

Amy McKee, Ph.D.

Current Institution and Positions

- University of Colorado, Anschutz Medical Campus, Aurora, Colorado 80045
Assistant Professor, Tenure Track 2014-present
University of Colorado Department of Medicine
Department of Microbiology and Immunology (secondary appointment)

Education and Training

- Bachelor of Sciences in Biological Science 1993-1997
University Honors Scholar
College of Natural Sciences, Colorado State University, Ft. Collins, CO 80521
- Master of Sciences, Anatomy and Neurobiology 1997-1998
College of Natural Sciences, Colorado State University, Ft. Collins, CO 80521
- Doctor of Philosophy in Immunology 1998-2004
Cornell University, Ithaca, NY 14850
Dissertation: Regulation of dendritic cell activation during parasitic infection.
- Postdoctoral Fellow 2004-2010
Howard Hughes Medical Institute and National Jewish Health
Laboratory of Drs. Philippa Marrack and John Kappler
Research: Impact of vaccine adjuvants on the innate and adaptive immune response.

Bibliography

1. MacDonald AS, **Straw AD**, Bauman B, Pearce EJ. CD8 α - dendritic cell activation status plays a critical role in influencing Th2 response development. *J Immunol.* 2001; 167:1982-8.
2. MacDonald AS, **Straw AD**, Dalton NM, Pearce EJ. Cutting edge: Th2 response induction by dendritic cells: a role for CD40. *J Immunol.* 2002; 168:537-40.
3. **Straw AD**, MacDonald AS, Denkers EY, Pearce EJ. CD154 plays a central role in regulating dendritic cell activation during infections that induce Th1 or Th2 responses. *J Immunol.* 2003; 170:727-734.
4. **McKee AS**, Pearce EJ. CD25+CD4+ cells contribute to Th2 polarization during helminth infection by suppressing Th1 response development. *J Immunol.* 2004; 173:1224-3.
5. **McKee AS**, Dzierszinski F, Boes M, Roos DS, Pearce EJ. Functional inactivation of immature dendritic cells by the intracellular parasite *Toxoplasma gondii*. *J Immunol.* 2004; 173:2632-40.
6. Pearce EJ, Kane C, Sun J, Taylor J, **McKee AS**, Cervi L. Th2 response polarization during infection with the helminth parasite *Schistosoma mansoni*. *Immunol Rev.* 2004; 201:117-26.
7. Kane CM, Cervi L, Sun J, **McKee AS**, Masek KS, Shapira S, Hunter CA, Pearce EJ. Helminth antigens modulate TLR-initiated dendritic cell activation. *J Immunol.* 2004; 173:7454-61.
8. Jorgensen T*, **McKee AS***, Wang M, Kushnir E, White J, Kappler JW, Marrack P. Bim and Bcl-2 mutually affect each other's expression. *J Immunol.* 2007; 179: 3417-24.

9. **McKee AS**, MacLeod MK, White J, Crawford F, Kappler JW and Marrack P. Gr1+IL-4 producing innate cells are induced in response to Th2 stimuli and suppress Th-1 dependent antibody responses. *Int Immunol*. 2008; 20:659-69.
10. **McKee AS**, Munks MW, Marrack P. How do adjuvants work? Important considerations for new generation vaccines. *Immunity* 2007; 27:87-690.
11. MacLeod MK, **McKee AS**, Crawford F, White J, Kappler JW, Marrack P. CD4 memory T cells divide poorly in response to antigen because of their cytokine profile. *Proc Nat Acad Sci U.S.A.* 2008; 38:14521-6.
12. Marrack P, **McKee AS**, Munks, MW. Towards an understanding of the adjuvant action of aluminum. *Nat Rev Immunol*. 2009; 9:287-93.
13. **McKee AS**, Munks, MW, MacLeod, MK, Fleenor, CJ, Van Rooijen, N., Kappler JW, Marrack P. Alum induces innate immune responses through macrophage and mast cell sensors, but these sensors are not required for alum to act as an adjuvant for specific immunity. *J Immunol*. 2009; 183:4403-14.
14. Munks MW, **McKee AS**, MacLeod M, Powell R, Brinkmann V, Zychlisky A, Degan JL, Reisdorf N, Kappler JW, and Marrack P. Aluminum adjuvants elicit fibrin-dependent extracellular traps in vivo. *Blood* 2010; 116:5191-9.
15. **McKee AS** MacLeod, MK, Kappler JW, and Marrack P. Immune mechanisms of protection: can adjuvants rise to the challenge? *BMC Biol*. 2010; 8:37-47.
16. MacLeod M, David A, **McKee AS**, Crawford F, Kappler JW, and Marrack, P. CD4 memory T cells provide accelerated B cell help because they express CXCR5. *J Immunol*. 2011; 186:2889-96.
17. Macleod MK, **McKee AS**, David A, Wang J, Mason R, Kappler JW, Marrack P. Vaccine adjuvants aluminum and monophosphoryl lipid A provide distinct signals to generate protective cytotoxic memory CD8 T cells. *Proc Natl Acad Sci U S A*. 2011; 108:7914-9.
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19. Dai S. Falta MT, Bowerman NA, **McKee AS**, Fontenot AP. T cell recognition of beryllium. *Current Opin Immunol* 2013; pii: S0952-7915(13)00127-1.
20. **McKee AS**, Burchill MA, Munks MW, Jin L, Kappler J, Friedman RS, Jacobelli J, and Marrack P. Host DNA released in response to aluminum adjuvant enhances MHC class II-mediated antigen presentation and prolongs CD4+ T-cell interactions with dendritic cells. *Proc. Natl. Acad. Sci. U S A* 2013; 110:E1122-31.
21. Mack DG, Falta MT, **McKee AS**, Martin AK, Simonian PL, Crawford F, Gordon T, Mercer RR, Hoover MD, Marrack P, Kappler JW, Tuder RM, Fontenot AP. Regulatory T cells modulate granulomatous inflammation in an HLA-DP2 transgenic murine model of beryllium-induced disease. *Proc Natl Acad Sci U S A*. 2014; 111:8553-8.
22. **McKee AS**, Mack DG, Crawford F and Fontenot AP. MyD88 Dependence of beryllium-induced dendritic cell trafficking and CD4+ T cell priming. *Mucosal Immunol*. 2015; 8:1237-47.
23. Fontenot AP, Falta MT, Kappler JW, Dai S and **McKee AS**. Beryllium-induced hypersensitivity: genetic susceptibility and neoantigen generation. *J Immunol*. 2016; 196:22-7.

24. **McKee AS**, Mack DG and Fontenot AP. Interplay of innate and adaptive immunity in metal-induced hypersensitivity. *Current Opin Immunol.* 2016; 42:25-30.
25. **McKee AS**, Marrack P. Old and new adjuvants. *Current Opin Immunol.* 2017; 47:44-51.
26. Wade MF, Collins MK, Richards D, Mack DG, Martin AK, Dinarello CA, Fontenot AP, **McKee AS**. TLR9 and IL-1R1 Promote Mobilization of Pulmonary Dendritic Cells during Beryllium Sensitization. *J Immunol.* 2018 Oct; 2232-2243. Highlighted "In this issue."
27. Atif SM, Mack DG, **McKee AS**, Rangel-Moreno J, Martin AK, Getahun A, Maier LA, Cambier JC, Tuder R, Fontenot AP. Protective role of B cells in sterile particulate-induced lung injury. *JCI Insight.* 2019 May; 5. pii: 125494.
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29. Kumar R, Mickael C, Kassa B, Sanders L, Koyanagi D, Cano D, Cogolludo A, **McKee AS**, Burous G, Tuder RM, Graham BB. Th2 CD4⁺ T cells are necessary and sufficient for *Schistosoma mansoni*-induced pulmonary hypertension. *J Am Heart Assoc.* 2019 Aug; e013111.
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31. Shotland AM, Fontenot AP, **McKee AS**. Pulmonary macrophage cell death in lung health and disease. *Am J Respir Cell Mol Biol.* 2021 May;64(5):547-556. doi: 10.1165/rcmb.2020-0420TR. PMID: 33332993; PMCID: PMC8086041.
32. **McKee AS**, Atif SM, Falta MT, Fontenot AP. Innate and Adaptive Immunity in Noninfectious Granulomatous Lung Disease. *J Immunol.* 2022 Apr 15;208(8):1835-1843. PMID: 35418504; PMCID: PMC9106315.

Honors and Awards

- University Honors Program Scholarship, Colorado State University 1993
- University Dean's Scholar Award and Scholarship, Colorado State University 1993
- College of Natural Sciences Dean's List, Colorado State University 1994-1997
- Golden Key National Honor Society, Invited Member 1994
- Phi Beta Kappa Honor Society, Invited Member 1996
- Award for best poster, Colorado Annual Immunology Conference 2005