Curriculum Vitae

Wook-Jin Chae Ph.D. Harrison
Scholar
Assistant Professor
Virginia Commonwealth University
Massey Cancer Center
Phillips Research Institute
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Education and Training

2007.1-2012.12 Postdoctoral associate, Dept. of Immunobiology Yale Medical School, New Haven, CT
2001.3-2006.8 Ph.D., Department of Biotechnology Yonsei University, Seoul, South Korea
(Faculty advisor: Sang-Kyou Lee, Ph.D.)
1998.9-2001.2. M.S., Department of Biotechnology Yonsei University, Seoul, South Korea
1994.3-1998.2. B.S., Department of Biotechnology Yonsei University, Seoul, South Korea

Positions

2019.6-Present Assistant Professor, Department of Microbiology and Immunology and Massey Cancer Center, Virginia Commonwealth University, Richmond, VA
2013.1- 2019.5 Associate Research Scientist, Dept. of Immunobiology Yale Medical School, New Haven, CT

Professional Experience

Editorial Board Member, Frontiers in Oncology, Gastrointestinal Cancer (Nov 2020-present)
Member, Massey Cancer Center (July 2019-present)
Contributing author, "Encyclopedia of Cancer" 4th Edition, Editor: Manfred Schwab (2012.1-present)
Ad hoc Reviewer, "Biochemical Pharmacology", "Cancer Letters", "JCI Insight", "Science Advances", "Frontiers in Immunology"
Member, American Association of Immunology (AAI) (2008-present)
Associate member, American Association of Cancer Research (AACR) (2008-present)

Honors, Awards, and Presentations

2019 **Harrison Scholar**, VCU Massey Cancer Center, 2019 October-2022 October
2017 **Selected abstract for oral presentation**, AAI 2017, "Membrane-bound DKK-1 in Tregs regulates intestinal inflammation" May 16th, Washington D.C
2015 **Selected abstract for oral presentation**, AAI 2015, "Cutaneous leishmaniasis is regulated by Wnt antagonist Dkk-1 from activated platelets" May 8th, New Orleans, LA.
2015 **Selected abstract for oral presentation**, AAI 2015, May 11th, "Regulation of chronic lung inflammation to house dust mite allergen by Wnt antagonism" New Orleans, LA.
2010 **In-scholar-training Award**, 101st AACR meeting, Washington DC, USA
2010 **Trudeau postdoctoral fellowship** from Department of Immunobiology, Yale University
2009 **Anna Fuller fellowship for Infectious Disease and Cancer** from Yale University (Jan 1st-Dec 31st)

Publication

1. Hur, B.J., Park, M.H., **Chae, W.-J.*** "Interaction between the Wnt system and tissue injury-repair process", ***Immunohorizon*** **(2021)** Invited perspective (On the Horizon), in press
2. Park, M.H., **Chae, W.-J.*** "Wnt and macrophages in tissue repair", ***Cells*** **(2021)** Invited Review, in press
3. Park, M.H., Shin J.H., Bothwell AL, **Chae, W.-J.*** "Wnt antagonists and chronic inflammation", ***Journal of Leukocyte Biology*** **(2021)** Invited Review, in press

4. Lee, E.J., **Chae, W.-J.*** "Natural Killer cells in reproductive organ injury and repair", ***American Journal of Reproductive Immunology*** **(2021)** Invited Review, in press
5. Park, M.-H., Sung, EA, Hur, B.J., Zhang B, Freeberg M, Chou C, Hengariu O, Lee PJ, Liu J, Sime P, **Chae, W.-J*** "DKK1 promotes pulmonary fibrosis via dysregulation of macrophage-fibroblast crosstalk". *Under review*
6. **Chae, W.-J***, Bothwell AL* DKK-1: An immunomodulatory Wnt ligand in pathological inflammation (Co-corresponding author) ***Differentiation*** (**2019**) S0301-4681(19):30006-4. PMID: 31221431
7. **Chae, W.-J.***, Bothwell AL* Canonical and non-canonical Wnt signaling in Immune cells (Co-corresponding author) ***Trends in Immunology*** **(2018)** 39(10): 830-847. PMID: 30213499
8. **Chae, W.-J.***, Bothwell AL* Gene-modified regulatory T cells: a novel strategy in immunotherapy **(**Co-corresponding author**)** ***Frontiers in Immunology*** **(2018)** 9 (303):1-9. PMID: 29503652
9. **Chae, W.-J.***, Park, J, -H., Henegariu O, Hao L, Yilmaz S, Cho. J, and Bothwell AL. Regulatory T cells induce peripheral tolerance via the Wnt antagonist DKK-1. ***Immunology*** **(2017)** 152(2):265-275. PMID: 28556921
10. **Chae, W.-J.***, Ehrlich A, Teixeira A, Chan P, Henegariu O, Park J-.H, Hao L, Tang, W-.H, Kim S. -T, Maher SM, Shin J-.H, Goldsmith-Pestana K, Hwa J, Krause DS, McMahon-Pratt D, Rothlin CV, Bothwell AL. The Wnt antagonist Dickkopf-1 promotes pathological type 2 inflammation. ***Immunity*** **(2016**) 16;44(2):246-58. PMID: 26872695

Highlighted in the Yale News http://news.yale.edu/2016/02/09/research-news-yale-study-identifies-newtarget-severe-asthma-chronic-inflammatory-disease

Highlighted in the Yale Scientific Dkk-1: A New Target for Inflammatory Disease Therapy? http://www.yalescientific.org/2016/08/dkk-1-a-new-target-for-inflammatory-disease-therapy/

11. **Chae, W.-J.***, Bothwell AL Snapshots of CD4 T cell plasticity in the pathogenesis of allergic asthma. ***Journal of Thoracic disease*** **(2016)** 8(9): E1010-1012. PMID: 27747048
12. **Chae, W.-J.*** and Bothwell AL Spontaneous intestinal tumorigenesis in Apc/Min+ mice requires altered T cell development with IL-17A. ***Journal of immunology Research*** (**2015**) 2015; 2015:860106. PMID: 26146642
13. Ehrlich A, Castilho TM, Goldsmith-Pestana K, **Chae, W.-J**, Bothwell AL, Sparwasser T, McMahon-Pratt D. The immunotherapeutic role of regulatory T cells in Leishmania (Viannia) panamensis infection. ***J Immunol.*** (**2014)** 193(6): 2961-70. PMID: 25098291
14. Kidane D, **Chae W.-J**, Czochor J, Eckert KA, Glazer PM, Bothwell AL, Sweasy JB. Interplay between DNA repair and inflammation, and the link to cancer. ***Crit Rev Biochem Mol Biol.*** (**2014)** Mar-Apr;49(2):116-39. PMID: 24410153
15. Lee S-,W. , Kim J-H, Park M-.C., Park Y-,B, **Chae W-.J,** Morio T, Lee DH, Yang S-.H., Lee S-.K., Lee S-K., Lee S-K. Alleviation of rheumatoid arthritis by cell-transducible methotrexate upon transcutaneous delivery. (**2012**) ***Biomaterials.*** 33 :1563-72.
16. Solomon, D., Muller, C., **Chae**, **W.-J.** and Bynoe, M. Role of Nrp-1 in CD4 T cells. ***Proc. Natl. Acad. Sci. U.S.A.*** (**2011**) 108 (5): 2040-45
17. **Chae, W.-J.*** and Bothwell, A.L.M. IL-17F deficiency inhibits small intestinal tumorigenesis in ApcMin/+mice (**2011**) ***Biochem Biophys Res Commun.*** 414:31-6 PMID: 21939640 **Selected as Faculty of 1000 paper (the top 2% of biology and medicine)**
18. **Chae, W.-J.*** and Bothwell, A.L.M. IL-17 and intestinal tumorigenesis Role of IL-17 in Spontaneous intestinal tumorigenesis ***Drug Discovery Today-Disease mechanisms*** (**2011**)- Review Article http://dx.doi.org/10.1016/j.ddmec.2011.11.001
19. **Chae, W.-J.***, Gibson, T.F., Zelterman, D., Hao, L., Henegariu. O. and Bothwell, A.L.M.(**2010**). Ablation of IL-17A inhibits progression of spontaneous intestinal tumorigenesis. ***Proc. Natl. Acad. Sci. U.S.A*** 107:55405544 PMCID: PMC 2851824.
20. Choi, J.-M., Shin, J.-H., Sohn, M.-H., Harding, M.J., Kim, D.-Y., Maher, S.E., **Chae, W.-J.,** Park, S.-H., Lee, C.-G., Lee, S.-K. and Bothwell, A.L.M. (**2010**). Cell permeable Foxp3 protein Alleviates autoimmune disease associated with IBD and allergic airway inflammation. ***Proc Natl Acad Sci U S A.*** 107: 18575-80. PMID: 20937878
21. Morer, A., **Chae, W.-J.,** Henegariu, O., Bothwell, A.L.M, Leckman, J.F. and Kawikova, I. (**2010**). Elevated expression of MCP-1, IL-2 and PTPR-N in Basal Ganglia of Tourette Syndrome Cases. ***Brain, Behavior and Immun.*** 24:1069-1073 PMID 20193755

22. Shin MJ, Shim JH, Lee JY, **Chae, W, -J**, Lee HK, Morio T, Park JH, Chang EJ, Lee SK. (**2010**) Qualitative and quantitative differences in the intensity of Fas-mediated intracellular signals determine life and death in T cells. ***Int J Hematol.*** 92 (2): 262-70. PMID: 20658220
23. Kim, K.-D., Je-Min Choi, **Chae**, **W.-J.**, and Lee, S.-K. (**2009**). Synergistic inhibition of T-cell activation by a cell-permeable ZAP-70 mutant and ctCTLA-4. ***Biochemical Biophysics Research Commun.*** 381: 355-360.
24. Muthukumarana, P., **Chae, W.-J.**, Maher, S.E., Rosengard, B.R., Bothwell, A.L.M. and Metcalfe, S.M. (2007). Regulatory transplantation tolerance and "stemness": evidence that Foxp3 may play a regulatory role in SOCS3 gene transcription. ***Transplantation*** 84 (1 Suppl), S6-11.
25. **Chae, W.-J.***, Henegariu, O., Lee, S.-K. and Bothwell, A.L.M. (**2006**). Mutant leucine zipper domain impairs both dimerization and suppressive function of Foxp3 in T cells. ***Proc. Natl. Acad. Sci. U.S.A.*** 103: 9631-9636.
26. Choi, J.-M., Ahn, M.-H., **Chae**, **W.-J.**, Jung, Y.-G., Seo, B.-F., Park, J.-C., Kim, K.-D., Kim, E.-S., Shin, J.-A., Song, H.-M., Kim, Y.-E., Park, T.-K., Lee, J.-H., Lee, D.-H., Lee, S.-K., Park, C.-S., Lee, S.-K. (2006). Intranasal delivery of the cytoplasmic domain of CTLA-4 using a novel protein transduction domain prevents allergic inflammation and hyper-responsiveness. ***Nature Medicine*** 12: 574-579.
27. Koo, J.-H., **Chae**, **W.-J.**, Choi, J.-M., Morio, T., Kim, Y.-S., Jang, Y.-S. and Lee, S.-K. (2006). Identification of activation induced protein expression profile in human CD8 T cells by proteomic approaches. ***J. Microbiology and Biotechnology*** 16(6) :911-920.
28. **Chae, W.-J.***, Lee, H.-K., Han, J.-H., Kim, S.-W., Bothwell, A.L.M., Morio, T. and Lee, S.-K. (2004). Qualitatively Differential Regulation of Intracellular Signaling for T cell activation and apoptosis by TCR zeta chain ITAM and their tyrosine residues. ***International Immunol.*** 16:1225-1236.
29. **Chae, W.-J.*,** Choi, J.-M., Yang, J.-J. and Lee, S.-K. (2004). T Cell-specific immunosuppression using tautomycetin or PTD-conjugated protein drugs. ***Yonsei Med J.*** 45,978-90.
30. Shim, J.-H., Lee, H.-K., Chang, E.-J., **Chae**, **W.-J.**, Han, D.-J., Morio, T., Yang, J.-J., Bothwell, A.L.M. and Lee, S.-K. (2002). Immunosuppressive effects of tautomycetin in vivo and in vitro via T cell-specific Apoptosis Induction. ***Proc. Natl. Acad. Sci., U.S.A***. 99:10617-10622.
31. **Chae, W.-J.***, Han, J.-H., Kim, S-.W., Song, Y-S., Cho, K-M., Rhee, M-.C., and Lee, S-.K. Analysis of Interaction between Vav and TcR ζ Chain in Jurkat T cell Activation. ***Immune Network*** (1999), Vol. 21, 4, 369 – 375.

Patents

1. Use of functional inhibition of Dickkopf-1 and thereof in chronic inflammation. PCT/US2017/014374, **WJ Chae** and Alfred Bothwell (Co-inventor) Jan 20, 2017