (2002) Power Plants: New Evidence That Nature's "Phyto-Fighters" Are Your Best Medicine. Woodland Publishing 1-58054-351-0

Dr. O'Neill is the Founder and Chief Scientific Officer of Thunder Biotech an immunotherapy company developing novel treatments for patients with cancer. Thunderbiotech.com

Patents Submitted by Dr. Kim O'Neill

The O'Neill patent portfolio is attached herein. This includes patent applications as well as granted patents. Note: Several Patents have been submitted to other countries and are listed under the same title but with patent numbers corresponding to an international patent office.

1. Title: MONOCLONAL ANTIBODIES AGAINST ISOZYMES OF THYMIDIINE KINASE
   Application Number AT94925802 **Publication Date** 2003-05-15
   Application Date 1994-08-05 **Priority Date** 1993-08-06
   Inventors Kim L O'Neill Application Dead

2. Title: Monoclonal antibodies to thymidine kinase isozymes
   Application Number AU7559694 Publication Date 1997-02-20
   Application Date 1994-08-05 **Inventors** KIM L O'NEILL **Priority Date** 1993-08-06

Application Dead

3. Title: **MONOCLONAL ANTIBODIES TO THYMIDINE KINASE ISOZYMES**
Application Number CA2173834 **Publication Date** 1995-02-16
Application Date 1994-08-05 **Patent Status** Granted – Dead
Inventors KIM L. O'NEILL
Priority Date 1993-08-06 Application Dead.

4. Title: MONOCLONAL ANTIBODIES TO THYMIDINE KINASE ISOZYMES
Application Number CA2173834 **Publication Date** 2007-04-10
Application Date 1994-08-05 **Patent Status** Expired - Fee Related - Dead
Inventors KIM L. O'NEILL **Priority Date** 1993-08-06

5. Title: MONOKLONALE ANTIKÖRPER GEGEN ISOZYME DER THYMIDINKINASE
Application Number DE69432645T **Publication Date** 2004-04-08
Application Date 1994-08-05 **Patent Status** Expired - Lifetime - Dead
Inventors Kim L. O'NEILL **Priority Date** 1993-08-06

6. Title:MONOCLONAL ANTIBODIES TO THYMIDINE KINASE ISOZYMES
Application Number EP94925802 **Publication Date** 1997-07-30
Application Date 1994-08-05 **Patent Status** Granted – Dead
Inventors KIM, L. O'NEILL **Priority Date** 1993-08-06

7. Title: MONOCLONAL ANTIBODIES TO THYMIDINE KINASE ISOZYMES
Application Number EP94925802 **Publication Date** 2003-05-07
Application Date 1994-08-05 **Patent Status** Expired - Lifetime – Dead
Inventors KIM, L. O'NEILL **Priority Date** 1993-08-06

8. Title: Monoclonal antibodies to thymidine kinase isozymes
Application Number EP01201917 **Publication Date** 2001-10-10
Application Date 1994-08-05 **Patent Status** Withdrawn – Dead
Inventors KIM L. O'NEILL **Priority Date** 1993-08-06

9. Title: Monoclonal antibodies to thymidine kinase isozymes
Application Number EP01201917 **Publication Date** 2003-03-12
Application Date 1994-08-05 **Patent Status** Withdrawn - Dead
Inventors KIM L. O'NEILL **Priority Date**1993-08-06

10. Title: MONOCLONAL ANTIBODIES TO THYMIDINE KINASE ISOZYMES
Application Number PCT/US1994/009022 **Publication Date** 1995-02-16
Application Date 1994-08-05 **Patent Status** Dead
Inventors KIM, L. O'NEILL **Priority Date**1993-08-06

11. Title: Monoclonal antibodies to thymidine kinase 1 and uses in diagnostic and therapeutic applications.
Application Number US 08/438,627 **Publication Date** 1997-12-16

Application Date 1995-05-10 **Patent Status** Expired - Lifetime – Dead
Inventors Kim L. O'Neill **Priority Date** 1993-08-06

12. Anti-viral activity of an anti-thymidine kinase monoclonal antibody
Application Number US 11/116,937 **Publication Date** 2006-02-02
Application Date 2005-04-28 **Patent Status** Granted – Dead
Inventors Nathaniel Lallatin, Kim L. O'Neill **Priority Date** 2004-04-30

13. Title: Anti-viral activity of an anti-thymidine kinase monoclonal antibody
Application Number US 11/116,937 **Publication Date** 2007-12-25
Application Date 2005-04-28 **Patent Status** Expired - Fee Related - Dead
Inventors Nathaniel Lallatin, Kim L. O'Neill **Priority Date** 2004-04-30

14. Anti-cancer activity of an anti-thymidine kinase monoclonal antibody
Application Number US 11/134,854 **Publication Date** 2010-11-23
Application Date 2005-05-20 **Patent Status**Expired - Fee Related – Dead
Inventors Nathaniel Lallatin, Kim L. O'Neill **Priority Date** 2004-05-21

15. Title: Anti-cancer activity of an anti-thymidine kinase monoclonal antibody
Application Number AU2005245008 **Publication Date** 2005-12-01
Application Date 2005-05-23 **Patent Status** Granted - Dead
Inventors NATHANIEL LALLATIN, KIM L. O'NEILL **Priority Date** 2004-05-21

16. Title: Anti-cancer activity of an anti-thymidine kinase monoclonal antibody
Application Number AU2005245008 **Publication Date** 2005-12-01
Application Date 2005-05-23 **Patent Status** Granted – Dead
Inventors NATHANIEL LALLATIN, KIM L. O'NEILL **Priority Date** 2004-05-21

17. Anti-cancer activity of an anti-thymidine kinase monoclonal antibody
Application Number AU2005245008 **Publication Date** 2010-10-07
Application Date 2005-05-23 **Patent Status** Ceased – Dead
Inventors NATHANIEL LALLATIN, KIM L. O'NEILL **Priority Date** 2004-05-21

18. Title:ANTI-CANCER ACTIVITY OF AN ANTI-THYMIDINE KINASE MONOCLONAL ANTIBODY
Application Number CA2569094 **Publication Date** 2005-12-01
Application Date 2005-05-23 **Patent Status** Abandoned – Dead
Inventors NATHANIEL LALLATIN, KIM L. O'NEILL **Priority Date** 2004-05-21

19. ANTI-CANCER ACTIVITY OF AN ANTI-THYMIDINE KINASE MONOCLONAL ANTIBODY
Application Number EP05753692 **Publication Date** 2008-07-09
Application Date 2005-05-23 **Patent Status** Withdrawn – Dead
Inventors NATHANIEL LALLATIN, KIM, L. O'NEILL **Priority Date** 2004-05-21

20. Title: Anti-Cancer Activity of an Anti-Thymidine Kinase Monoclonal Antibody

Application Number US 12/767,489 **Publication Date** 2010-10-21
Application Date 2010-04-26 **Patent Status** Abandoned - Dead
Inventors Kim L. O'Neill **Priority Date** 2004-05-21

21. Title Macrophage chimeric antigen receptor (MOTO-CAR) in immunotherapy
Application Number AU2016305353 **Publication Date** 2018-04-12
Application Date 2016-10-13 **Patent Status** Granted – Alive
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

22. Title: Macrophage chimeric antigen receptor (MOTO-CAR) in immunotherapy
Application Number AU2016305353 **Publication Date** 2022-10-13
Application Date 2016-10-13 **Patent Status** Active – Alive
Inventors Kim O'NEILL,SCOTT WEBER **Priority Date** 2015-08-13

23. Title: MACROPHAGE CAR (MOTO-CAR) IN IMMUNOTHERAPY
Application Number CA2998406 **Publication Date** 2017-02-16
Application Date 2016-10-13 **Patent Status** Pending – Alive
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

24. MACROPHAGE CHIMERIC ANTIGEN RECEPTOR (MOTO-CAR) IN IMMUNOTHERAPY
Application Number EP16801306 **Publication Date** 2018-06-20
Application Date 2016-10-13 **Patent Status** Ceased – Dead
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-10-13

25. MACROPHAGE CHIMERIC ANTIGEN RECEPTOR (MOTO-CAR) IN IMMUNOTHERAPY
Application Number SG10201914138W **Publication Date** 2020-03-30
Application Date 2016-10-13 **Patent Status** Alive
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

26. Title: MACROPHAGE CAR (MOTO-CAR) IN IMMUNOTHERAPY
Application Number PCT/IB2016/056140 **Publication Date** 2017-02-16
Application Date 2016-10-13 **Patent Status** Dead
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

27. Title MACROPHAGE CHIMERIC ANTIGEN RECEPTOR (MOTO-CAR) IN IMMUNOTHERAPY
Application Number PCT/IB2016/056140 **Publication Date** 2017-04-27
Application Date 2016-10-13 **Patent Status** Dead
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

28. Title: Transgenic macrophages, chimeric antigen receptors, and associated methods
Application Number AU2017414703 **Publication Date** 2020-01-16
Application Date 2017-05-17 **Patent Status** Pending – Alive
Inventors Kim O'NEILL **Priority Date** 2017-05-17

29. TRANSGENIC MACROPHAGES, CHIMERIC ANTIGEN RECEPTORS, AND ASSOCIATED METHODS
Application Number CA3062978 **Publication Date** 2018-11-22
Application Date 2017-05-17 **Patent Status** Pending – Alive
Inventors Kim O'NEILL **Priority Date** 2017-05-17

30. Title:TRANSGENIC MACROPHAGES, CHIMERIC ANTIGEN RECEPTORS, AND ASSOCIATED METHODS
Application Number EP17731332 **Publication Date** 2020-03-25
Application Date 2017-05-17 **Patent Status** Pending – Alive
Inventors Kim O'NEILL **Priority Date** 2017-05-17

31. Title: Transgenic macrophages, chimeric antigen receptors, and associated methods.
Application Number US 15/597,822 **Publication Date** 2019-09-17
Application Date 2017-05-17 **Patent Status** Active – Alive
Inventors Kim O'Neill **Priority Date** 2017-05-17

32. Title: Transgenic macrophages, chimeric antigen receptors, and associated methods.
Application Number US 15/597,822 **Publication Date** 2018-11-22
Application Date 2017-05-17 **Patent Status** Granted – Alive
Inventors Kim O'Neill **Priority Date** 2017-05-17

33. Title: Transgenic macrophages, chimeric antigen receptors, and associated methods.
Application Number PCT/US2017/033039 **Publication Date** 2018-11-22
Application Date 2017-05-17 **Patent Status** Dead
Inventors Kim O'NEILL **Priority Date** 2017-05-17

34. Title: MACROPHAGE CHIMERIC ANTIGEN RECEPTOR (MOTO-CAR) IN IMMUNOTHERAPY
Application Number ZA201801636 **Publication Date** 2019-06-26
Application Date 2018-03-09 **Patent Status** Active – Alive
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

35. Title: MACROPHAGE CHIMERIC ANTIGEN RECEPTOR (MOTO-CAR) IN IMMUNOTHERAPY.
Application Number IN201847009154 **Publication Date** 2018-03-23
Application Date 2018-03-13 **Patent Status** Active – Alive
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2015-08-13

36. Title: MACROPHAGE CHIMERIC ANTIGEN RECEPTOR (MOTO-CAR) IN IMMUNOTHERAPY.
Application Number IN201847009154 **Publication Date** 2022-11-25
Application Date 2018-03-13 **Patent Status** Active – Alive
Inventors Kim O'NEILL, SCOTT WEBER **Priority Date** 2016-10-13

37. MODIFIED MACROPHAGES AND MACROPHAGE PRECURSORS AND ASSOCIATED METHODS
Application Number PCT/US2018/065543 **Publication Date** 2019-07-11
Application Date 2018-12-13 **Patent Status** Dead
Inventors Kim O'NEILL **Priority Date** 2018-01-05

38. TRANSGENIC MACROPHAGES, CHIMERIC ANTIGEN RECEPTORS, AND ASSOCIATED METHODS
Application Number ZA201908245 **Publication Date** 2020-12-23
Application Date 2019-12-11 **Patent Status** Active – Alive
Inventors Kim O'NEILL **Priority Date** 2017-05-17

39. METHOD OF TARGETING CELLS AND ASSOCIATED COMPOSITIONS
Application Number PCT/US2022/034940 **Publication Date** 2022-12-29
Application Date 2022-06-24 **Patent Status** Dead
Inventors Kim O'NEILL, Michelle TOWNSEND **Priority Date** 2021-06-24

40. TRANSGENIC MACROPHAGES, CHIMERIC ANTIGEN RECEPTORS AND RELATED METHODS
Application Number JP2022167762 **Publication Date** 2022-12-22
Application Date 2022-10-19 **Patent Status** Pending – Alive
Inventors KIM O'NEILL **Priority Date** 2017-05-17

41. Title: Characterization of a Novel Graves' Disease Treatment That Uses Chimeric Autoantigen Receptor Technology
Application Number Provisional Application No. 63/521,269 **Publication Date** Pending
Application Date 6/15/2023 **Patent Status** Pending – Alive
Inventors Scott Weber Abagail Cheever Kim O'Neill **Priority Date** 2017-05-17

Kim O'Neill Patents

METHOD OF TARGETING CELLS AND ASSOCIATED COMPOSITIONS
Described herein is a delivery system that targets leukocytes and in some embodiments monocytes to deliver nucleic acid encoding a chimeric antigen receptor. Additionally, described herein is a method of using a delivery system to transduce leukocytes and in some embodiments monocytes to deliver nucleic acid encoding a chimeric antigen receptor. The delivery system may also function to activate the target cell by providing a ligand to the chimeric antigen receptor. Furthermore, described herein is a delivery system that also include a nucleic acid inhibitor that decreases the expression of a protein that forms a part of the pathway that degrades the chimeric receptor. In embodiments, the binding of a ligand to the extracellular domain of the chimeric receptor activates the intracellular portion of the chimeric receptor. Activation of the intracellular portion of the chimeric receptor may polarize the macrophage into an MI or M2 macrophage.

Publication number	Publication date	Application number	Application date
WO22272088 A1	20221229	WO2022US34940	20220624

MODIFIED MACROPHAGES AND MACROPHAGE PRECURSORS AND ASSOCIATED METHODS

Abstract

[EN] Described herein are macrophages or macrophage precursor cells lacking functional expression of MHC genes. The macrophages may express HLA-G or a modified MHC gene that does not elicit an immune response in an allogeneic subject but remains recognized by NK cells. The cells may further comprise a chimeric antigen receptor.

Publication number	Publication date	Application number	Application date
US2021052643 AA	20210225	US20200959505	20181213
WO19135879 A1	20190711	WO2018US65543	20181213

TRANSGENIC MACROPHAGES, CHIMERIC ANTIGEN RECEPTORS, AND ASSOCIATED METHODS

Abstract

[EN] Described herein are chimeric receptors. Chimeric receptors comprise a cytoplasmic domain; a transmembrane domain; and an extracellular domain. In embodiments, the cytoplasmic domain comprises a cyptoplasmic portion of a receptor that when activated polarizes a macrophage. In further embodiments, a wild-type protein comprising the cytoplasmic portion does not comprise the extracellular domain of the chimeric receptor. In embodiments, the binding of a ligand to the extracellular domain of the chimeric receptor activates the intracellular portion of the chimeric receptor. Activation of the intracellular portion of the chimeric receptor may polarize the macrophage into an M1 or M2 macrophage.

Publication number	Publication date	Application number	Application date
AU2017414703 AA	20200116	AU20170414703	20170517
CA3062978 AA	20191106	CA20173062978	20170517
CN110662553 A	20200107	CN201780090935	20170517
EP3624834 A1	20200325	EP20170731332	20170517
IN201947052174 A	20191220	IN201947052174	20191216
JP2020520252 T2	20200709	JP20200514655T	20170517
JP7164598 B2	20221101	JP20200514655T	20170517
JP2022189893 A2	20221222	JP20220167762	20170517
KR102508182 B1	20230309	KR20197037141	20170517
KR20200020708 A	20200226	KR20197037141	20170517
WO18212770 A1	20181122	WO2017US33039	20170517
ZA201908245 A	20201223	ZA20190008245	20191211

TRANSGENIC MACROPHAGES, CHIMERIC ANTIGEN RECEPTORS, AND ASSOCIATED METHODS

Abstract

[EN] Described herein are chimeric receptors. Chimeric receptors comprise a cytoplasmic domain; a transmembrane domain; and an extracellular domain. In embodiments, the cytoplasmic domain comprises a cytoplasmic portion of a receptor that when activated polarizes a macrophage. In further embodiments, a wild-type protein comprising the cytoplasmic portion does not comprise the extracellular domain of the chimeric receptor. In embodiments, the binding of a ligand to the extracellular domain of the chimeric receptor activates the intracellular portion of the chimeric receptor. Activation of the intracellular portion of the chimeric receptor may polarize the macrophage into an M1 or M2 macrophage.

Publication number	Publication date	Application number	Application date
US10415017 BB	20190917	US20170597822	20170517
US2018334653 AA	20181122	US20170597822	20170517
US10889803 BB	20210112	US20190572368	20190916
US2020002676 AA	20200102	US20190572368	20190916
US2021207096 AA	20210708	US20210146024	20210111

O'Neill Patents LICENSED FROM BYU:

MACROPHAGE CAR (MOTO-CAR) IN IMMUNOTHERAPY

Modified macrophage immune cells are provided for the treatment of cancer and other diseases.

Publication number	Publication date	Application number	Application date
AU2016305353 AA	20180412	AU20160305353	20161013
AU2016305353 BB	20221013	AU20160305353	20161013
CA2998406 AA	20180309	CA20162998406	20161013
CN108137704 A	20180608	CN201680059778	20161013
EA201890489 A1	20180831	EA20180090489	20161013
EP3334764 A2	20180620	EP20160801306	20161013
IN201847009154 A	20180323	IN201847009154	20180313
IN411790 B	20221125	IN201847009154	20180313
KR20180054600 A	20180524	KR20187007097	20161013
SG10201914138W A1	20200330	SG20191014138	20161013
US10434153 BA	20191008	US20160161045	20160520
US11352439 BB	20220607	US20160358395	20161122

Publication number	Publication date	Application number	Application date
US2017166657 AA	20170615	US20160358395	20161122
US10821162 BB	20201103	US20180122557	20180905
US2019070276 AA	20190307	US20180122557	20180905
US10828355 BB	20201110	US20180122563	20180905
US2019091309 AA	20190328	US20180122563	20180905
US11052138 BB	20210706	US20180122564	20180905
US2019070277 AA	20190307	US20180122564	20180905
US2021330770 AA	20211028	US20210366708	20210702
US2022372170 AA	20221124	US20220833149	20220606
WO17025944 A2	20170216	WO2016IB56140	20161013
WO17025944 A3	20170427	WO2016IB56140	20161013
ZA201801636 A	20190626	ZA20180001636	20180309

References

Dr Richard Robison (Former Department Chair)
Department of Microbiology and Molecular Biology
Brigham Young University
Provo, Utah 84602

Dr Scott Weber (Current Department Chair)
Department of Microbiology and Molecular Biology
Brigham Young University
Provo, Utah 84602