

---

## PROFESSIONAL EXPERIENCE

---

- Department Chair, *Brigham Young University*** 2023-present  
• College of Life Sciences - Department of Microbiology and Molecular Biology
- Full Professor, *Brigham Young University*** 2023-present  
• College of Life Sciences - Department of Microbiology and Molecular Biology
- Associate Director, *Simmons Center for Cancer Research*** 2020-present  
• Cancer research center with over 40 labs from 5 colleges at Brigham Young University
- Associate Professor, *Brigham Young University*** 2018-2023  
• College of Life Sciences - Department of Microbiology and Molecular Biology
- Interim Director, *College of Life Sciences Research Instrument Core*** 2022  
• Instrument core providing access to critical research equipment and technical expertise
- 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

---

## EDUCATION

---

- 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

---

## AFFILIATIONS

---

- Review Editor for *Frontiers in Immunology* (Inflammation section) 2022-present
- Member of the BYU Simmons Center for Cancer Research Executive Board 2020-present
- Member of the Autumn Immunology Conference Executive Board 2019-present
- Member of the Autumn Immunology Conference General Council 2018-2019

American Society of Microbiology Intermountain Branch organizing committee	2018-2019
Member of the American Society for Microbiology	2018-present
Member of the BYU Gerontology Program	2018-present
Member of the American Association of Cancer Researchers	2015-present
Member of the Cancer Immunology working group (CIMM)	2015-present
Member of the BYU Simmons Center for Cancer Research	2014-present
Member of the American Association of Immunologists	2005-present
Member of the Golden Key Honor Society	1998-present

---

## HONORS AND AWARDS

---

BYU College of Life Sciences Distinguished Mentor Award	2022
BYU College of Life Sciences Outstanding Teaching Award	2021
BYU Honors Program Big Ideas Seminar Speaker	2020
BYU College of Life Sciences Outstanding Research Award	2019
NIH Academic Research Enhancement Award (R15)	2013-2017
Microbiology and Molecular Biology Departmental Research Award	2013
NIH Midwest Regional Center of Excellence Career Development Award	2009-2012
NIH Ruth L. Kirschstein Postdoctoral Fellow	2005-2008
NIH Cell and Molecular Biology Training Program Research Symposium Co-chair	2004
NIH Cell and Molecular Biology Training Program Research Symposium committee	2003
NIH Cell and Molecular Biology training grant	2002-2004
Neuroscience Deans Fellow Scholar	1999-2000
BYU Dean's List	Winter & Spring 1998
BYU Office of Research and Creative Activities Research Scholarship	1997
BYU Trustees Scholar (4-year full-tuition academic scholarship)	1992-1998

---

## TEACHING EXPERIENCE

---

MMBIO 294R	<b>Undergraduate Mentored Research</b> - F/W/Sp/Su 2018-2024
MMBIO 441	<b>Advanced Molecular Biology</b> – Winter 2013-Winter 2015
MMBIO 442	<b>Advanced Molecular Biology laboratory</b> – Winter 2014-Winter 2023
MMBIO 463	<b>Immunology</b> – Winter 2016-Winter 2024
MMBIO 494R	<b>Advanced Undergraduate Mentored Research</b> – F/W/Sp/Su 2012-2024
MMBIO 522	<b>Flow Cytometry</b> - Fall 2014-Fall 2023
MMBIO 551R	<b>Graduate Immunology</b> – Winter 2016-2024
MMBIO 694R	<b>Research in Progress</b> – Fall 2023
MMBIO 694R	<b>Graduate Mentored Research</b> – F/W/Sp/Su 2013-2024

---

## PUBLICATIONS

ORCID # 0000-0003-3688-2191

---

I have published 55 manuscripts over my career (NIH [MyBibliography](#)) and three book chapters. My publications have had a total of 2,379 citations as of Jan 12, 2024, according to [Google Scholar](#).

\* = BYU Undergraduate Student    † = BYU Graduate Student.    <sup>Φ</sup> = Contributed equally to the work

1. Lindsay H\*, Hendrix CJ\*, Gonzalez Murcia JD, Haynie C, **Weber KS**. Role of Atypical Chemokines in Neuroinflammation and Neurodegenerative Disorders. *International Journal of Molecular Sciences*. 24(22):16493 (2023). <https://doi.org/10.3390/ijms242216493>
2. Rapier-Sharman N, Hutchinson MLL, Moreno CM, Quaye A, Poole BD, Weber KS, Pitt WG, Pickett BE (2023). A Novel Application of Spinning Disk Technology to Collect Plasma from Whole Blood Prior to Quantifying Plasma RNA. *microPublication Biology*. <https://doi.org/10.17912/micropub.biology.001007>
3. Ronström JW, Williams SB, Payne A, O'Bray DJ, Hafen C, Burris M, **Weber KS**, Steffensen SC, Yorgason JT. Interleukin-10 enhances activity of ventral tegmental area dopamine neurons resulting in increased dopamine release. *Brain Behavior and Immunity*. 113:145-155 (2023) <https://doi.org/10.1016/j.bbi.2023.07.007>
4. Hansen M, Johnson A, **Weber KS**, and O'Neill KL. Characterizing the Interplay of Immune Cells in Graves' Disease. *International Journal of Molecular Sciences*. 24, 6835 (2023) <https://doi.org/10.3390/ijms24076835>
5. Toleman ER\*, Beatty CD\*, Bush J\*, Kohli M\*, Moreno CM†, Ware JL, **Weber KS**, Khan R, Maheshwari C, Weisz D, Dudchenko O, Lieberman E, and Frandsen PB. A chromosome-length assembly of the black petaltail (*Tanypteryx hageni*) dragonfly. *Genome Biology and Evolution*. evad024 (2023) <https://doi.org/10.1093/gbe/evad024>
6. Moreno C†, Bybee E\*, Freitas CMT, and **Weber KS**. Immunomodulatory role of the oral microbiome and its role in allergic diseases. *Frontiers in Allergy*. 4:1067483 (2023) <http://doi.org/10.3389/falgy.2023.1067483>
7. Johnston JD, Cowger AE† and **Weber KS**. Bioaerosol and Microbial Exposures from Evaporative Coolers and their Potential Health Outcomes. *Indoor Air*. 32:e13082 (2022) <https://doi.org/10.1111/ina.13082>
8. Moreno C†, Haynie C†, Johnson A\*, and **Weber KS**. Recent approaches in engineering chimeric antigen receptor immune cells to combat cancer. *Biomedicine* 10(7):1493 (2022) <https://doi.org/10.3390/biomedicine10071493>
9. Moreno C†, Bybee E\*, Freitas CMT, Pickett BE, and **Weber KS**. Meta-analysis of two RNAseq datasets to determine periodontitis diagnostic biomarkers and drug target candidates. *International Journal of Molecular Sciences*. 23(10):5580 (2022) <https://doi.org/10.3390/ijms23105580>
10. Whitley KV†, Freitas CMT, Moreno C†, Bennett J\*, Hancock J\*, Cox T\*, Haynie C†, Pickett BE, and **Weber KS**. CD5 deficiency alters helper T cell metabolic function and shifts the systemic metabolome. *Biomedicine*. 10(3):704 (2022) <https://doi.org/10.3390/biomedicine10030704>
11. Velazquez EJ†, Cress JD\*, Humpherys TB\*, Mortimer T\*, Bellini DM\*, Skidmore JR\*, Smith KR\*, Robison RA, **Weber KS** and O'Neill KL. Selection of Human Single Domain Antibodies (sdAb) Against Thymidine Kinase 1 and their Incorporation into sdAb-Fc Constructs for Potential Use in Cancer Therapy. *PLOS ONE*. 3;17(3):e0264822 (2022) <https://doi.org/10.1371/journal.pone.0264822>
12. Guerrero-Arguero I†, Freitas CMT, **Weber KS**, Berges BK, Robison RA, and Pickett BE. Alphavirus: Host pathogenesis, immune response, and vaccine and treatment updates. *Journal of General Virology*. 102:001644 (2021) <https://doi.org/10.1099/jgv.0.001644>
13. Johnson DK†, Magoffin W\*, Myers SJ\*, Finnell JG†, Hancock JC\*, Orton TS\*, Freitas CMT†, Persaud SP, Christensen KA and **Weber KS**. CD4 inhibits helper T cell activation at lower affinity threshold for full-length T cell receptors than single chain signaling constructs. *Frontiers in Immunology*. 11:561889 (2021) <https://doi.org/10.3389/fimmu.2020.561889>
14. Adams K†, **Weber KS**†, and Johnson SM†. Exposome and Immunity Training: How Pathogen Exposure Order Influences Innate Immune Cell Lineage Commitment and Function. *International Journal of Molecular Sciences*. 21, 8462 (2020) <https://doi.org/10.3390/ijms21228462>
15. Gonzalez Murcia JD†, Weinert A\*, Freitas CMT†, Arens DK†, Ferrel M\*, Grose JH, Wilson E, Kauwe JSK†, and **Weber KS**†. Atypical chemokine receptor ACKR2-V41A has decreased CCL2 binding, scavenging, and activation, supporting sustaining inflammation and increased Alzheimer's disease risk. *Scientific Reports*. 10, 8019 (2020) <https://doi.org/10.1038/s41598-020-64755-1>

16. Velazquez EJ<sup>†</sup>, Brindley TD\*, Shrestha G, Bitter EE<sup>†</sup>, Cress JD\*, Townsend MH<sup>†</sup>, Berges BK, Robison RA, **Weber KS** and O'Neill KL. Novel monoclonal antibodies against thymidine kinase 1 and their potential use for immunotargeting of lung, breast and colon cancer cells. *Cancer Cell International*. 20:127 (2020) <https://doi.org/10.1186/s12935-020-01198-8>
17. Townsend MH<sup>†</sup>, Freitas CMT<sup>†</sup>, Larsen D\*, Piccolo SR, **Weber KS**, Robison RA, and O'Neill KL. Hypoxanthine Guanine Phosphoribosyltransferase expression is negatively correlated with immune activity through its regulation of purine synthesis. *Immunobiology*. 225(3):151931 (2020) <https://doi.org/10.1016/j.imbio.2020.151931>
18. Turbitt WJ, Rosean CB, **Weber KS**, and Norian LA. Obesity and CD8 T cell metabolism: Implications for anti-tumor immunity and cancer immunotherapy outcomes. *Immunological Reviews*. 295: 203-219 (2020) <https://doi.org/10.1111/imr.12849>
19. Whitley KV<sup>†</sup>, Tueller JA<sup>†</sup> and **Weber KS**. Genomics Education in the Era of Personal Genomics: Academic, Professional, and Public Considerations. *International Journal of Molecular Sciences*. 21(3):768 (2020) <https://doi.org/10.3390/ijms21030768>
20. Tueller JA<sup>†</sup>, Whitley KV<sup>†</sup>, and **Weber KS**. A Full Semester Flow Cytometry Course Improves Graduate and Undergraduate Student Confidence and Interest. *Biochemistry and Molecular Biology Education*. 48:99-107 (2019) <https://doi.org/10.1002/bmb.21318>
21. Johnston JD<sup>Φ</sup>, Cowger AE<sup>†Φ</sup>, Graul RJ\*, Nash R\*, Tueller JA<sup>†</sup>, Hendrickson NR\*, Robinson DR, Beard J, and **Weber KS**. Associations between evaporative cooling and dust mite allergens, endotoxins, and  $\beta$ -(1 $\rightarrow$ 3)-D-glucans in house dust: A study of low-income homes. *Indoor Air*. 29:1005–1017 (2019) <https://doi.org/10.1111/ina.12600>
22. Freitas CF<sup>†</sup>, Burrell HR\*, Valdoz JC\*, Hamblin GJ\*, Raymond CM\*, Cox TD\*, Johnson DK<sup>†</sup>, 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*. 9:934 (2019) <https://doi.org/10.1038/s41598-018-37329-5>
23. Bitner BF<sup>†</sup>, Ray JD\*, Kener KB\*, Herring JA<sup>†</sup>, Tueller JA<sup>†</sup>, Johnson DK<sup>†</sup>, Freitas CMT<sup>†</sup>, **Weber KS**, Allen M, Thompson A, Fausnacht D, McMillan RP, Hulver MW, Brown DA, Tessem JS, and Neilson AP. Common microbial metabolites of dietary flavonoids exert potent protective activities in  $\beta$ -cell and skeletal muscle cell models. *Journal of Nutritional Biochemistry*. 62:95-107 (2018) <https://doi.org/10.1016/j.jnutbio.2018.09.004>
24. Weigel EG<sup>†</sup>, Burrup W\*, Kovtun R\*, Velazquez EJ<sup>†</sup>, Felsted AM\*, Townsend MH<sup>†</sup>, Ence ZE\*, Suh E\*, Piccolo SR, **Weber KS**, Robison RA, and O'Neill KL. Membrane expression of thymidine kinase 1 and potential clinical relevance in lung, breast, and colorectal malignancies. *Cancer Cell International*. 18:135 (2018) <https://doi.org/10.1186/s12935-018-0633-9>
25. Freitas CMT<sup>†</sup>, Johnson DK<sup>†</sup>, and **Weber KS**. T cell calcium signaling regulation by the CD5 co-receptor. *International Journal of Molecular Sciences*. 19(5), 1295 (2018) <https://doi.org/10.3390/ijms19051295>
26. **Weber KS**, Bridgewater LC, Jensen JL, Breakwell D, Nielsen B, and Johnson SM. Personal microbiome analysis increases engagement and interest in Immunology, Genomics, and Molecular Biology undergraduate courses. *PLoS ONE*. 13(4): e0193696 (2018) <https://doi.org/10.1371/journal.pone.0193696>
27. Jensen J, Bailey E, Kummer T, and **Weber KS**. Using Backward Design in Education Research. *Journal of Microbiology & Biology Education*. 18:3 (2017) <https://doi.org/10.1128/jmbe.v18i3.1367>
28. Weigel EG<sup>†</sup>, Meng W\*, Townsend MH<sup>†</sup>, Velazquez-Espinoza E<sup>†</sup>, Brog RA\*, **Weber KS**, Robison RA, and O'Neill KL. 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 (2017) <https://doi.org/10.2147/OTT.S141239>
29. Freitas CMT<sup>†</sup>, Hamblin GJ\*, Raymond CM\* and **Weber KS**. Naive T helper cell with high CD5 levels has improved calcium mobilization. *PLoS ONE*. 12(5): e0178799 (2017) <https://doi.org/10.1371/journal.pone.0178799>

30. Kempton CE<sup>†</sup>, **Weber KS**, and Johnson SM. Method to Increase Undergraduate Laboratory Student Confidence in Performing Independent Research. *Journal of Microbiology & Biology Education*. 18:1 (2017) <https://doi.org/10.1128/jmbe.v18i1.1230>
31. Townsend MH<sup>†</sup>, Anderson MD\*, Weagel EG<sup>†</sup>, Velazquez EJ<sup>†</sup>, Peck CJ\*, **Weber KS**, Robison RA, and O'Neill KL. Non-Small-Cell Lung Cancer Cell lines A549 and NCI-H460 Express HPRT on the Plasma Membrane. *OncoTargets and Therapy*. 10: 1921-1932 (2017) <https://doi.org/10.2147/OTT.S128416>
32. Johnston JD, Kruman BA, Nelson MC\*, Merrill RM, Graul RJ\*, Hoyberg TG\*, Tuttle SC\*, Myers S\*, Cook RB\*, and **Weber KS**. Differential effects of air conditioning type on residential endotoxin levels in a semi-arid climate. *Indoor Air*. 27(5): 946-954 (2017) <https://doi.org/10.1111/ina.12369>
33. Johnston JD, Barney T\*, Crandall J\*, Brown M\*, Westover T\*, Paulson S\*, Smith M\*, and **Weber KS**. Prevalence of house 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 (2017). <https://doi.org/10.1080/19338244.2017.1282846>
34. Johnston JD, Tuttle SC\*, Nelson MC\*, Bradshaw RK\*, Hoybjerg TG\*, Johnson JB\*, Kruman BA\*, Orton TS\*, Cook RB\*, Eggett DL, and **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. <https://doi.org/10.1371/journal.pone.0147105>
35. Steck R\*, Hill S\*, Weigel E<sup>†</sup>, **Weber KS**, Robison R, and O'Neill K. Pharmacologic immunosuppression of mononuclear phagocyte phagocytosis by caffeine. *Pharmacology Research & Perspectives*. 3(6), e00180 (2015). <https://doi.org/10.1002/prp2.180>
36. **Weber KS**, Jensen JL, Johnson SM. Anticipation of personal genomics data enhances interest and learning environment in Genomics and Molecular Biology undergraduate courses. *PLoS ONE*. 10(8) e0133486 (2015). <https://doi.org/10.1371/journal.pone.0133486>
37. Olsen DS<sup>†</sup>, Goar WA\*, Nichols BA\*, Bailey KT\*, Christensen SL\*, Merriam KR\*, Reynolds PR, Wilson E, **Weber KS**, and Bridgewater LC. 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, 1-13 (2015). <https://doi.org/10.1155/2015/975789>
38. Persaud SP, Parker CR, **Weber KS**, and Allen PM. 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 (2014). <https://doi.org/10.1038/ni.2822>
39. Lynch JN, Donermeyer DL, **Weber KS**, Kranz DM, and Allen PM. Subtle changes in TCR $\alpha$  CDR1 profoundly increase the sensitivity of CD4 T cells. *Molecular Immunology*. 53(3):283-294 (2013). <https://doi.org/10.1016/j.molimm.2012.08.020>
40. Graw F, **Weber KS**, Allen PM, and Perelson AS. Dynamics of CD4<sup>+</sup> T cell responses against *Listeria monocytogenes*. *Journal of Immunology*. 189(11):5250-5256 (2012). <https://doi.org/10.4049/jimmunol.1200666>
41. **Weber KS**, Li QJ, Persaud SP, Campbell JD, Davis MD, and Allen PM. Distinct CD4<sup>+</sup> helper T cells involved in primary and secondary responses to infection. *Proceedings of the National Academy of Sciences. U S A*. 109(24):9511-9516 (2012). <https://doi.org/10.1073/pnas.1202408109> **Faculty of 1000 recommended**
42. **Weber KS**, Hildner K, Murphy KM, and Allen PM. Trpm4 differentially regulates Th1 and Th2 function by altering calcium signaling and NFAT localization. *Journal of Immunology*. 185(5):2836-46 (2010). <https://doi.org/10.4049/jimmunol.1000880>
43. Persaud SP, Donermeyer DL, **Weber KS**, Kranz DM, and Allen PM. High-affinity T cell receptor differentiates cognate peptide-MHC and altered peptide ligands with distinct kinetics and thermodynamics. *Molecular Immunology*. 47(9):1793-801 (2010). <https://doi.org/10.1016/j.molimm.2010.02.013>
44. Morley, SC, **Weber KS**, Kao H, and Allen PM. Protein kinase C- $\theta$  is required for efficient positive selection. *Journal of Immunology*. 181(7):4696-4708 (2008). <https://doi.org/10.4049/jimmunol.181.7.4696>

45. **Weber KS**, Miller MJ, and Allen PM. 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 (2008). <https://doi.org/10.4049/jimmunol.180.3.1442>
46. Donermeyer DL<sup>Φ</sup>, **Weber KS<sup>Φ</sup>**, Kranz DM, and Allen PM. The study of high-affinity TCRs reveals duality in T cell recognition of antigen: specificity and degeneracy. *Journal of Immunology*. 177(10):6911-6919 (2006). <https://doi.org/10.4049/jimmunol.177.10.6911>
47. 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. <https://doi.org/10.1093/protein/gzl008>
48. **Weber KS**, Donermeyer DL, Allen PM, and Kranz DM. 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 (2005). <https://doi.org/10.1073/pnas.0507554102>
49. Lephart ED, West TW<sup>†</sup>, **Weber KS<sup>†</sup>**, Rhees RW, Setchell, KD, Adlercreutz H, and Lund TD. (2002) Neurobehavioral effects of dietary soy phytoestrogens. *Neurotoxicology and Teratology*. 24, 5-16. [https://doi.org/10.1016/s0892-0362\(01\)00197-0](https://doi.org/10.1016/s0892-0362(01)00197-0)
50. 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. 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 (2001). <https://doi.org/10.1038>
51. **Weber KS<sup>†</sup>**, Setchell KD, Stocco DM and Lephart ED. 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 (2001). <https://doi.org/10.1677/joe.0.1700591>
52. **Weber KS<sup>†</sup>**, Setchell KD and Lephart ED. Maternal and perinatal brain aromatase: Effects of dietary soy phytoestrogens. *Developmental Brain Research*. 126(2): 217-221 (2001). [https://doi.org/10.1016/s0165-3806\(00\)00138-3](https://doi.org/10.1016/s0165-3806(00)00138-3)
53. Lephart ED, Call SB, Rhees RW, Jacobson NA<sup>†</sup>, **Weber KS<sup>†</sup>**, Bledsoe J and Teuscher C. Neuroendocrine regulation of sexually dimorphic brain structure and associated sexual behavior in male rats is genetically controlled. *Biology of Reproduction*. 64(2):571-578 (2001). <https://doi.org/10.1095/biolreprod64.2.571>
54. Lephart ED, Thompson JM\*, Setchell KD, Adlercreutz H and **Weber KS<sup>†</sup>**. Phytoestrogens decrease brain calcium-binding proteins but do not alter hypothalamic androgen metabolizing enzymes in adult male rats. *Brain Research*. 859;1:123-131 (2000) [https://doi.org/10.1016/S0006-8993\(00\)01968-5](https://doi.org/10.1016/S0006-8993(00)01968-5)
55. **Weber KS<sup>†</sup>**, Jacobson NA<sup>†</sup>, Setchell KD and Lephart ED. 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 (1999). <https://doi.org/10.1046/j.1525-1373.1999.d01-66.x>

---

## BOOK CHAPTERS

---

1. Velazquez EJ<sup>†</sup>, Brindley TD\*, Shrestha G, Bitter EE<sup>†</sup>, Cress JD\*, Townsend MH<sup>†</sup>, Berges BK, Robison RA, **Weber KS** and O'Neill KL (2021) Novel monoclonal antibodies against thymidine kinase 1 and their potential use for immunotargeting of lung, breast and colon cancer cells. In: Heidari A, editor. *Prime Archives in Cancer Research*. Hyderabad, India: Vide Leaf.
2. Freitas CMT<sup>†</sup>, Johnson DK<sup>†</sup>, and **Weber KS**. (2019) Calcium signaling in Human Health and Disease – T cell calcium signaling regulation by the CD5 coreceptor. *International Journal of Molecular Sciences*. 292-312 [doi.org/10.3390/books978-3-03897-538-0](https://doi.org/10.3390/books978-3-03897-538-0)
3. 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,

---

## SCIENTIFIC COMMENTARIES ABOUT WORK

---

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)

---

## PATENTS

---

US Patent family with Dr. Kim O'Neill

*Use of car and bite technology coupled with an scFv from an antibody against human thymidine kinase 1 to specifically target tumors.*

(US10434153) – Issued on 10/8/2019; Expires 5/20/2036

(US10821162) – Issued on 11/03/2020

(US10828355) – Issued on 11/10/2020

(US11052138) – Issued on 07/06/2021

US (US20170166657) and World (WO2017025944) patents pending with Dr. Kim O'Neill

*Macrophage chimeric antigen receptor (moto-car) in immunotherapy*

---

## MEDIA REPORTS ABOUT WORK

---

1. E Scholarly Community Encyclopedia “Exposome” entry <https://encyclopedia.pub/4232>
2. KSL feature on Autism study. December 16, 2020  
<https://www.ksl.com/article/50068434/byu-study-researching-potential-link-between-gut-bacteria-and-autism-in-children>
3. Daily Herald feature on Autism study. November 15, 2020  
[https://www.heraldextra.com/news/community/their-voice-byu-autism-study-looking-for-volunteers/article\\_6728bd1b-2ec0-57a0-8551-0475f505712d.html](https://www.heraldextra.com/news/community/their-voice-byu-autism-study-looking-for-volunteers/article_6728bd1b-2ec0-57a0-8551-0475f505712d.html)
4. BYU News feature on Alzheimer’s disease publication and work. June 2, 2020  
<https://news.byu.edu/intellect/byu-study-takes-next-step-toward-treatment-for-alzheimers-disease>
5. BYU Radio interview about microbiome work with Julie Rose (Top of Mind Show). August 13, 2018  
<http://www.byuradio.org/episode/16beae4a-c292-4977-a45a-6d67b7934977?playhead=5233&autoplay=true>
6. BYU Home page feature on microbiome publication and work. April 11, 2018  
<https://news.byu.edu/news/want-students-more-engaged-class-let-them-sample-tiny-creatures-living-them>
7. CBS news story about microbiome publication findings.  
<http://kutv.com/news/local/byu-professors-students-who-study-their-microbiomes-are-more-engaged-in-class>
8. Science Daily news story about microbiome publication findings.  
<https://www.sciencedaily.com/releases/2018/04/180411145049.htm>
9. 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>
10. BYU Life Sciences magazine highlight of T cell and dust mite projects. Fall 2017/Winter 2018  
<http://lsmagazine.byu.edu/Fall2017Winter2018/Health-Defenders>
11. BYU Radio interview about work with Julie Rose on the Top of Mind Show. 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>
12. BYU Life Sciences magazine story on effort to provide authentic learning experiences. June 2016  
<http://lsmagazine.byu.edu/Issues/Spring2016/SevenReasonstoSeekOutAuthenticLearningExperiences.aspx>
13. BYU Radio interview about dust mite publication on the Matt Townsend Show. June 2, 2016  
<http://www.byuradio.org/episode/fedd537-d4cc-45e9-87b1-f5bc139c7ad9/the-matt-townsend-show-the-abolitionists-war-on-soda-allergies-and-dust-mites?playhead=6580&autoplay=true>
14. Fox Evening News interview and TV feature on dust mite 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/>
15. KSL News radio story about dust mite publication and work. May 10, 2016.

<https://audioboom.com/boos/4549098-new-byu-study-shows-low-numbers-of-dust-mites-in-utah-county-homes>

16. ABC News story about dust mite publication and work. May 9, 2016  
<http://www.good4utah.com/news/top-stories/are-dust-mites-really-a-problem-in-utah>
17. BYU News feature on dust mite publication and work. May 6, 2016  
<https://news.byu.edu/news/dust-mites-invading-your-mattress-maybe-not-say-byu-researchers>
18. BYU Home page feature on T cell publication and work. February 13, 2014  
<http://news.byu.edu/archive14-feb-helper-t-cells.aspx>
19. KSL News Radio story about recent T cell 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
20. BYU ElevenNews at Noon feature on my lab and T cell work. February 20, 2014  
<http://elevennews.byu.edu/2014/02/helper-t-cells/>

---

## GRANT FUNDING

---

### External grants

<b>NIH/NAL</b> (1R01AA03577-01A1)	7/1/23-6/31/28
NIH Neurotoxicity and Alcohol Research Project Grant (R01) – Co-Investigator	\$1,861,873
Neuroimmune mechanisms of alcohol reward	
<b>NIH/NIAID</b> (1R15AI107753-01)	6/1/13-5/31/17
NIH Academic Research Enhancement Award (R15) – Principal Investigator	\$449,087
The role of antigenic strength in the primary and memory responses of pathogen specific CD4 <sup>+</sup> T cells	
<b>NIH/MRCE</b> (U54 AI057160)	8/1/09-2/28/12
NIH 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 <i>Listeria monocytogenes</i>	

### Internal grants

2023 James Bobbitt Alzheimer's Grant	\$20,000
<i>Protective role of a cytokine receptor allele on Alzheimer's disease</i>	
2022 Sam and Aline Skaggs Distinguished Mentoring Fellowship	\$20,000
2022 James Bobbitt Alzheimer's Grant	\$20,000
<i>Molecular characterization of a cytokine receptor allele with a protective effect on Alzheimer's disease</i>	
2018-2022 College of Life Sciences CURA grant supply funds	\$10,500
2020 Interdisciplinary Research (IDR) Origination Award	\$40,000
<i>Trust the Gut: Developing a Simple Fecal Test to Screen Infants at Risk for Autism</i>	
2020 Gerontology Research Grant	\$10,000
<i>Characterization of a CCRL2 allele with a protective effect on Alzheimer's disease</i>	
2019 James Bobbitt Alzheimer's Grant	\$15,000
<i>Characterization of a CCRL2 Mutant Chemokine Receptor and its Protective Role in Inflammation and Alzheimer's Disease</i>	
2018 James Bobbitt Alzheimer's Grant	\$15,000
<i>Characterization of Mutant Chemokine Receptors and their Role in Inflammation and Alzheimer's Disease</i>	
2018 Graduate Mentoring Grant	\$15,000
<i>Role of CD5 in T cell metabolism and cognitive function</i>	



2018 BYU CEMENT Research Grant	\$5,000
<i>The role of antigenic strength in the primary and memory responses of pathogen specific CD4<sup>+</sup> T cells</i>	
2018 BYU College of Life Sciences Teaching Enhancement Grant	\$7,000
<i>Developing Applicable Student Understanding using Flow Cytometry Analysis Software</i>	
2018 Gerontology Research Grant	\$10,000
<i>Characterization of Mutant Chemokine Receptors and their Role in Inflammation and Alzheimer's disease</i>	
2017 BYU College of Life Sciences Teaching Enhancement Grant	\$3,000
<i>Improving molecular biology and immunology student engagement with novel 3D molecular models</i>	
2017 BYU Mentoring Environment Grant	\$20,000
<i>T cell immunotherapy of infectious disease and cancer</i>	
2012-2017 BYU ORCA grant supply funds	\$3,300
2016 BYU College of Life Sciences Translational Research Grant	\$15,000
<i>Co-PI with Dr. Kim O'Neill on a Chimeric Antigen Receptors immunotherapy project</i>	
2016 BYU College of Life Sciences Teaching Enhancement Grant	\$8,700
<i>Integrating microbiome metagenomic analysis into the classroom to improve student learning</i>	
2015 John A. Widtsoe Scholarly Grant	\$25,000
<i>Engineering chimeric antigen receptors to combat infectious disease.</i>	
2015 BYU Mentoring Environment Grant	\$20,000
<i>Improving the memory response of pathogen specific helper T cells</i>	
2015 BYU College of Life Sciences Teaching Enhancement Grant	\$2,000
<i>Printing and integrating novel 3D molecular models to enhance learning in Molecular Biology courses.</i>	
2014 BYU Mentoring Environment Grant	\$20,000
<i>Improving the memory response of pathogen specific helper T cells.</i>	
2014 BYU College of Life Sciences Teaching Enhancement Grant	\$8,500
<i>Integrating personal genome testing into genomics courses to improve student learning</i>	

---

## CITIZENSHIP / SERVICE (2012 – PRESENT)

---

### Journal Reviewer

Review Editor for Frontiers in Immunology (Inflammation section)

*Ad Hoc Reviewer:* Cancers, Frontiers in Genetics, Frontiers in Education, PLOS Pathogens – Public Library of Science Pathogens, The European Journal of Immunology, Viruses, Cells, OncoImmunology, Personalized Medicine, Advanced Science, The American Journal of the Medical Sciences, JoVE – Journal of Visualized Experiments, PLOS ONE – Public Library of Science ONE, Clinical and Translational Medicine, Cell Death and Disease, Virulence, International Journal of Molecular Sciences, Biomaterials, Journal of Clinical Medicine, Computational and Structural Biotechnology Journal

### External Grant Reviewer

NIH study section - Innate Immune Memory Impacting HIV Acquisition and/or Control (2022)

NIH study section – Special emphasis - Academic Research Enhancement Awards (2018)

NIH study section – Special emphasis - Academic Research Enhancement Awards (2017)

NIH study section – Biomedical Sensing, Measurement and Instrumentation (2017)

Reviewer for Wellcome Trust Principal Research Fellowships (2017)

### Internal Grant Reviewer

Reviewed BYU Simmons Center for Cancer Research fellowship grants (2016; 2018-2023)  
Reviewed mentored undergraduate grants for the BYU College of Life Sciences (2017)  
Reviewed BYU Graduate Studies Fellowship Proposals (2015)  
Reviewed ORCA grant submissions for the BYU College of Life Sciences (2013-2015)

### **Society Leadership and Responsibilities**

Review Editor for Frontiers in Immunology - Inflammation section (2022-present)  
Member of the BYU Sorensen Center for Moral and Ethical Leadership (2021-present)  
Member of the Autumn Immunology Conference Executive board (2020-2023)  
Member of the Autumn Immunology Conference General Council (2018-2020)  
American Society of Microbiology Rocky Mountain Branch organizing committee (2018-2019)  
Member of the American Society for Microbiology (2018-present)  
Member of the BYU Gerontology Program (2018-present)  
Member of the American Association of Cancer Researchers (2015-present)  
Member of the Cancer Immunology working group (CIMM) (2015-present)  
Member of the BYU Simmons Center for Cancer Research (2014-present)  
Member of the American Association of Immunologists (2005-present)

### **University Appointments and Administrative Responsibilities**

Member of the College of Life Sciences Dean Search Committee (2021-2022)  
Member of the College Curriculum Committee (2015-present)  
Member of the MMBIO executive committee (2015-present)  
Chair of the MMBIO Undergraduate Committee (2015-present)  
Member of Research Instrument Core committee (2014-present)  
Chair of the MMBIO Collaborative Research Committee (2013-present)  
Member of the MMBIO Undergraduate Committee (2012-present)

### **General Service**

Helped teach a life science genomics seminar and lab for Anchor Academy student (11/1/22)  
Interim Director of the College of Life Sciences Research Instrument Core (2/1/22-present)  
Facilitator for BYU Simmons Center for Cancer Research Fellow Think Tank webinar (6/3/20)  
MMBIO club presentation on career preparation and finding your calling in life (9/17/19)  
Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2019)  
Panelist for new BYU professors preparing for their 3<sup>rd</sup> and 6<sup>th</sup> year review. (2018)  
Reviewed two chapters of Janeway Immunobiology textbook (2018)  
Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2018)  
Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2017)  
Organized Unlocking the Secrets of DNA class at Empowering Your Future conference (2016)  
Taught Personal Genomics Immunotherapy class at Orem Golden Kiwanas club meeting (2016)  
Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2016)  
Taught Unlocking the Secrets of DNA class at Empowering Your Future conference (2016)  
Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2015)  
Helped organize and oversee the MMBIO 494R class trip to Yellowstone (2014)  
Organized the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2014)  
Helped the MMBIO club and Chemical engineering at Provo Kids Science Palooza (2014)  
Initiated the MMBIO Faculty Research Lunch (10 weeks; 20 faculty presenters) (2013)