

Karen Wozniak, Ph.D.

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Education:

1998: B.S., Biological Sciences, University of Notre Dame

2001: M.S., Microbiology, Immunology, & Parasitology, Louisiana State University Health Science Center

2004: Ph.D., Microbiology, Immunology, & Parasitology, Louisiana State University Health Science Center

Academic Appointments:

2008-2017: Assistant Professor of Research, The University of Texas at San Antonio

2017-present: Assistant Professor, Oklahoma State University

Awards and Honors

2000: Strawinsky Award, American Society for Microbiology, South Central Branch

2008: Medical Mycological Society of the Americas travel award

2008: Spotlight Article, Infection & Immunity

Other Experience and Professional Memberships

American Society for Microbiology

Medical Mycological Society of the Americas (treasurer)

International Society for Human and Animal Mycology

Research Support:

Current:

- Aug 2017-Aug 2020: OSU startup funds, Microbiology & Molecular Genetics
- Aug 2019-Aug 2020: Cowboy Technologies, "Melanin-Inspired Antimicrobials for Diesel Fuel"
Past:
- Nov 2018-June 2019: Pilot Grant, OCRID: NIGMS of NIH, P20GM103648, "Interactions of Murine Pulmonary Macrophage Subsets with *Cryptococcus neoformans*"

Selected Publications:

1. Leopold Wager CM, Hole CR, Campuzano A, Castro-Lopez N, Cai H, Caballero Van Dyke MC, Wozniak KL, Wang Y, Wormley FL Jr. IFN- γ immune priming of macrophages in vivo induces prolonged STAT1 binding and protection against *Cryptococcus neoformans*. *PLoS Pathog.* 2018 Oct;14(10):e1007358. doi: 10.1371/journal.ppat.1007358. eCollection 2018 Oct. PubMed PMID: 30304063; PubMed Central PMCID: PMC6197699.
2. Wozniak KL. Interactions of *Cryptococcus* with Dendritic Cells. *J Fungi (Basel)*. 2018 Mar 15;4(1). doi: 10.3390/jof4010036. Review. PubMed PMID: 29543719; PubMed Central PMCID: PMC5872339.
3. Van Dyke MCC, Chaturvedi AK, Hardison SE, Leopold Wager CM, Castro-Lopez N, Hole CR, Wozniak KL, Wormley FL Jr. Induction of Broad-Spectrum Protective Immunity against Disparate *Cryptococcus* Serotypes. *Front Immunol.* 2017;8:1359. doi: 10.3389/fimmu.2017.01359. eCollection 2017. PubMed PMID: 29163469; PubMed Central PMCID: PMC5670106.
4. Campuzano A, Castro-Lopez N, Wozniak KL, Leopold Wager CM, Wormley FL Jr. Dectin-3 Is Not Required for Protection against *Cryptococcus neoformans* Infection. *PLoS One.* 2017;12(1):e0169347. doi: 10.1371/journal.pone.0169347. eCollection 2017. PubMed PMID: 28107361; PubMed Central PMCID: PMC5249099.
5. Hole CR, Leopold Wager CM, Mendiola AS, Wozniak KL, Campuzano A, Lin X, Wormley FL Jr. Antifungal Activity of Plasmacytoid Dendritic Cells against *Cryptococcus neoformans* In Vitro Requires Expression of Dectin-3 (CLEC4D) and Reactive Oxygen Species. *Infect Immun.* 2016 Sep;84(9):2493-504. doi: 10.1128/IAI.00103-16. Print 2016 Sep. PubMed PMID: 27324480; PubMed Central PMCID: PMC4995896.
6. Zhai B, Wozniak KL, Masso-Silva J, Upadhyay S, Hole C, Rivera A, Wormley FL Jr, Lin X. Development of protective inflammation and cell-mediated immunity against *Cryptococcus neoformans* after exposure to hyphal mutants. *MBio.* 2015 Oct 6;6(5):e01433-15. doi: 10.1128/mBio.01433-15. PubMed PMID: 26443458; PubMed Central PMCID: PMC4611043.
7. Wozniak KL, Olszewski MA, Wormley FL Jr. Molecules at the interface of *Cryptococcus* and the host that determine disease susceptibility. *Fungal Genet Biol.* 2015 May;78:87-92. doi: 10.1016/j.fgb.2014.10.013. Epub 2014 Nov 1. Review. PubMed PMID: 25445308.
8. Hole CR, Bui H, Wormley FL Jr, Wozniak KL. Mechanisms of dendritic cell lysosomal killing of *Cryptococcus*. *Sci Rep.* 2012;2:739. doi: 10.1038/srep00739. Epub 2012 Oct 16. PubMed PMID: 23074646; PubMed Central PMCID: PMC3472389.
9. Wozniak KL, Levitz SM. *Cryptococcus neoformans* enters the endolysosomal pathway of dendritic cells and is killed by lysosomal components. *Infect Immun.* 2008 Oct;76(10):4764-71. doi: 10.1128/IAI.00660-08. Epub 2008 Aug 4. PubMed PMID: 18678670; PubMed Central PMCID: PMC2546838.
10. Wozniak KL, Vyas JM, Levitz SM. In vivo role of dendritic cells in a murine model of pulmonary cryptococcosis. *Infect Immun.* 2006 Jul;74(7):3817-24. doi: 10.1128/IAI.00317-06. PubMed PMID: 16790753; PubMed Central PMCID: PMC1489690.
11. Wozniak, K.L., J. Vyas, and S.M. Levitz. In vivo role of dendritic cells in a murine model of pulmonary cryptococcosis. *Infection and Immunity.* 2006; 74: 3817-24. PMCID: PMC1489690.
12. Wozniak, K.L. Dendritic Cells at the Interface of Fungal Immunity. *Current Fungal Infection Reports.* 2007; 1: 89-95.
13. Wozniak, K.L. and S.M. Levitz. *Cryptococcus neoformans* enters the endolysosomal pathway of dendritic cells and is killed by lysosomal components. *Infection and Immunity.* 2008; 76: 4764-71. PMCID: PMC2546838.
14. Wozniak, K.L., S. Ravi, S. Macias, M.L. Young, M.A. Olszewski, C. Steele, and F.L. Wormley, Jr. Insights into the mechanisms of protective immunity against *Cryptococcus neoformans* infection using a mouse model of pulmonary cryptococcosis. *PLoS One.* 2009; 4: e6854. PMCID: PMC2731172.
15. Hardison, S.E., S. Ravi, K.L. Wozniak, M.L. Young, M.A. Olszewski, and F.L. Wormley, Jr. Pulmonary Infection with an Interferon-gamma Producing *Cryptococcus neoformans* Strain Results in Classical Macrophage Activation and Protection. *American Journal of Pathology.* 2010 Feb;176(2):774-85. PMCID: PMC2808084.
16. Hardison, S.E., K.L. Wozniak, J.K. Kolls, and F.L. Wormley, Jr. IL-17 is not Required for Classical Macrophage Activation in a Pulmonary Mouse Model of *Cryptococcus neoformans* Infection. *Infection and Immunity.* 2010; 78: 5341-51. PMCID: PMC2981312.
17. Wozniak, K.L. and S.M. Levitz. T Cell and Dendritic Cell Immune Responses to *Cryptococcus*. *Cryptococcus: From human pathogen to model yeast.* 2011; pp 387-396. ASM Press.
18. Wozniak, K.L., S.E. Hardison, J.K. Kolls, and F.L. Wormley, Jr. Role of IL-17A on Resolution of Pulmonary *C. neoformans* Infection. *PLoS ONE.* 2011; 6: e17204. PMCID: PMC3040760.
19. Wozniak, K.L., M.L. Young, and F.L. Wormley, Jr. Protective Immunity Against Experimental Pulmonary Cryptococcosis in T Cell Depleted Mice. *Clinical Vaccine Immunology.* 2011; 18:717-23. PMCID: PMC3122518.
20. Wozniak, K.L., S.E. Hardison, M.A. Olszewski, and F.L. Wormley Jr. Induction of Protective Immunity Against Cryptococcosis. *Mycopathologia.* 2012; 173: 387-94. PMID: 22143898.

21. Wozniak, K.L., M.A. Olszewski, and F.L. Wormley, Jr. Host Immune Responses Against Pulmonary Fungal Pathogens. *Pulmonary Infections*. 2012; pp 85-128. Amer Amal (Ed.), InTech.
22. Hardison S.E., G. Herrera, M.L. Young, C.R. Hole, K.L. Wozniak, F.L. Wormley, Jr. Protective immunity against pulmonary cryptococcosis is associated with STAT1-mediated classical macrophage activation. *The Journal of Immunology*. 2012;189:4060-8. PMID: PMC3466339.
23. Hole, C.R., H. Bui, F.L. Wormley, Jr., and K.L. Wozniak. Mechanisms of Dendritic Cell Lysosomal Killing of *Cryptococcus*. *Scientific Reports*. 2012;2:739. PMID: PMC3472389.
24. Wozniak, K.L., J.K. Kolls, and F.L. Wormley, Jr. Depletion of Neutrophils in a Protective Model of Pulmonary Cryptococcosis Results in Increased IL-17A Production by Gamma/delta T cells. *BMC Immunology*. 2012;13:65. PMID:PMC3538069.
25. Wozniak, K.L., C.R. Hole, J. Yano, P.L. Fidel, Jr., and F.L. Wormley, Jr. Characterization of IL-22 and Antimicrobial Peptide Production in Mice Protected Against Pulmonary *Cryptococcus neoformans* Infection. *Microbiology*. 2014; 160 (Pt 7): 1440-52. PMID: 24760968.
26. Chaturvedi, A.K., R.S. Hameed, K.L. Wozniak, C.R. Hole, C.M. Leopold Wager, S.T. Weintraub, J.L. Lopez-Ribot, and F.L. Wormley, Jr. Vaccine-mediated Immune Responses to Experimental Pulmonary *Cryptococcus gattii* Infection in Mice. *PLoS One*. 2014; 13;9(8):e104316. PMID: 25119981.
27. Leopold Wager, C.M., C.R. Hole, K.L. Wozniak, M.A. Olszewski, F.L. Wormley, Jr. STAT1 Signaling is Essential for Protection against *Cryptococcus neoformans* Infection in Mice. *The Journal of Immunology*. 2014; 193(8): 4060-71. PMID: 25200956.
28. Wozniak, K.L., M.A. Olszewski, and F.L. Wormley, Jr. Molecules at the Interface of *Cryptococcus* and the Host that Determine Disease Susceptibility. *Fungal Genetics and Biology*. 2015; 78:87-92. PMID: 25445308.
29. Leopold Wager, C.M., C.R. Hole, K.L. Wozniak, M.A. Olszewski, M. Mueller, F.L. Wormley, Jr. STAT1 signaling within macrophages is required for antifungal activity against *Cryptococcus neoformans*. *Infection and Immunity*. 2015; 83 (12) 4513-27. PMID: PMC4645398.
30. Zhai, B.*, K.L. Wozniak* (co-first author), J. Masso-Silva, S. Upadhyay, C.R. Hole, A. Rivera, F.L. Wormley, Jr., and X. Lin. Development of protective inflammation and cell-mediated immunity against *Cryptococcus neoformans* after exposure to hyphal mutants. *mBio*. 2015; Oct 6;6(5). pii: e01433-15. PMID: PMC4611043.
31. Leopold Wager, C.M., C.R. Hole, K.L. Wozniak, and F.L. Wormley, Jr. *Cryptococcus* and Innate Phagocytes: Complex Interactions that Influence Disease Outcome. *Frontiers in Microbiology*. 2016; 7:105. doi:10.3389/fmicb.2016.00105. PMID: PMC4746234.
32. Hole, C.R., C.M. Leopold Wager, A. Mendiola, K.L. Wozniak, A. Campuzano, X. Lin, and F.L. Wormley, Jr. Anti-fungal Activity of Plasmacytoid Dendritic Cells Against *Cryptococcus neoformans* In Vitro Requires Expression of Dectin-3 (CLEC4D) and Reactive Oxygen Species. *Infection and Immunity*. 2016; 84 (9) 2493-504. PMID: PMC4995896.
33. Campuzano, A., N. Castro-Lopez, K.L. Wozniak, C.M. Leopold Wager, and F.L. Wormley, Jr. Dectin-3 is not required for protection against *Cryptococcus neoformans* infection. *PLoS One*. 2017. 12(1): e0169347. doi: 10.1371/journal.pone.0169347. PMID: 28107361.
34. Caballero Van Dyke, M.C., A.K. Chaturvedi, S.E. Hardison, C.M. Leopold Wager, N. Castro-Lopez, C.R. Hole, K.L. Wozniak, and F.L. Wormley, Jr. Induction of Broad-Spectrum Protective Immunity against Disparate *Cryptococcus* Serotypes. *Frontiers in Immunology*. 2017. doi.org/10.3389/fimmu.2017.01359.