

Andrew Woodham, PhD

15 Cleveland Street, Somerville, MA 02413
andrew.woodham.phd@gmail.com 323-434-6011

Education

2009-2015	University of Southern California Ph.D. in Genetics, Molecular, & Cellular Biology Program
2013-2014	University of Southern California Graduate Certificate in Clinical, Biomedical, and Translational Investigations
2001-2009	University of Washington, B.A. Biochemistry

Positions

ACTIVITY	START	END	FIELD	INSTITUTION/Company	SUPERVISOR
Biology Tutor	09/07	06/08	Biology	Seattle Central Community College	Grace Sparks, PhD
Undergraduate Research Assistant	09/08	06/09	Epigenetics	University of Washington	Anton Krumm, PhD
President	08/10	08/11	Student Government	USC Graduate Student Association	Marisela Zuniga
Student Mentor	06/11	06/13	Immunology	NIH STEP-UP	Emil Bogenmann, PhD
Research Mentor (5 mo/yr in LA)	06/13	06/15	Immunology and Virology	Netherlands America Foundation	W. Martin Kast, PhD, EdD
Graduate Research Assistant	08/10	08/15	Immunology and Virology	University of Southern California	W. Martin Kast, PhD
Postdoc Researcher	08/15	07/16	Immunology	USC	W. Martin Kast, PhD
Freelance Editor	01/16	12/16	Biology	Editage	Milind Kumar, MBA
Postdoc Fellow	07/16	12/16	Immunology	Whitehead/MIT	Hidde L. Ploegh, PhD
Postdoc Fellow	01/17	present	Immunology	Harvard Medical School/ Boston Children's Hospital	Hidde L. Ploegh, PhD

Awards and Scholarships

2018	American Association of Immunologists Trainee Abstract Award
2018	Boston Children's Hospital Postdoctoral Association Fellows Travel Award
2018	Arnold and Mabel Beckman Foundation T-shirt design contest winner
2016	Arnold O. Beckman Postdoctoral Fellow Award
2016	NIH Ruth L. Kirschstein NRSA Individual Postdoctoral Fellowship (F32)
2016	Affymetrix Single Cell Grant Winner
2015	Thermo Fisher Scientific Innovation Award Semifinalist
2015	BeHEARD Rare Disease Science Challenge Ultimate/First Prize
2014	ARCS Foundation - John and Edith Leonis Scholarship Award Winner
2014	Oral Presentation Award Winner, Translational Science 2014 Conference
2014	USC Science Film Best Animation and Audience Awards
2014	Life Technologies Cell Health National Essay Contest First Place
2014	USC Sydney Harman Academy of Polymathic Studies Fellowship
2012-2014	USC Wonderland Award for Interdisciplinary Art First Place (three-time winner)
2013	NIH CTSI TL1 Pre-Doctoral Training Award
2013	Heidelberger Award from the USC Norris Comprehensive Cancer Center
2012	28th International Papillomavirus Conference NIH Travel Award
2010	School of Medicine Graduate Student Association Member of the Month February
2008-2009	University of Washington Deans List
2008	Seattle Central Community College Biology Student of the Year

2007-2008 Seattle Central Community College Dean's List & President's List
2001-2005 University of Washington Dean's List
2001-2002 Washington Promise Scholarship recipient

Publications

- 1) **Woodham AW**, Zeigler S, Zeyang L, Koliffrath SC, Cheloha RW, Rashidian M, Garforth SJ, Dearling JL, Mesyngier M, Packard AB, Almo SC, Ploegh HL. In vivo detection of antigen-specific CD8 T cells by immunoposiptron emission tomography. Revision pending for Nat Meth. 2020.
- 2) Cheloha RW, **Woodham AW**, Bousbaine D, Wang T, Liu S, Sidney J, Sette A, Gellman SH, Ploegh HL. Recognition of Class II MHC Peptide Ligands That Contain β -Amino Acids. J Immunol. 2019 Sep 15; 203(6): 1619-1628. PMID: 31391235.
- 3) Cheloha RW, Li Z, Bousbaine D, **Woodham AW**, Perrin P, Volarić J, Ploegh HL. Internalization of Influenza Virus and Cell Surface Proteins Monitored by Site-Specific Conjugation of Protease-Sensitive Probes. ACS Chem Biol. 2019 Aug 16; 14(8): 1836-1844. PMID: 31348637.
- 4) **Woodham AW**, Cheloha RW, Ling J, Rashidian M, Koliffrath SC, Mesyngier M, Duarte JN, Bader JM, Skeate JG, Da Silva DM, Kast WM, Ploegh HL. Nanobody-antigen conjugates elicit HPV-specific anti-tumor immune responses. Cancer Immunol Res. 2018; 6(7): 870-880. PMID: 29792298.
- 5) Chahal JS, Fang T, **Woodham AW**, Khan OF, Ling J, Anderson DG, Ploegh HL. An RNA nanoparticle vaccine against Zika virus elicits antibody and CD8+ T cell responses in a mouse model. Sci Rep. 2017; 7(1): 252. PMID:28325910.
- 6) **Woodham AW**, Sanna AM, Taylor JR, Skeate JG, Da Silva DM, Dekker LV, Kast WM. Annexin A2 antibodies but not inhibitors of the annexin A2 heterotetramer impair productive HIV-1 infection of macrophages in vitro. Viro J. 2016; 13(1): 187. PMID:27863502.
- 7) Forte VA, **Woodham AW**, Lacson JC, Salinas D, Wechsler J, Lang JE. Circulating tumor cells in Stage I-III breast cancer and survival outcomes: a systematic review and meta-analysis of observational studies. New Approaches combating Cancer & Aging. 2016; 3: 63-77.
- 8) Pulido MA, DerHartunian MK, Qin Z, Chung EM, Kang DS, **Woodham AW**, Tsou JA, Klooster R, Akbari O, Wang L, Kast WM, Liu SV, Verschuuren JJ, Aswad DW, Laird-Offringa IA. Isoaspartylation appears to trigger small cell lung cancer-associated autoimmunity against neuronal protein ELAVL4. J Neuroimmunol. 2016 Oct 15; 299: 70-78. PMID:27725125.
- 9) **Woodham AW**, Skeate JG, Sanna AM, Taylor JR, Da Silva DM, Cannon PM, Kast WM. HIV immune cell receptors, coreceptors, and cofactors: Implications for treatment. AIDS Patient Care STDS. 2016 Jul; 30(7): 291-306. PMID:27410493.
- 10) **Woodham AW**, Yan L, Skeate JG, van der Veen D, Brand HE, Wong MK, Da Silva DM, Kast WM. T cell ignorance is bliss: T cells are not tolerized by human papillomavirus presenting Langerhans cells in the absence of costimulation. Papillomavirus Research. 2016; 2: 21-30. PMID:27182559.
- 11) Nicol AF, Brunette LL, Nuovo GJ, Grinsztejn B, Friedman RK, Veloso VG, Cunha CB, Coutinho JR, Vianna-Andrade C, Oliveira NS, **Woodham AW**, da Silva DM, Kast WM. Secretory leukocyte protease inhibitor expression and high-risk HPV infection in anal lesions of HIV positive patients. J Acquir Immune Defic Syndr. 2016 Sep 1; 73(1): 27-33. PMID:27149102.
- 12) Skeate JG, **Woodham AW**, Einstein MH, Da Silva DM, Kast WM. Current therapeutic vaccination and immunotherapy strategies for HPV-related diseases. Hum Vaccin Immunother. 2016 Jun 2; 12(6): 1418-29. PMID:26835746.
- 13) Da Silva DM, **Woodham AW**, Rijkee LK, Skeate JG, Taylor JR, Koopmand ME, Brand HE, Wong MK, McKee GM, Salazar AM, Kast WM. Human papillomavirus-exposed Langerhans cells are activated by stabilized Poly-I:C. Papillomavirus Research. 2015; 1: 12-21. PMID:26665182.
- 14) Da Silva DM, **Woodham AW**, Naylor PH, Egan JE, Berinstein NL, Kast WM. Immunostimulatory activity of the cytokine-based biologic IRX-2 on Human Papillomavirus-exposed Langerhans cells. Journal of Interferon and Cytokine Research. 2016; 36(5): 291-301. PMID:26653678.
- 15) Skeate JG, Porras TB, **Woodham AW**, Yang JK, Brand HA, Da Silva DM, Yuan W, Kast WM. HSV-1 down-regulation of Secretory Leukocyte Protease Inhibitor enhances HPV16 infection of epithelial cells through the AnnexinA2 heterotetramer. J Gen Virol. 2016; 97(2): 422-434. PMID:26555393.
- 16) Da Silva DM, **Woodham AW**, Skeate JG, Rijkee LK, Taylor JR, Brand HE, Munderspach LI, Roman LD, Yessaian AA, Pham HQ, Matsuo K, Lin YG, McKee GM, Salazar AM, Kast WM. Langerhans cells from women with cervical precancerous lesions become functionally responsive against human papillomavirus after activation with stabilized Poly-I:C. Clin Immunol. 2015; 161(2): 197-208. PMID:26360252.

- 17) Bogaert L, **Woodham AW**, Da Silva DM, Martens A, Meyer E, Kast WM. A novel murine model for evaluating bovine papillomavirus prophylactics/therapeutics for equine sarcoid-like tumors. *J Gen Virol*. 2015; 96(9): 2764-2768. PMID:26044793
- 18) **Woodham AW**, Taylor JR, Jimenez AI, Skeate JG, Schmidt T, Brand HE, Da Silva DM, Kast WM. Annexin A2 heterotetramer small molecule inhibitors prevent human papillomavirus type 16 infection. *J Antimicrob Chemother*. 2015; 70(6): 1686-90. PMID:25712315
- 19) **Woodham AW**, Raff AB, Da Silva DM, Kast WM. Molecular analysis of Human Papillomavirus Virus-Like Particle activated Langerhans cells in vitro. *Methods Mol Biol*. 2015; 1249: 135-149. PMID:25348303.
- 20) Yan L, **Woodham AW**, Da Silva DM, Kast WM. Functional analysis of Human Papillomavirus Virus-Like Particle activated Langerhans cells in vitro. *Methods Mol Biol*. 2015; 1249: 333-350. PMID:25348318.
- 21) **Woodham AW**, Raff AB, Raff LM, Da Silva DM, Yan L, Skeate JG, Wong MK, Lin YG, Kast WM. Inhibition of Langerhans cell maturation by human papillomavirus type 16: a novel role for the annexin A2 heterotetramer in Immune suppression. *J Immunol*. 2014; 192(10): 4748-4757. PMID:24719459.
- 22) Woodham MA, **Woodham AW**, Skeate J, Freeman. Long-term lumbar multifidus muscle atrophy changes documented with magnetic resonance imaging: A Case Series. *J Radiol Case Rep*. 2014; 8(5): 27-34. PMID: 25426227
- 22) Raff AB, **Woodham AW**, Raff LM, Skeate JG, Yan L, Da Silva DM, Schelhaas M, Kast WM. The evolving field of human papillomavirus receptor research; a review of binding and entry. *J Virol*. 2013; 87(11): 6062-72. PMID:23536685.
- 23) **Woodham AW**, Da Silva DM, Skeate JG, Raff AB, Ambroso MR, Brand HE, Isas JM, Langen R, Kast WM. The S100A10 subunit of the Annexin A2 heterotetramer facilitates L2-mediated human papillomavirus infection. *PLoS One*. 2012; 7(8): e43519. PMID:22927980.
- 24) Freeman MD, Woodham MA, **Woodham AW**. The role of the lumbar multifidus in chronic low back pain: a review. *PM R*. 2010; 2(2): 142-146. PMID:20193941.

Conference Presentations

- 2019 Nanobodies in Immune Regulation (Invited). American Transplant Congress. Boston, MA
- 2018 Targeted delivery of antigens to CD11b+ cells via nanobodies induces strong antigen-specific T cell and anti-tumor responses. Immunology 2018. Austin, TX
- 2017 Nanobody–antigen conjugates elicit HPV-specific anti-tumor immune responses. International Precision Vaccine Conference. Boston, MA
- 2017 Generation of anti-tumor immune responses via nanobody–antigen conjugates. Beckman Symposium. Irvine, CA
- 2014 Inhibition of Langerhans cell maturation by human papillomavirus type 16: a novel role for the annexin A2 heterotetramer in Immune suppression. 29th International Papillomavirus Conference. Seattle, WA
- 2014 HPV 16 entry via the annexin A2 heterotetramer suppresses primary human Langerhans cell maturation; an *in vitro* experimental study. Translational Science 2014. Washington, DC
- 2013 Wonderland Outsiders; A Student's Perspective. Lewis Carroll Society of North America Fall International Scholarly Research Meeting. Los Angeles, CA
- 2012 The S100A10 subunit of the Annexin A2 heterotetramer facilitates L2-mediated human papillomavirus infection. 28th International Papillomavirus Conference. San Juan, Puerto Rico
- 2012 HSV down-regulated SLPI effects HPV infection of epithelial cells. Norris Comprehensive Cancer Center Poster Symposium. Poster. Los Angeles, CA
- 2011 HPV entry through Annexin A2/S100A10 is facilitated via HSV down-regulated SLPI. USC Physical Sciences in Oncology Center Symposium. Los Angeles, CA
- 2007 Lumbar Multifidus Muscle Regeneration Following Chiropractic Manipulation and Low Back Exercises; A Case Series. International Whiplash Trauma Congress. Miami, FL

Patents

- Woodham AW. Gel electrophoresis and transfer combination using conductive polymers and method of use. 2018. US Patent No. 9,983,168
- Woodham AW. Gel electrophoresis and transfer combination using conductive polymers and method of use. 2017. US Patent No. 9,753,008
- Woodham AW. Gel electrophoresis and transfer combination using conductive polymers and method of use. 2017. US Patent No. 9,702,851