

# Scott Weber

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## PROFESSIONAL EXPERIENCE

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- Associate Professor, Brigham Young University** 2018-present  
• College of Life Sciences - Department of Microbiology and Molecular Biology
- Assistant Professor, Brigham Young University** 2012-2018  
• College of Life Sciences - Department of Microbiology and Molecular Biology
- Research Instructor, Washington University in St. Louis** 2009-2012  
• Medical School - Department of Pathology and Immunology
- Postdoctoral Research Fellow, Washington University in St. Louis** 2005-2009  
• Medical School - Department of Pathology and Immunology

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## EDUCATION

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- Ph.D. in Cell and Structural Biology, University of Illinois** 2005  
• Molecular Immunology focus - Department of Biochemistry
- M.S. in Zoology, Brigham Young University** 2000  
• Neuroendocrinology focus - Department of Zoology
- B.S. in Zoology, Brigham Young University** 1998  
• Human Biology focus - Department of Zoology

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## HONORS AND AWARDS

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- Member of the Autumn Immunology Conference Executive board 2019-2021
- Member of the Autumn Immunology Conference General Council 2018-2021
- American Society of Microbiology Rocky Mountain Branch organizing committee 2018-2019
- Member of the American Society for Microbiology 2018-present
- James Bobbitt Alzheimer's Grant 2018

Graduate Mentoring Grant	2018
CEMENT Research Grant	2018
Gerontology Research Grant	2018
Member of the BYU Gerontology Program	2018-present
Translational Research Grant	2016
Member of the American Association of Cancer Researchers	2015-present
Member of the Cancer Immunology working group (CIMM)	2015-present
John A. Widtsoe Scholarly Grant	2015
BYU Mentoring Environment Grant	2014, 2015 & 2017
BYU Teaching Enhancement Grant	2014, 2015, 2016, & 2017
Member of the BYU Simmons Center for Cancer Research	2014-present
NIH Academic Research Enhancement Award (R15)	2013-2017
MMBIO Research Award – Highest Impact Factor Journal Publication	2013
Midwest Regional Center of Excellence Career Development Award	2009-2012
NIH Ruth L. Kirschstein Postdoctoral Fellow	2005-2008
Member of the American Association of Immunologists	2005-present
NIH Research Symposium Co-chair	2004
NIH Research Symposium committee member	2003
NIH Cell and Molecular Biology (CMB) training grant	2002-2004
Neuroscience Deans Fellow Scholarship	1999-2000
Member of the Golden Key Honor Society	1998
BYU Dean’s List	Winter & Spring 1998
BYU Office of Research and Creative Activities Research Scholarship	1997
BYU Trustees Scholarship (4-year full tuition)	1992-1993; 1995-1998

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## PUBLICATIONS

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Links to all 34 publications (ORCID ID:0000-0003-3688-2191) can be found at NIH MyBibliography:  
<http://www.ncbi.nlm.nih.gov/sites/myncbi/1vOVvXHsKmg/bibliography/41469359/public/?sort=date&direction=descending>

1. Accepted for publication (11/26/18): Freitas CF, Burrell HR, Valdoz JC, Hamblin GJ, Raymond CM, Cox TD, Johnson DK, Anderson JL, **Weber KS**, and Bridgewater LC. The nuclear variant of bone morphogenetic protein 2 (nBMP2) is expressed in macrophages and alters intracellular calcium mobilization. *Scientific Reports*.
2. Bitner BF, Ray JD, Kener KB, Herring JA, Tueller JA, Johnson DK, Freitas CMT, **Weber KS**, Allen, M, Thompson A, Fausnacht D, McMillan RP, Hulver MW, Brown DA, Tessem JS, Neilson AP. (2018) Common microbial metabolites of dietary flavonoids exert potent anti-diabetes activities in  $\beta$ -cell and skeletal muscle cell models. *Journal of Nutritional Biochemistry*.62:95-107 doi.org/10.1016/j.jnutbio.2018.09.004  
“Examination of Hypoxanthine Guanine Phosphoribosyltransferase as a biomarker for colorectal cancer patients.
3. Weigel EG, Burrup W, Kovtun R, Velazquez EJ, Felsted AM, Townsend MH, Ence ZE, Suh E, Piccolo SR, **Weber KS**, Robison RA, and O’Neill KL. (2018) Membrane expression of thymidine kinase 1 and potential clinical relevance in lung, breast, and colorectal malignancies. *Cancer Cell International*. 18:135 doi.org/10.1186/s12935-018-0633-9
4. Freitas CMT, Johnson DK, and **Weber KS**. (2018) T cell calcium signaling regulation by the CD5 co-receptor. *International Journal of Molecular Sciences*. 19(5), 1295; doi: 10.3390/ijms19051295
5. **Weber KS**, Bridgewater LC, Jensen JL, Breakwell D, Nielsen B, Johnson SM. (2018) Personal microbiome analysis increases engagement and interest in Immunology, Genomics, and Molecular Biology undergraduate courses. *PLoS ONE*. 13(4): e0193696. doi.org/10.1371/journal.pone.0193696
6. Jensen J, Bailey E, Kummer T, and **Weber KS**. (2017) Using Backward Design in Education Research. *Journal of Microbiology & Biology Education*. Dec 2017 18(3): DOI: doi.org/10.1128/jmbe.v18i3.1367
7. Weigel EG, Meng W, Townsend MH, Velazquez-Espinoza E, Brog RA, **Weber KS**, Robison RA, O’Neill KL. (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*. September 6, 2017. 10:4355-4367
8. Freitas CMT, Hamblin GJ, Raymond CM and **Weber KS**. (2017) Naive T helper cell with high CD5 levels has improved calcium mobilization. *PLoS ONE*. May 31; 12(5): e0178799.
9. Kempton CE, **Weber KS**, and Johnson SM (2017) Method to Increase Undergraduate Laboratory Student Confidence in Performing Independent Research. *Journal of Microbiology & Biology Education*. April 21, 2017 18(1) DOI: <https://doi.org/10.1128/jmbe.v18i1.1230>
10. Townsend MH, Anderson MD, Weigel EG, Velazquez EJ, Peck CJ, **Weber KS**, Robison RA, and O’Neill KL. (2017) Non-Small Cell Lung Cancer Cell lines A549 and NCI-H460 Express HPRT on the Plasma Membrane. *OncoTargets and Therapy*. Mar 30, 2017:10 1921-1932
11. Johnston JD, Kruman BA, Nelson MC, Merrill RM, Graul RJ, Hoyberg TG, Tuttle SC, Myers S, Cook RB, **Weber KS** (2017) Evaluation of indoor dust endotoxin levels in homes with evaporative coolers

- compared to homes using central air conditioners in a semi-arid climate. *Indoor Air*. Jan 31, 2017  
doi:10.1111/ina.12369
12. Johnston JD, Barney T, Crandall J, Brown M, Westover T, Paulson S, Smith M, and **Weber KS**. (2017) Dust mite allergens in low-income homes with evaporative coolers in a semi-arid climate. *Archives of Environmental and Occupational Health*. 73:1 38-41. doi: 10.1080/19338244.2017.1282846
  13. Johnston JD, Tuttle SC, Nelson MC, Bradshaw RK, Hoybjerg TG, Johnson JB, Kruman BA, Orton TS, Cook RB, Eggett DL, **Weber KS**. (2016) Evaporative Cooler Use Influences Temporal Indoor Relative Humidity but not Dust Mite Allergen Levels in Homes in a Semi-arid Climate *PLoS ONE*. 11(1): e0147105. doi:10.1371/journal.pone.0147105
  14. Steck R, Hill S, Weigel E, **Weber KS**, Robison R, O'Neill K. (2015) Pharmacologic immunosuppression of mononuclear phagocyte phagocytosis by caffeine. *Pharmacology Research & Perspectives*. 3(6), e00180, doi: 10.1002/prp2.180
  15. **Weber KS**, Jensen JL, Johnson SM (2015) Anticipation of personal genomics data enhances interest and learning environment in Genomics and Molecular Biology undergraduate courses. *PLoS ONE*. 10(8) e0133486
  16. Olsen DS, Goar WA, Nichols BA, Bailey KT, Christensen SL, Merriam KR, Reynolds PR, Wilson E, **Weber KS**, Bridgewater LC. (2015) Targeted mutation of nuclear bone morphogenetic protein 2 (nBMP2) impairs secondary immune response in a mouse model. *Biomed Research International*. Volume 2015, Article ID 975789, 13 pages. doi:10.1155/2015/975789
  17. Persaud SP, Parker CR, **Weber KS**, and Allen PM. (2014) Intrinsic CD4<sup>+</sup> T cell sensitivity and response to pathogen are set and sustained by avidity for thymic and peripheral self-pMHC. *Nature Immunology*. 15(3):266-274
  18. Lynch JN, Donermeyer DL, **Weber KS**, Kranz DM, and Allen PM. (2013) Subtle changes in TCR $\alpha$  CDR1 profoundly increase the sensitivity of CD4 T cells. *Molecular Immunology*. 53(3):283-294.
  19. Graw F, **Weber KS**, Allen PM and Perelson AS. (2012) Dynamics of CD4<sup>+</sup> T cell responses against *Listeria monocytogenes*. *Journal of Immunology*. 189(11):5250-5256
  20. **Weber KS**, Li QJ, Persaud SP, Campbell JD, Davis MD, and Allen PM. (2012) Distinct populations of CD4<sup>+</sup> helper T cells mediate CD4<sup>+</sup> and CD8<sup>+</sup> memory responses to infection. *Proceedings of the National Academy of Sciences. U S A*. 109(24):9511-9516 **Faculty of 1000 recommended.**
  21. **Weber KS**, Hildner K, Murphy KM, and Allen PM. (2010) Trpm4 differentially regulates Th1 and Th2 function by altering calcium signaling and NFAT localization. *Journal of Immunology*. 185(5):2836-46
  22. Persaud SP, Donermeyer DL, **Weber KS**, Kranz DM, and Allen PM. (2010) High-affinity T cell receptor differentiates cognate peptide-MHC and altered peptide ligands with distinct kinetics and thermodynamics. *Molecular Immunology*. 47(9):1793-801
  23. Morley, SC, **Weber KS**, Kao H, and Allen PM. (2008) Protein kinase C- $\theta$  is required for efficient positive selection. *Journal of Immunology*. 181(7):4696-4708.

24. **Weber KS**, Miller MJ, and Allen PM. (2008) Th17 cells exhibit a distinct calcium profile from Th1 and Th2 cells and have Th1-like motility and NFAT nuclear localization. *Journal of Immunology*. 180(3):1442-1450
25. Donermeyer DL\*, **Weber KS\***, Kranz DM, and Allen PM. (2006) The study of high affinity TCRs reveals duality in T cell recognition of antigen: specificity and degeneracy. *Journal of Immunology*. 177(10):6911-6919. (\*co-first authorship)
26. Richman SA, Healan SJ, **Weber KS**, Donermeyer DL, Dossett ML, Greenberg PD, Allen PM, and Kranz DM. (2006) Development of a novel strategy for engineering high-affinity proteins by yeast display. *Protein Engineering Design and Selection*. 19(6):255-264.
27. **Weber KS**, Donermeyer DL, Allen PM, and Kranz DM. (2005) Class II-restricted T cell receptor engineered in vitro for higher affinity retains peptide specificity and function. *Proceedings of the National Academy of Sciences. U S A*. 102(52):19033-19038.
28. Lephart ED, West TW, **Weber KS**, Rhees RW, Setchell, KD, Adlercreutz H, and Lund TD. (2002) Neurobehavioral effects of dietary soy phytoestrogens. *Neurotoxicology and Teratology*. 24, 5-16.
29. Roper RJ, Weis JJ, McCracken BA, Green CB, Ma Y, **Weber KS**, Fairbairn D, Butterfield RJ, Potter MR, Zachary JF, Doerge RW and Teuscher C. (2001) Genetic control of susceptibility to experimental Lyme arthritis is polygenic and exhibits consistent linkage to multiple loci on chromosome 5 in four independent mouse crosses. *Genes and Immunity*. 2, 388-397.
30. **Weber KS**, Setchell KD, Stocco DM and Lephart ED. (2001) Dietary soy-phytoestrogens decrease testosterone levels and prostate weight, without altering LH, prostate 5 $\alpha$ -reductase or testicular StAR levels in adult male Sprague-Dawley rats. *Journal of Endocrinology*. 170,591-9
31. **Weber KS**, Setchell KD and Lephart ED. (2001) Maternal and perinatal brain aromatase: Effects of dietary soy phytoestrogens. *Developmental Brain Research*. 126, 217-221.
32. Lephart ED, Call SB, Rhees RW, Jacobson NA, **Weber KS**, Bledsoe J and Teuscher C. (2001) Neuroendocrine regulation of sexually dimorphic brain structure and associated sexual behavior in male rats is genetically controlled. *Biology of Reproduction*. 64, 571-578.
33. Lephart ED, Thompson JM, Setchell KD, Adlercreutz H and **Weber KS**. (2000) Phytoestrogens decrease brain calcium-binding proteins but do not alter hypothalamic androgen metabolizing enzymes in adult male rats. *Brain Research*. 859, 123-131.
34. **Weber KS**, Jacobson NA, Setchell KD and Lephart ED. (1999) Brain aromatase and 5 alpha-reductase, regulatory behaviors and testosterone levels in adult rats on phytoestrogen diets. *Proceedings of the Society for Experimental Biology and Medicine*. 221(2), 131-135.

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## BOOK CHAPTERS

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1. Stone JD, Yin Y, Mo M, **Weber KS**, Donermeyer DL, Allen PM, Mariuzza RA, and Kranz DM. (2012). Engineering High-Affinity T Cell Receptor/ Cytokine Fusions for Therapeutic Targeting, Protein Engineering, Prof. Pravin Kaumaya (Ed.), ISBN: 978-953-51-0037-9, InTech,

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## SCIENTIFIC COMMENTARIES ABOUT WORK

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Nature Immunology News and Views feature on my publication. March 2014  
[http://www.nature.com/ni/journal/v15/n3/full/ni.2832.html?WT.ec\\_id=NI-201403](http://www.nature.com/ni/journal/v15/n3/full/ni.2832.html?WT.ec_id=NI-201403)

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## PATENTS

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US Patent application with Dr. Kim O'Neill (*US20170166657A1*)  
*Macrophage chimeric antigen receptor (moto-car) in immunotherapy*

World Patent application with Dr. Kim O'Neill (*WO2017025944A3*)  
*Macrophage chimeric antigen receptor (moto-car) in immunotherapy*

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## MEDIA REPORTS ABOUT WORK

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1. Interview about work with Julie Rose on the Top of Mind Show on BYU Radio. August 13, 2018  
<http://www.byuradio.org/episode/16beae4a-c292-4977-a45a-6d67b7934977?playhead=5233&autoplay=true>
2. BYU Home page feature on publication and work. April 11, 2018  
<https://news.byu.edu/news/want-students-more-engaged-class-let-them-sample-tiny-creatures-living-them>
3. CBS news story about microbiome publication findings.  
<http://kutv.com/news/local/byu-professors-students-who-study-their-microbiomes-are-more-engaged-in-class>
4. Science Daily news story about microbiome publication findings.  
<https://www.sciencedaily.com/releases/2018/04/180411145049.htm>
5. Ask the Truth news story about microbiome publication findings  
<http://asktruth24.com/student-engagement-in-class-could-be-improved-using-personal-data/92/#comment-12>
6. BYU Life Sciences magazine highlight of T cell and dust mite projects. Fall 2017/Winter 2018  
<http://ismagazine.byu.edu/Fall2017Winter2018/Health-Defenders>
7. Interview about work with Julie Rose on the Top of Mind Show on BYU Radio. January 23, 2017  
<https://www.byuradio.org/episode/46b02b63-3495-4fac-8a83-07f63f63956a/top-of-mind-with-julie-rose-world-events-weekend-warriors-punching-the-clock?playhead=4779&autoplay=true>
8. BYU Life Sciences magazine story on effort to provide authentic learning experiences. June 2016  
<http://ismagazine.byu.edu/Issues/Spring2016/SevenReasonstoSeekOutAuthenticLearningExperiences.aspx>
9. Interview about publication and work on the Matt Townsend Show on BYU Radio. June 2, 2016  
<http://www.byuradio.org/episode/ffedd537-d4cc-45e9-87b1-f5bc139c7ad9/the-matt-townsend-show-the-abolitionists-war-on-soda-allergies-and-dust-mites?playhead=6580&autoplay=true>
10. Fox Evening News interview and TV feature on publication and work. May 11, 2016  
<http://fox13now.com/2016/05/11/research-from-byu-suggests-utah-countys-climate-makes-dust-mites-less-of-a-concern/>
11. KSL News radio story about publication and work. May 10, 2016.  
<https://audioboom.com/boos/4549098-new-byu-study-shows-low-numbers-of-dust-mites-in-utah-county-homes>

12. ABC News story about publication and work. May 9, 2016  
<http://www.good4utah.com/news/top-stories/are-dust-mites-really-a-problem-in-utah>
13. BYU News feature on publication and work. May 6, 2016  
<https://news.byu.edu/news/dust-mites-invading-your-mattress-maybe-not-say-byu-researchers>
14. BYU Home page feature on publication and work. February 13, 2014  
<http://news.byu.edu/archive14-feb-helper-t-cells.aspx>
15. KSL News Radio story about recent publication and work. February 18, 2014  
[http://img.ksl.com/audio/2014\\_02\\_14\\_scott\\_and\\_maria3.mp3](http://img.ksl.com/audio/2014_02_14_scott_and_maria3.mp3) Starts at minute 34:14
16. BYU ElevenNews at Noon feature on my lab and work. February 20, 2014  
<http://elevennews.byu.edu/2014/02/helper-t-cells/>

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## GRANT FUNDING

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### External grants (awarded)

**NIH/NIAID** (1R15AI107753-01) 6/1/13-5/31/17  
 NIH Academic Research Enhancement Award (R15) \$449,087  
 The role of antigenic strength in the primary and memory responses of pathogen specific CD4<sup>+</sup> T cells

**NIH/MRCE** (U54 AI057160) 8/1/09-2/28/12  
 MRCE Career Development Award in Biodefense and Emerging Infectious Diseases \$350,617  
 Determining optimal ligand affinity for generating protective CD4<sup>+</sup> T cell responses to *Listeria monocytogenes*.

### Internal grants (awarded)

2018 James Bobbitt Alzheimer's Grant \$15,000  
 Characterization of Mutant Chemokine Receptors and their Role in Inflammation and Alzheimer's Disease

2018 Graduate Mentoring Grant \$15,000  
 Role of CD5 in T cell metabolism and cognitive function

2018 BYU CEMENT Research Grant \$5,000  
 The role of antigenic strength in the primary and memory responses of pathogen specific CD4<sup>+</sup> T cells

2018 Gerontology Research Grant \$10,000  
 Characterization of Mutant Chemokine Receptors and their Role in Inflammation and Alzheimer's disease

2017 BYU College of Life Sciences Teaching Enhancement Grant \$3,000  
 Improving molecular biology and immunology student engagement with novel 3D molecular models

2017 BYU Mentoring Environment Grant \$20,000

## T cell immunotherapy of infectious disease and cancer

2016 BYU College of Life Sciences Translational Research Grant Co-PI with Dr. Kim O'Neill on a Chimeric Antigen Receptors immunotherapy project	\$15,000
2016 BYU College of Life Sciences Teaching Enhancement Grant Integrating microbiome metagenomic analysis into the classroom to improve student learning	\$8,700
2015 John A. Widtsoe Scholarly Grant Engineering chimeric antigen receptors to combat infectious disease.	\$25,000
2015 BYU Mentoring Environment Grant Improving the memory response of pathogen specific helper T cells	\$20,000
2015 BYU College of Life Sciences Teaching Enhancement Grant Printing and integrating novel 3D molecular models to enhance learning in Molecular Biology courses.	\$2,000
2014 BYU Mentoring Environment Grant Improving the memory response of pathogen specific helper T cells.	\$20,000
2014 BYU College of Life Sciences Teaching Enhancement Grant Integrating personal genome testing into genomics courses to improve student learning	\$8,500

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## TEACHING EXPERIENCE

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MMBIO 441	<b>Advanced Molecular Biology</b> – Winter 2013, Winter 2014, Winter 2015
MMBIO 442	<b>Advanced Molecular Biology laboratory</b> – Winter 2014, Winter 2015, Winter 2016, Winter 2017, Winter 2018
MMBIO 463	<b>Immunology</b> – Winter 2016, Winter 2017, Winter 2018
MMBIO 494R	<b>Undergraduate Mentored Research</b> – 2012 (F), 2013 (W/Sp/Su/F), 2014 (W/Sp/Su/F), 2015 (W/Sp/Su/F), 2016 (W/Sp/Su/F), 2017 (W/Sp/Su/F), 2018 (W/Sp/Su/F),
MMBIO 522	<b>Flow Cytometry</b> - Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018
MMBIO 551R	<b>Graduate Immunology</b> – Winter 2016, Winter 2017, Winter 2018
MMBIO 694R	<b>Graduate Mentored Research</b> – 2013 (F), 2014 (W/Sp/Su/F), 2015 (W/Sp/Su/F), 2016 (W/Sp/Su/F), 2017 (W/Sp/Su/F), 2018 (W/Sp/Su/F)



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## GUEST LECTURES / TEACHING SERVICE

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Win 2018	MMBIO 121 – General Biology; Health and Disease	Guest lecture
Fall 2017	MMBIO 121 – General Biology; Health and Disease	Guest lecture
Win 2017	MMBIO 121 – General Biology; Health and Disease	Guest lecture
Fall 2017	MMBIO 463 – Immunology	Graded poster presentations
Fall 2016	MMBIO 661 – Molecular Genetics	Guest lecture
Fall 2016	MMBIO 425 – Diagnostic Techniques	Guest lecture
Fall 2016	MMBIO 463 – Immunology	Guest lecture
Fall 2016	MMBIO 463 – Immunology	Graded poster presentations
Win 2016	MMBIO 468 – Genomics	Guest lecture
Win 2016	MMBIO 121 – General Biology; Health and Disease	Taught 2 lectures
Fall 2015	MMBIO 425 – Diagnostic Techniques	Guest lecture
Fall 2015	MMBIO 661 – Molecular Genetics	Guest lecture
Fall 2015	MMBIO 390R – Cell Cycle	Guest lecture
Fall 2014	MMBIO 624 – Microbial Pathogenesis	Taught 3 lectures
Fall 2014	LFSCI 101 – Freshmen Life Sciences Seminar	Guest lecture
Win 2014	MMBIO 463 – Immunology	Taught 2 lectures
Fall 2013	MMBIO 463 – Immunology	Graded poster presentations
Fall 2013	MMBIO 441 – Advanced Molecular Biology	Guest lecture
Sum 2013	MMBIO New Student Orientation	Taught new student lectures
Win 2013	MMBIO 463 – Immunology	Taught 3 lectures
Fall 2012	MMBIO 463 – Immunology	Graded poster presentations
Fall 2012	MMBIO 624 – Microbial Pathogenesis	Taught 3 lectures
Fall 2012	LFSCI 101 – Freshmen Life Sciences Seminar	Guest lecture

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## CITIZENSHIP / SERVICE (2012 – PRESENT)

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- 2019 – Member of the Autumn Immunology Conference Executive Board (2019-2021)
- 2018 – Panelist for new BYU professors preparing for their 3<sup>rd</sup> year review.
- 2018 – American Society of Microbiology Rocky Mountain Branch Secretary for 2019 meeting.
- 2018 – Reviewed two chapters of Janeway Immunobiology to improve future editions of textbook
- 2018 – Reviewed submissions for Simmons Center for Cancer Research Summer Fellowships
- 2018 – Member of the Autumn Immunology Conference General Council (2018-2021)
- 2018 – Reviewer for NIH study section (Special emphasis - Academic Research Enhancement Awards)
- 2017 – Reviewed mentored undergraduate grant submissions for the BYU College of Life Sciences
- 2017 – Reviewer for NIH study section (Special emphasis - Academic Research Enhancement Awards)
- 2017 – Reviewer for NIH study section (Biomedical Sensing, Measurement and Instrumentation)
- 2017 – Reviewer for Wellcome Trust Principle Research Fellowships
- 2017 – Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters)
- 2016 – Organized class (Unlocking the Secrets of DNA) at UVU Empowering Your Future conference
- 2016 – Taught class on personal genomics immunotherapies at Orem Golden Kiwanas club meeting.

- 2016 – Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters)
- 2016 – Taught class (Unlocking the Secrets of DNA) at UVU Empowering Your Future conference
- 2016 – Reviewed submissions for Simmons Center for Cancer Research Summer Fellowships
- 2015 – Member of the College Curriculum Committee (2015-present)
- 2015 – Member of the MMBIO executive committee (2015-present)
- 2015 – Chair of the MMBIO Undergraduate Committee (2015-present)
- 2015 – Reviewed ORCA grant submissions for the BYU College of Life Sciences
- 2015 – Organized the MMBIO Faculty Research Lunch (8-week event)
- 2015 – Reviewed BYU Graduate Studies Fellowship Proposals
- 2014 – Reviewed ORCA grant submissions for the BYU College of Life Sciences
- 2014 – Helped organize the MMBIO 494R class trip to Yellowstone
- 2014 – Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters)
- 2014 – Member of Research Instrument Core committee
- 2014 – Helped the MMBIO club and Chemical engineering at Provo Kids Science Palooza
- 2013 – Initiated and organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters)
- 2013 – Chair of the MMBIO Collaborative Research Committee (2013-present).
- 2013 – Reviewed ORCA grant submissions for the BYU College of Life Sciences
- 2012 – Member of the MMBIO Undergraduate Committee (2012-2015)

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## UNDERGRADUATE STUDENTS MENTORED

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| 1. Bryce Anderson <sup>†*</sup>      | - Generating high affinity T cell receptors   |
| 2. Brian Ballard <sup>†</sup>        | - Generating high affinity T cell receptors   |
| 3. John Hancock <sup>†**‡</sup>      | - Generating high affinity T cell receptors   |
| 4. Kemais Ehlers <sup>†*</sup>       | - Role of apoptosis in memory cell formation  |
| 5. Brian Pando <sup>†</sup>          | - Developing PCR test for MERS                |
| 6. Raul Herrera                      | - Generating high affinity T cell receptors   |
| 7. Evan Campbell <sup>†</sup>        | - qPCR analysis of dust mite role in asthma   |
| 8. Julene Johnson <sup>†</sup>       | - ELISA analysis of dust mite role in asthma  |
| 9. Kurt Williams <sup>†*</sup>       | - Role of apoptosis in memory cell formation  |
| 10. Morgan Christiansen <sup>†</sup> | - ELISA analysis of dust mite role in asthma  |
| 11. Taylor Hobjerg <sup>†*</sup>     | - ELISA analysis of dust mite role in asthma  |
| 12. Sheldon Meyer <sup>†§</sup>      | - Generating high affinity T cell receptors   |
| 13. Garrett Hamblin <sup>*†‡</sup>   | - Calcium analysis of T cells and macrophages |
| 14. Niels Steadman <sup>†</sup>      | - Calcium analysis of T cells and macrophages |
| 15. Lance Christian                  | - In vitro production of TK1                  |
| 16. Justin Crandall <sup>†*</sup>    | - Generating chimeric antigen receptors       |
| 17. Mitch Cook <sup>†</sup>          | - PAS kinase role in metabolism and immunity  |
| 18. Spencer Dykman                   | - Generating high affinity T cell receptors   |
| 19. Carlee Larsen                    | - Calcium analysis of T cells and macrophages |
| 20. Steven Ogden                     | - Calcium analysis of T cells and macrophages |
| 21. Blaine Penrod                    | - Generating chimeric antigen receptors       |

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| 22. Tia Thomas <sup>Σ</sup>         | - Generating high affinity T cell receptors     |
| 23. Josephine Tuller <sup>†*Σ</sup> | - Characterizing metabolic function of CARs     |
| 24. Becca Nimrod <sup>†</sup>       | - Generating high affinity T cell receptors     |
| 25. Nolan Beatty                    | - Transfecting chimeric antigen receptors       |
| 26. Daniel Thompson                 | - Generating chimeric antigen receptors         |
| 27. Tyler Cox <sup>*Σ</sup>         | - Calcium analysis of T cells and macrophages   |
| 28. Charles Teames <sup>*Σ</sup>    | - Generating chimeric antigen receptors         |
| 29. Allen Weinert <sup>*φ</sup>     | - Chemokine receptors and Alzheimer's disease   |
| 30. Wyatt Magoffin <sup>ψ</sup>     | - Characterizing high affinity T cell receptors |
| 31. David Bellini                   | - Chemokine receptors and Alzheimer's disease   |
| 32. Rachel Johnson                  | - Generating chimeric antigen receptors         |

\* Awarded a BYU ORCA grant.

† Submitted a BYU ORCA grant.

‡ Winner of an American Association of Immunologists Undergraduate Award for having a student abstract ranked in the top 5 at the Autumn Immunology Conference in Chicago.

§ Awarded the BYU College of Life Sciences Vanice-Reid Student Research Endowment Award

Σ Awarded a BYU Simmons Cancer Research Center Summer Fellowship.

φ Awarded a BYU CURA grant.

ψ Awarded a College of Life Science's Vanice, Glen W., and Keith G. Reid Endowment Award.

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## HONORS THESIS MENTOR

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Reika Takita (2017) - The Effect of the Overexpression of IRF5 in B-Cells on Inflammatory and Co-Stimulatory Activity

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## GRADUATE STUDENTS MENTORED

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1. Claudia Tellez Freitas<sup>\*‡</sup> (2013-2019 Ph.D. degree) - Calcium signaling in T cells and macrophages
2. Deborah Johnson<sup>\*\*\*\*Σ</sup> (2014-2019 Ph.D. degree) - TCR Affinity and CD5 in T cell activation
3. Kiara Vaden<sup>\*\*\*</sup> (2015-2020 Ph.D. degree) - Affinity in T cell activation & immunotherapies
4. Josue Gonzalez<sup>†Ω</sup> (2016-2021 Ph.D. degree) - Cytokine receptors and Alzheimer's (co-mentor)
5. Ashlin Cowger (2017-2019 M.S. degree) - Dust mite and endotoxin role in asthma
6. Josie Tueller<sup>\*</sup> (2017-2019 M.S. degree) - Metabolism changes in T cell immunotherapies

† Awarded a BYU Gerontology Fellowship.

Ω Awarded a James Bobbitt Alzheimers Grant

\* Awarded a BYU Cancer Research Center Summer Fellowship.

‡ Awarded a BYU Graduate Student Mentoring Fellowship.

Σ Awarded a BYU Graduate Student Fellowship.

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## GRADUATE STUDENT COMMITTEES

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1. Ashley Wright (MS – Microbiology and Molecular Biology – Johnson lab) – 2012-14
2. Evita Weagel (Ph.D. – Microbiology and Molecular Biology – O’Neill lab) – 2012-17
3. Whitney Hayes (M.S. – Biology – Kauwe/Gross lab) – 2012-2014
4. Claudia Tellez Freitas (Ph.D. – Microbiology and Molecular Biology– co-committee chair) 2013-19
5. Ryan Steck (M.S. – Microbiology and Molecular Biology – O’Neill lab) – 2012-14
6. Justin Livingstone (MS – Microbiology and Molecular Biology – O’Neill lab) – 2013-15
7. Matt Schinn (Ph.D. – Chemical Engineering – Bundy lab) – 2014-2018
8. Deborah Johnson (Ph.D. – Microbiology and Molecular Biology – committee chair) 2013-19
9. Melissa Calkins (M.S. – Physiology and Developmental Biology – Hansen lab) 2014-16
10. Ruchira Sharma (Ph.D. – Microbiology and Molecular Biology – Grose lab) – 2014-19
11. Clarice Harrison (M.S. – Microbiology and Molecular Biology – Griffitts lab) – 2013-15
12. Kai Li Ong (Ph.D. – Microbiology and Molecular Biology – Grose lab) – 2014-18
13. Rhonda Chronis (M.S. – Microbiology and Molecular Biology – Wilson lab) – 2014-16
14. Calab Cornaby (Ph.D. – Microbiology and Molecular Biology – Poole lab) – 2014-18
15. Justen Despain (M.S. – Microbiology and Molecular Biology – Robison lab) – 2014-16
16. Michael Deyhle (Ph.D. – Exercise Science – Hildawl lab) – 2014-2018
17. Antonio Solis Leal (Ph.D. – Microbiology and Molecular Biology – Berges lab) – 2015-20
18. Edwin Velazquez Espinoza (Ph.D. – Microbiology and Molecular Biology – O’Neill lab) – 2015-20
19. Michelle Townsend (Ph.D. – Microbiology and Molecular Biology – O’Neill lab) – 2015-18
20. Kiara Vaden (Ph.D. – Microbiology and Molecular Biology – committee chair) 2015-20
21. Israel Guerrero (Ph.D. – Microbiology and Molecular Biology – Robison lab) 2015-2020
22. Josue Gonzalez (Ph.D. – Biology - co-committee chair) 2016-20
23. Jenny Pattison (Ph.D. – Microbiology and Molecular Biology – Grose lab) 2016-2019
24. Daniel Arens (Ph.D. – Microbiology and Molecular Biology – Grose lab) 2016-2021
25. JongSu “Johnny” Choi (M.S. – Chemistry and Biochemistry – Christensen lab) 2017-2019
26. Jacob Herring (Ph.D. – Microbiology and Molecular Biology – Tessem lab) 2017-2022
27. Eliza Laurence (Ph.D. – Microbiology and Molecular Biology – O’Neill lab lab) 2017-2022
28. Ashlin Cowger (M.S. – Microbiology and Molecular Biology – committee chair) 2017-2019
29. Josie Tueller (M.S. – Microbiology and Molecular Biology – committee chair) 2017-2019
30. Hyrum Shumway (M.S. – Microbiology and Molecular Biology – Robison lab) 2015-2018
31. Jaqueline Monroe (Ph.D. – Mechanical Engineering – Bowden lab) 2015-2020
32. Elise Melhado (M.S. – Microbiology and Molecular Biology – Grose lab) 2018-2019

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## VISITING PROFESSOR DOING SABBATICAL IN MY LAB (MAY 2017 - JUNE 2018)

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Dr. Chung-Da Yang, Associate Professor, National Pingtung University of Science, Taiwan  
Project: Characterization of immune response to *T. gondii* nanoparticle vaccine.

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## PRESENTATIONS AT LOCAL, REGIONAL, AND NATIONAL MEETINGS

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\* = BYU Undergraduate † = BYU Graduate Student <sup>Ω</sup> Oral presentation <sup>Σ</sup> Poster presentation

1. HPRT Overexpression May Contribute to the Immunosuppressive Tumor Microenvironment. Townsend MH<sup>†</sup>, Ewell ZD<sup>\*</sup>, Freitas CMT<sup>†</sup>, Larsen DJ<sup>\*</sup>, Lawrence EL<sup>†</sup>, Bennion KB<sup>\*</sup>, Piccolo SR, Weber KS, Robison RA, and O'Neill KL. American Association for Cancer Research Annual Meeting. March 29-April 3 *Atlanta, GA*
2. Weinert A<sup>\*</sup>, Gonzalez G<sup>†</sup>, and Weber KS. Characterization of Mutant Chemokine receptor CCBP2-V41A and its role in inflammation and Alzheimer's disease. Utah Conference on Undergraduate Research. February 22<sup>nd</sup>, 2019. *Ogden Utah*
3. Johnson R<sup>\*</sup>, Hancock J<sup>\*</sup>, Vaden K<sup>†</sup>, and Weber KS. Development of anti-thymidine kinase 1 antibody (WHEELZ) as a potential cancer immunotherapy. Utah Conference on Undergraduate Research. February 22<sup>nd</sup>, 2019. *Ogden Utah*
4. Teames C<sup>\*</sup> and Weber KS. Role of CD5 on T regulatory function. Utah Conference on Undergraduate Research. February 22<sup>nd</sup>, 2019. *Ogden Utah*
5. Magoffin W<sup>\*</sup>, Johnson D<sup>†</sup>, and Weber KS. Characterizing the effectiveness of a novel helper T cell chimeric antigen receptor immunotherapy. Utah Conference on Undergraduate Research. February 22<sup>nd</sup>, 2019. *Ogden Utah*
6. Freitas C<sup>†</sup>, Cox T<sup>\*</sup>, Dunne A<sup>\*</sup>, and Weber KS. CD5 co-receptor plays a role in T cell metabolism. Midwinter Immunology Conference. Jan 26-29, 2019. *Asilomar CA*
7. HPRT impact on immune regulation influences the tumor microenvironment. Townsend MH<sup>†</sup>, Bitter EK<sup>\*</sup>, Larsen D<sup>\*</sup>, Freitas CMT<sup>†</sup>, Piccolo SR, Weber KS, Robison RA, O'Neill KL. Midwinter Immunology Conference. Jan 26-29, 2019. *Asilomar CA*
8. Gonzalez G<sup>†ΩΣ</sup>, Weinert A<sup>\*</sup>, Wilson E, Kauwe K, Weber KS. Genetic Association and Characterization of CCRL2-V180M with Alzheimer's disease, cognitive decline, and serum cytokine levels. Autumn Immunology Conference 47<sup>th</sup> Annual Meeting. November 16-19<sup>th</sup> 2018. *Chicago Illinois*
9. Weinert A<sup>\*ΩΣ</sup>, Gonzalez G<sup>†</sup>, Wilson E, Kauwe K, Weber KS. Characterization of Mutant Chemokine Receptor CCBP2-V41A and its Role in Inflammation and Alzheimer's disease. Autumn Immunology Conference 47<sup>th</sup> Annual Meeting. November 16-19<sup>th</sup> 2018. *Chicago Illinois*
10. Murcia JSG, Ferrel M, Avei T, Reid K, Weber KS, Wilson E, Grose J, Kauwe J. Association of CCRL2-V180M (RS6441977) and CCBP2-V41A (RS2228467) with AD, cognitive decline, and serum cytokine levels. Alzheimer's Association International Conference. July 22-26<sup>th</sup> 2018. *Chicago Illinois*
11. Graul RJ<sup>\*Σ</sup>, Cowger A<sup>Ω</sup>, Nash R<sup>\*</sup>, Tueller JA<sup>Ω</sup>, Beard J, Weber KS, and Johnston JD. Prevalence of Dust Mite Allergens in Low-Income Homes in Utah County, Utah. American Industrial Hygiene Association (AIHA) Conference. June 1-3, 2018. Philadelphia PA

12. Townsend MH, Bennion KB\*, Weigel EG<sup>†</sup>, Velazquez EJ<sup>†</sup>, Whitley KV<sup>†Σ</sup>, **Weber KS**, and O'Neill KL. Mechanistically Minded: A study of the surface co-localization of salvage pathway enzymes. National Symposium for Undergraduate Research at St. Jude Children's Research Hospital June 2018. Memphis, Tennessee.
13. Townsend MH<sup>†Σ</sup>, Clay TB\*, Felsted AM\*, Burrup WS\*, Weigel EG<sup>†</sup>, Velazquez EJ<sup>†</sup>, **Weber KS**, Robison RA, and O'Neill KL. Evaluating HPRT as a potential Immunotherapeutic target in colon cancer cells. BYU Biomedical Symposium. May 2018 *Provo Utah*.
14. Freitas CM<sup>†ΩΣ</sup>, Cox TD\*, Johnson DK<sup>†</sup>, and **Weber KS**. CD5 expression influences T cell metabolism and mice behavior. The American Association of Immunologists Annual Meeting. May 4-8<sup>th</sup> 2018. *Austin TX*
15. Townsend MH<sup>†Σ</sup>, Olson E\*, Weigel EG<sup>†</sup>, Velazquez EJ<sup>†</sup>, Felsted AM\*, Burrup WS\*, **Weber KS**, Robison RA, and O'Neill KL. HPRT: A biomarker and potential target for detection and treatment of colorectal cancers. American Association for Cancer Research Annual Meeting. April 14-18<sup>th</sup> 2018 *Chicago IL*
16. Velazquez EJ<sup>†Σ</sup>, Lattin JE\*, Brindley TD\*, Reinstein ZZ\*, Chu R\*, Liu L\*, Weigel EG<sup>†</sup>, Townsend MH<sup>†</sup>, Whitley KV<sup>†</sup>, Lawrence EL<sup>†</sup>, Garcia BT\*, **Weber KS**, Robison RA, and O'Neill KL. Macrophage toll-like receptor-chimeric antigen receptors (MOTO-CARs) as a novel adoptive cell therapy for the treatment of solid malignancies. American Association for Cancer Research Annual Meeting. April 14-18<sup>th</sup> 2018. *Chicago IL*
17. Whitley KV<sup>†Σ</sup>, Velazquez EJ<sup>†</sup>, Bennion KB\*, Kingery BM\*, **Weber KS**, and O'Neill KL. "Wheelz": A novel engineered human antibody for possible CAR T-cell therapy. American Association for Cancer Research Annual Meeting. April 14-18<sup>th</sup> 2018. *Chicago IL*
18. Cox TD<sup>\*Ω</sup>, Freitas CM<sup>†</sup>, Yorgason JT<sup>†</sup>, Franson JJ<sup>†</sup>, Bridgewater LC, Steffensen SC, and **Weber KS**. CD5 deficient mice exhibit altered cognitive function in behavioral studies. Tri-Branch American Society of Microbiology Meeting. April 7<sup>th</sup>, 2018. *Durango CO*
  - *Winner of best undergraduate oral presentation award*
19. Tueller JA<sup>\*Ω</sup>, Jensen JL, Breakwell D, Johnson SM, and **Weber KS**. Personal microbiome analysis enhances student engagement in life sciences courses. Tri-Branch American Society of Microbiology Meeting. April 7<sup>th</sup>, 2018. *Durango CO*
20. Johnson DK<sup>†Ω</sup>, Freitas CM<sup>†</sup>, Hancock JC\*, Tueller JA\*, Myers SJ\*, Hamblin GJ\* and **Weber KS**. CD5 expression influences helper T cell metabolic state. Tri-Branch American Society of Microbiology Meeting. April 7<sup>th</sup>, 2018. *Durango CO*
21. Murcia JDG<sup>†Σ</sup>, Weinert A\*, Ferrel M, **Weber KS**, Kauwe JSK. Characterization of mutant chemokine (C-C motif) receptor-like 2 (CCRL2) and its role in inflammation and Alzheimer's disease. Tri-Branch American Society of Microbiology Meeting. April 7, 2018. *Durango CO*
  - *Winner of best graduate student poster award*

22. Freitas CM<sup>†Ω</sup>, Cox TD<sup>\*</sup>, Johnson DK<sup>†</sup>, Franson JJ<sup>†</sup>, Bridgewater LC, and **Weber KS**. Role of CD5 expression on T cell metabolism. Tri-Branch American Society of Microbiology Meeting. April 7<sup>th</sup>, 2018. *Durango CO*
23. Wynn AG, Garland KG, Kener KB, Weber KS, Bikman BT, Hancock CR, Tessem JS. High Fat Fed Nr4a1 Knock Out Mouse has Significant Modulation of Mitochondrial Respiration Across Various Tissues. The FASEB Journal. April 2018. 32:1
24. Bennion KB<sup>\*Σ</sup>, Whitley KV<sup>†</sup>, Velazquez EJ<sup>†</sup>, Kingery BM<sup>\*</sup>, **Weber KS**, and O'Neill KL. "Wheelz": A novel engineered human antibody for possible CAR T-cell therapy. BYU College of Life Science Poster Competition. March 29<sup>th</sup>, 2018. *Provo Utah*
25. Cox TD<sup>\*Σ</sup>, Freitas CM<sup>†</sup>, Yorgason JT<sup>†</sup>, Franson JJ<sup>†</sup>, Bridgewater LC, Steffensen SC, and **Weber KS**. CD5 deficient mice exhibit altered cognitive function in behavioral studies. BYU College of Life Science Poster Competition. March 29<sup>th</sup>, 2018. *Provo Utah*
26. Garland K<sup>\*Σ</sup>, Kener K<sup>\*</sup>, Hancock J<sup>\*</sup>, Freitas CMT<sup>†</sup>, Bickman B, Hancock C, **Weber KS**, and Tessem J. The effects of Nr4a1 full-body knockout in mice. Utah Conference on Undergraduate Research. February 9<sup>th</sup>, 2018. *Cedar City Utah*
27. Cox TD<sup>\*ΩΣ</sup>, Freitas CM<sup>†</sup>, Yorgason JT<sup>†</sup>, Franson JJ<sup>†</sup>, Bridgewater LC, Steffensen SC, and **Weber KS**. CD5 deficient mice exhibit altered cognitive function in behavioral studies. Autumn Immunology Conference 46<sup>th</sup> Annual Meeting. November 17-20<sup>th</sup> 2017. *Chicago Illinois*
28. Tueller JA<sup>\*ΩΣ</sup>, Whitley KV<sup>†</sup>, Velazquez EJ<sup>†</sup>, Weigel EG<sup>†</sup>, O'Neill KL, and **Weber KS**. Generation and metabolic characterization of TK-1 specific 2<sup>nd</sup> and 3<sup>rd</sup> generation CAR vectors. Autumn Immunology Conference 46<sup>th</sup> Annual Meeting. November 17-20<sup>th</sup> 2017. *Chicago Illinois*
29. Johnson DK<sup>†ΩΣ</sup>, Freitas CM<sup>†</sup>, Hancock JC<sup>\*</sup>, Tueller JA<sup>\*</sup>, Myers SJ<sup>\*</sup>, Hamblin GJ<sup>\*</sup> and **Weber KS**. CD5 expression influences helper T cell metabolic state. Autumn Immunology Conference 46<sup>th</sup> Annual Meeting. November 17-20<sup>th</sup> 2017. *Chicago Illinois*
30. **Weber KS**<sup>Ω</sup>. T cell coordination of the immune response in health and disease. BYU Microbiology and Molecular Biology Department Seminar. September 21<sup>st</sup> 2017. *Provo Utah*
31. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU speed networking seminar. August 29<sup>th</sup> 2017. *Provo Utah*
32. **Weber KS**<sup>Ω</sup>. Engineering the Immune System to Target Cancer Cells. BYU Cancer Research Seminar. July 20<sup>th</sup> 2017. *Provo Utah*
33. Murcia JDG<sup>†Σ</sup>, **Weber KS**, Kauwe JSK. Characterization of mutant chemokine receptors and their role in inflammation and Alzheimer's disease. Alzheimer's Association International Conference. July 16-20, 2017 *London England*
34. **Weber KS**<sup>Ω</sup>. Regulation of lymphocyte activation and function. BYU Microbiology and Molecular Biology Faculty Research Lunch Seminar. May 31, 2017. *Provo Utah*

35. Johnson D<sup>†Ω</sup> and **Weber KS**. T cell receptors specific for a naturally occurring *Listeria monocytogenes* epitope engineered *in vitro* for high affinity. American Society for Microbiology Intermountain Branch Meeting. April 15<sup>th</sup> 2017. *Ogden Utah*
36. Freitas CT<sup>†Ω</sup>, Hamblin GJ\*, Larsen CM\*, **Weber KS**. Naïve Helper T Cells with high CD5 expression have increased calcium signaling. American Society for Microbiology Intermountain Branch Meeting. April 15<sup>th</sup> 2017. *Ogden Utah*
37. Vaden K<sup>†Ω</sup>, Hancock III JC\*, **Weber KS**. Determining the Optimal TCR:pepMHC Affinity for CD4<sup>+</sup> T cell Primary and Memory Response. American Society for Microbiology Intermountain Branch Meeting. April 15<sup>th</sup> 2017. *Ogden Utah*
38. <sup>Δ</sup>Velazquez-Espinoza E<sup>†Σ</sup>, Ewell ZD\*, Lattin JE\*, Vaden K<sup>†</sup>, Townsend MH<sup>†</sup>, Weigel EG<sup>†</sup>, **Weber KS**, Robison RA, and O'Neill KL. A pre-clinical study of chimeric antigen receptor (CAR) T cells targeting Thymidine Kinase 1 (TK1) in lung cancer cell lines. American Society for Microbiology Intermountain Branch Meeting. April 15<sup>th</sup> 2017. *Ogden Utah*.  

<sup>Δ</sup> Poster won first place in the competition.
39. Townsend MH<sup>†Σ</sup>, Burrup W\*, Weigel EG<sup>†</sup>, Felsted A\*, Anderson MD\*, Velazquez-Espinoza E<sup>†</sup>, **Weber KS**, Robison RA, O'Neill KL. HPRT: Could it be used as a biomarker for future immunotherapies? Undergraduate student caucus and poster competition. American Association for Cancer Research April 1-5<sup>th</sup> 2017. *Washington DC*
40. Velazquez-Espinoza E<sup>†Σ</sup>, Vaden K<sup>†</sup>, Townsend MH<sup>†</sup>, Weigel EG<sup>†</sup>, **Weber KS**, Robison RA, and O'Neill KL. Development of a TK1 specific chimeric antigen receptor T cell for the treatment of non-small-cell lung cancer. American Association for Cancer Research. April 1-5<sup>th</sup> 2017. *Washington DC*
41. Weigel EG<sup>†Σ</sup>, Townsend MH<sup>†</sup>, Anderson MD\*, Velazquez EJ<sup>†</sup>, **Weber KS**, Robison RA, O'Neill KL. Unusual expression of HPRT on the surface of the colorectal cancer cell lines HT29 and SW620. American Association for Cancer Research. April 1-5<sup>th</sup> 2017. *Washington DC*
42. Tueller J<sup>\*Σ</sup>, Vaden K<sup>†</sup>, **Weber KS**. Engineering a Cancer-Specific Third Generation CAR Immunotherapy. 11th Annual Utah Conference on Undergraduate Research. February 17, 2017. *Orem Ut*
43. Vaden K<sup>†Σ</sup>, Hancock III JC\*, **Weber KS**. Determining the Optimal TCR:pepMHC Affinity for CD4<sup>+</sup> T cell Primary and Memory Response. Midwinter Immunology Conference. Jan 28-31, 2017. *Asilomar CA*
44. Freitas CT<sup>†Σ</sup>, Hamblin GJ\*, Larsen CM\*, **Weber KS**. Naïve Helper T Cells with high CD5 expression have increased calcium signaling. Midwinter Immunology Conference. Jan 28-31, 2017. *Asilomar CA*.



45. Velazquez-Espinoza E<sup>†Σ</sup>, Vaden K<sup>†</sup>, Townsend MH<sup>†</sup>, Weigel EG<sup>†</sup>, **Weber KS**, Robison RA, and O'Neill KL. Chimeric Antigen Receptor (CARs) for Thymidine Kinase 1 (TK1): A novel immunotherapy approach to fight cancer. Biomedical Engineering West Regional Conference. January 19-20<sup>th</sup> 2017. *Provo Utah*
46. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU speed networking seminar. August 2016. *Provo Utah*
47. Johnson DJ<sup>†</sup> and **Weber KS**<sup>Ω</sup>. Role of affinity for antigen and self in T cell activation and memory generation. LDS Life Science Research Symposium. July 20-22<sup>nd</sup> 2016. *Lehi Utah*
48. Graul RJ\*<sup>Σ</sup>, Tuttle SC\*, Kruman BA\*, Nelson MC\*, Hoybjerg TG\*, Meyers S\*, Cook RB\*, Eggett DL, **Weber KS**, and Johnston JD. (2016). Differences in indoor dust endotoxin levels based on type of air conditioning in homes in a semi-arid climate. NEHA 2016 AEC and HUD Healthy Homes Conference, San Antonio, TX.
49. Brown M\*<sup>Σ</sup>, Barney T\*, Westover T\*, Paulson S\*, Smith M\*, Crandall J\*, **Weber KS**, and Johnston JD. (2016). Dust mite allergens in low-income homes with evaporative coolers in a semi-arid climate. NEHA 2016 AEC and HUD Healthy Homes Conference, San Antonio, TX.
50. **Weber KS**<sup>Ω</sup>. Engineering the Immune System to Target Cancer Cells. BYU Cancer Research Seminar. June 16<sup>th</sup> 2016. *Provo Utah*
51. **Weber KS**<sup>Ω</sup>. Regulation of lymphocyte activation and function. BYU Microbiology and Molecular Biology Faculty Research Lunch Seminar. April 27<sup>th</sup> 2016. *Provo Utah*
52. Crandall J\*<sup>Σ</sup>, Vaden K<sup>†</sup>, O'Neill K, and **Weber KS**. Sequencing an antibody specific for an epitope overexpressed on cancer cells. 10<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 19<sup>th</sup> 2016. *Salt Lake City. Utah*
53. Hamblin G\*<sup>Σ</sup>, Freitas C<sup>†</sup>, Steadman N\*, Williams K\*, and **Weber KS**. Calcium Signaling in Primary and Secondary Responses of Listeria specific T helper cells. 10<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 19<sup>th</sup> 2016. *Salt Lake City. Utah*
54. Myers S\*<sup>Σ</sup>, Johnson D<sup>†</sup>, Anderson B\*, Ehlers K\*, Orton T\*, Ballard B\*, Persaud S, **Weber KS**. Engineering High Affinity Class II TCRs Specific for Listeria monocytogenes. 10<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 19<sup>th</sup> 2016. *Salt Lake City. Utah*
55. Vaden K<sup>†Σ</sup> and **Weber KS**. Determining the optimal TCR:pMHC avidity for CD4+ T cell memory generation. Midwinter Conference of Immunologists. January 23-26 2016. *Asilomar California*.
56. <sup>Δ</sup>Hancock J\*<sup>ΩΣ</sup>, Cook M\*, Grose JH, Laura Bridgewater LC, and **Weber KS**. Role of PAS kinase and metabolism on immune cells. Autumn Immunology Conference 44<sup>th</sup> Annual Meeting. November 20-23<sup>rd</sup> 2015. *Chicago Illinois*

<sup>Δ</sup> Winner of an AAI Undergraduate Award/cash prize for one of the best of undergraduates presenting.

57. Myers S<sup>\*ΩΣ</sup>, Johnson D<sup>†</sup>, Anderson B<sup>\*</sup>, Ehlers K<sup>\*</sup>, Orton T<sup>\*</sup>, Ballard B<sup>\*</sup>, Persaud S, **Weber KS**. Engineering High Affinity Class II TCRs Specific for *Listeria monocytogenes*. Autumn Immunology Conference 44<sup>th</sup> Annual Meeting. November 20-23<sup>rd</sup> 2015. *Chicago Illinois*
58. <sup>Δ</sup>Hamblin G<sup>\*ΩΣ</sup>, Freitas C<sup>†</sup>, Steadman N<sup>\*</sup>, Williams K<sup>\*</sup>, and **Weber KS**. Calcium Signaling in Primary and Secondary Responses of *Listeria* specific T helper cells. Autumn Immunology Conference 44<sup>th</sup> Annual Meeting. November 20-23<sup>rd</sup> 2015. *Chicago Illinois*  
<sup>Δ</sup> Winner of an AAI Undergraduate Award/cash prize for one of the best of undergraduates presenting.
59. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU speed networking seminar. August 2015. *Provo Utah*
60. **Weber KS**<sup>Ω</sup>. Relationship of T cell receptor affinity and T cell function. BYU Microbiology and Molecular Biology Faculty Research Lunch Seminar. June 17<sup>th</sup> 2015. *Provo Utah*
61. **Weber KS**<sup>Ω</sup>. Engineering the Immune System to Target Cancer Cells. BYU Cancer Research Seminar. May 21<sup>st</sup> 2015 *Provo Utah*
62. Johnson DK<sup>†Σ</sup> and **Weber KS**. TCR:pMHC avidity and CD4<sup>+</sup> T cell memory generation. American Association of Immunology 102<sup>nd</sup> Annual meeting. May 8-12<sup>th</sup> 2015 *New Orleans Louisiana*
63. Johnson DK<sup>†Σ</sup>, Persaud SP, **Weber KS**. Determining optimal TCR:pMHC avidity for CD4<sup>+</sup> T cell memory generation. 2015 Keystone Symposia on T cell regulation and effector function. March 29<sup>th</sup> - April 3<sup>rd</sup> 2015 *Snowbird Utah*
64. Anderson BE<sup>\*Σ</sup>, Ehlers KB<sup>\*</sup>, Johnson DK<sup>†</sup>, Persaud SP, and **Weber KS**. Engineering High Affinity T-Cell Receptors Specific for *Listeria monocytogenes*. 9<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 27<sup>th</sup> 2015. *St. George Utah*
65. Hoybjerg T<sup>\*Σ</sup>, Christiansen M<sup>\*</sup>, Myers S<sup>\*</sup>, Kruman B<sup>\*</sup>, Johnston JD, and **Weber KS**. Development of sensitive Limulus Amebocyte Lysate assay to quantify endotoxin levels in Utah homes with and without swamp coolers. 9<sup>th</sup> Annual Utah Conference on Undergraduate Research. Feb 27 2015. *St. George Ut*
66. Christiansen M<sup>\*Σ</sup>, Hoybjerg T<sup>\*</sup>, Cook R<sup>\*</sup>, Johnston JD, and **Weber KS**. Comparison of dust mite antigen levels in Utah homes with swamp coolers versus homes with air conditioning. 9<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 27<sup>th</sup> 2015. *St. George Utah*
67. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU Molecular Chemistry and Biochemistry Department Seminar. February 19<sup>th</sup> 2015. *Provo Utah*
68. Freitas CT<sup>†Σ</sup>, Williams KR<sup>\*</sup>, and **Weber KS**. Calcium Signaling in T helper cell Primary and Secondary Responses. Midwinter Conference of Immunologists. January 24-27 2015. *Asilomar California*.
69. Johnson D<sup>†Σ</sup>, Anderson BE<sup>\*</sup>, Ehlers K<sup>\*</sup>, and **Weber KS**. Engineering High Affinity T-Cell

Receptors Specific for *Listeria monocytogenes*. Midwinter Conference of Immunologists. January 24-27 2015. *Asilomar California*.

70. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU Microbiology and Molecular Biology Department Seminar. January 22<sup>nd</sup> 2015. *Provo Utah*
71. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU speed networking seminar. August 13<sup>th</sup> 2014. *Provo Utah*
72. **Weber KS**<sup>Ω</sup>. Relationship of T cell receptor affinity and T cell function. BYU Microbiology and Molecular Biology Faculty Research Lunch Seminar. June 23<sup>rd</sup> 2014. *Provo Utah*
73. Hancock J\*<sup>Σ</sup>, Ehlers KB\*, Orton T\*, Persaud SP, and **Weber KS**. Engineering a Pathogen Specific Single Chain T-Cell Receptor for *Listeria monocytogenes*. American Society for Microbiology Intermountain Branch Meeting. March 8<sup>th</sup> 2014. *Provo Utah*
74. Tellez CM<sup>†Ω</sup>, Williams KR\*, Weagel E<sup>†</sup>, O'Neill KL, and **Weber KS**. Macrophage polarization by necrotic and apoptotic cancer cells. American Society for Microbiology Intermountain Branch Meeting. March 8<sup>th</sup> 2014. *Provo Utah*
75. Ballard B\*<sup>Σ</sup>, Anderson BE\*, Orton T\*, Persaud SP, and **Weber KS**. Engineering a Stabilized Single Chain T-Cell Receptor called LLO118 for use in Generating High Affinity T cell Receptors. American Society for Microbiology Intermountain Branch Meeting. March 8<sup>th</sup> 2014. *Provo Utah*
76. Campbell E\*<sup>Σ</sup>, Johnson J\*, Christiansen M\*, Johnston JD, and **Weber KS**. Development of sensitive ELISA and qPCR assays to quantitate levels of dust mite antigens in homes in Utah with and without swamp coolers. American Society for Microbiology Intermountain Branch Meeting. March 8<sup>th</sup> 2014. *Provo Utah*
77. Mayo, JL\*<sup>Σ</sup>, Nichols BA<sup>†</sup>, Olson DS<sup>†</sup>, Cordner RD\*, Hancock CR\*, **Weber KS**, Wilson E, Edwards JG, Barrow JR, and Bridgewater LC. The nBMP2 mutant mouse shows defects in intracellular calcium transport-regulated pathways. Southwest Regional Meeting of the Society for Developmental Biology. March 7<sup>th</sup>-8<sup>th</sup> 2014 Aurora Colorado
78. Hancock J\*<sup>Σ</sup>, Ehlers KB\*, Orton T\*, Persaud SP, and **Weber KS**. Engineering a Pathogen Specific Single Chain T-Cell Receptor for *Listeria monocytogenes*. 8<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 28<sup>th</sup> 2014. *Provo Utah*
79. Wahlquist B\*<sup>Σ</sup>, Kesler D\*, **Weber KS**, and Johnston JD. The effect of evaporative coolers on indoor relative humidity and dust mite allergens in Utah homes. 8<sup>th</sup> Annual Utah Conference on Undergraduate Research. February 28<sup>th</sup> 2014. *Provo Utah*
80. Williams KR\*<sup>Σ</sup>, Tellez CM<sup>†</sup>, Lee EJ\*, Weagel E<sup>†</sup>, O'Neill KL, and **Weber KS**. Macrophage polarization by necrotic and apoptotic cancer cells. BYU Presidential Leadership Council Meeting. February 27<sup>th</sup> 2014. *Provo Utah*
81. **Weber KS**<sup>Ω</sup>. Helper T cell role in immunity to infection. BYU speed networking Seminar. Dec 6<sup>th</sup> 2013 *Provo Utah*

82. Anderson BE\*, Ehlers KB\*, Persaud SP, and **Weber KS**. Engineering Pathogen Specific Single Chain T Cell Receptors. Autumn Immunology Conference 42<sup>nd</sup> Annual Meeting. November 22-25<sup>th</sup> 2013. *Chicago Illinois*
83. Ehlers KB\*<sup>ΩΣ</sup>, Anderson BE\*, Persaud SP, and **Weber KS**. Oral Presentation: Engineering Pathogen Specific Single Chain T Cell Receptors. Autumn Immunology Conference 42<sup>nd</sup> Annual Meeting. November 22-25<sup>th</sup> 2013. *Chicago Illinois*
84. **Weber KS**<sup>Ω</sup>. Helper T Cell Role in Immunity to Infection. Microbiology and Molecular Biology Graduate Student Orientation. Brigham Young University. September 5, 2013. *Provo Utah*
85. **Weber KS**<sup>Ω</sup>. Relationship of T cell receptor affinity and T cell function. BYU Microbiology and Molecular Biology Faculty Research Lunch Seminar. August 14<sup>th</sup> 2013. *Provo Utah*
86. **Weber KS**<sup>Ω</sup>. The Role of Antigenic Strength in the Primary and Memory Responses of Pathogen Specific CD4<sup>+</sup> T Cells. LDS Life Science Research Symposium. July 19<sup>th</sup> 2013. *Salt Lake City Utah*
87. Persaud SP<sup>Σ</sup>, **Weber KS**, and Allen PM. TCR avidity for thymic and peripheral self peptide-MHC sets and sustains intrinsic CD4<sup>+</sup> T cell sensitivity. The American Association of Immunologists 100<sup>th</sup> Annual Meeting. May 3-7 2013. *Honolulu Hawaii*
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90. **Weber KS**<sup>Ω</sup>. Helper T Cell Role in Immunity to Infection. Microbiology and Molecular Biology Graduate Student Retreat. Brigham Young University. August 23<sup>rd</sup> 2012 *Provo Utah*
91. Marshall E<sup>Σ</sup>, **Weber KS**, Donermeyer D, Allen PM, and Kranz DM. Examining the role of T cell co-receptors CD4 and CD8 in T cell activation by using high-affinity T cell receptors. The American Association of Immunologists 99<sup>th</sup> Annual Meeting. May 4-8 2012 *Boston Mass*
92. **Weber KS**<sup>Ω</sup>. Helper T Cell Role in Immunity to Infection. Microbiology and Molecular Biology Department Seminar. Brigham Young University. Nov 19 2011 *Provo Utah*
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94. Lynch JN<sup>Σ</sup>, Donermeyer D, **Weber KS** and Allen PM. Increased K<sub>on</sub> of TCR-pMHC interaction influences activation and development of CD4<sup>+</sup> T cells. The American Association of Immunologists 98<sup>th</sup> Annual Meeting. May 13-17 2011. *San Francisco California*

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109. **Weber KS<sup>Ω</sup>**. Role of Calcium in T helper cell activation, movement, and function. Washington University in St. Louis Immunology and Pathology Department Seminar. May 25 2007 *Potosi Missouri*
110. Cemerski, S<sup>Σ</sup>, **Weber KS**, Allen PM, and Shaw AS. Is ligand quality encoded in calcium oscillations? Immunology Program Retreat. September 15 & 16 2006. *Potosi Missouri*
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112. **Weber KS<sup>Ω</sup>**. Engineering a high affinity T cell receptor to examine structure and function. Cell and Structural Biology Departmental Seminar. University of Illinois. April 25 2005 *Champaign-Urbana Illinois*
113. Donermeyer DL<sup>Σ</sup>, **Weber KS**, TJ Brett, DM Kranz, DH Fremont, PM Allen (2005) Functional and structural studies of a high affinity TCR reveal a signaling threshold for T cells and a mechanism for broadened peptide fine specificity. The 92<sup>nd</sup> American Association of Immunologists annual meeting. March 31-April 5 2005 *San Diego California*
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125. **Weber KS<sup>Σ</sup>**, Setchell, KD, and Lephart ED. Maternal and perinatal brain aromatase: Effects of dietary soy phytoestrogens. Endocrine Society meeting. June 21-24, 2000 *Toronto Canada*
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