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## PROFILE

I am currently a third year PhD student in the Department of Microbiology and Immunology at Indiana University School of Medicine. I received a Master of Science in Molecular Biology and Biochemistry from Loyola University Chicago in 2016. I have extensive knowledge and expertise in oncology and immunology research. My Master's thesis project was focused on elucidating a novel Notch signaling mechanism in Estrogen Receptor α positive breast cancer. My previous research experience at The Ohio State University involved investigating TGF-β signaling in vascular angiogenesis. In the three years since completion of my Master's degree, I have performed research at The University of Chicago in tumor immunology with a special emphasis on developing mouse models of disease. I am motivated and enthusiastic about scientific research. In the lab, I am detail-oriented and thoughtful in my experiments. I strive daily to advance our knowledge of the natural world and disease through thoughtful inquiry and a positive attitude.

## EDUCATION

**Indiana University** — **In Progress**
**Ph.D. Microbiology and Immunology**

Loyola University Chicago — **2016**
**M.S. Biochemistry and Molecular Biology**

The University of Mississippi — **2011**
**B.S. Biology**

The University of Mississippi — **2011**
**B.A. Biochemistry**

## RESEARCH EXPERIENCE

Indiana University — **August 2020 - Present**
**Graduate Research Assistant**
I am currently a graduate student in the Department of Microbiology and Immunology. My thesis research involves exploring mechanisms of allergic asthma pathogenesis in mouse models. Core areas of interest include hematopoiesis and the microbiome.

University of Chicago — **September 2017 - July 2020**
**Research Specialist II**
My research focused on mechanisms of immune checkpoint inhibitors in bladder cancer.

University of Chicago — **October 2016 – September 2017**
**Research Specialist I**
Our research was focused on mechanisms of retroviral infection in murine models.

Loyola University Chicago
**Master's Student** **August 2014 – October 2016**
Work toward my Master's thesis employed several biochemistry and molecular biology techniques used to investigate the crosstalk between Notch, Estrogen Receptor-α, and MAP Kinase signaling pathways in breast cancer.

The Ohio State University Division of Pharmacology
**Research Assistant II** **October 2011 – April 2014**
I carried out biochemistry and molecular biology experiments pertaining to TGF-β signaling in vascular endothelium. I was also responsible for lab inventory, ordering, personnel training and supervision, and general management duties.

The University of Mississippi Department of Chemistry and Biochemistry **January 2011- May 201**
**Undergraduate Research Assistant**
I gained experience with PCR and cloning techniques and protein purification.

## GRANTS AND AWARDS

NIH T32 Institutional Training Grant (NIH T32 5T32AI060519): 2023 - Present

AAI Trainee Abstract Award: May 2023

IUPUI Graduate Student Travel Fellowship: $800 for travel to "The Human Microbiome: Ecology and Evolution" Keystone Symposium in December 2022

## CONFERENCE PRESENTATIONS

American Association of Immunologists Annual Meeting May 11-15, 2023
Lung microbial dysbiosis during early life promotes predisposition to allergic asthma.
Oral presentation and Poster

American Association of Immunologists Annual Meeting May 11-15, 2023
Maternal beta-glucosylceramide induces the generation of IRF4+ dendritic cells in offspring of allergic mothers.
Poster

Keystone Symposia: The Human Microbiome - Ecology and Evolution Dec 5-7, 2022
Lung microbial dysbiosis during early life promotes predisposition to allergic asthma.
Poster

## PUBLICATIONS AND PAPERS

Bloodworth JC, Hoji A, Wolff G, Mandal RK, Schmidt NW, Deshane JS, Morrow CD, Kloepfer KM, Cook-Mills JM. Dysbiotic lung microbial communities of neonates from allergic mothers confer neonate responsiveness to suboptimal allergen. Front Allergy. 2023 Mar 10;4:1135412. doi: 10.3389/falgy.2023.1135412. PMID: 36970065; PMCID: PMC10036811.

Gajewski T, Rouhani S, Trujillo J, Pyzer A, Yu J, Fessler J, Cabanov A, Higgs E, Cron K, Zha Y, Lu Y, Bloodworth J, Abasiyanik M, Okrah S, Flood B, Hatogai K, Leung M, Pezeshk A, Kozloff L, Reschke R, Strohbehn G, Chervin CS, Kumar M, Schrantz S, Madariaga ML, Beavis K, Yeo KT, Sweis R, Segal J, Tay S, Izumchenko E, Mueller J, Chen L. Severe COVID-19 infection is associated with aberrant cytokine production by infected lung epithelial cells rather than by systemic immune dysfunction. Res Sq [Preprint]. 2021 Nov 24:rs.3.rs-1083825. doi: 10.21203/rs.3.rs-1083825/v1. PMID: 34845442; PMCID: PMC8629200.

Okuneye K, Bergman D, **Bloodworth JC**, Pearson AT, Sweis RF, Jackson TL. *A validated mathematical model of FGFR3-mediated tumor growth reveals pathways to harness the benefits of combination targeted therapy and immunotherapy in bladder cancer.* Comput Syst Oncol. 2021 Jun;1(2):e1019. doi: 10.1002/cso2.1019. Epub 2021 May 19. PMID: 34984415; PMCID: PMC8722426.

Strohbehn GW, Heiss BL, Rouhani SJ, Trujillo JA, Yu J, Kacew AJ, Higgs EF, **Bloodworth JC**, Cabanov A, Wright RC, Koziol AK, Weiss A, Danahey K, Karrison TG, Edens CC, Bauer Ventura I, Pettit NN, Patel BK, Pisano J, Strek ME, Gajewski TF, Ratain MJ, Reid PD. *COVIDOSE: A Phase II Clinical Trial of Low-Dose Tocilizumab in the Treatment of Noncritical COVID-19 Pneumonia.* Clin Pharmacol Ther. 2021 Mar;109(3):688-696. doi: 10.1002/cpt.2117. Epub 2020 Dec 10. PMID: 33210302; PMCID: PMC7753375.

Andolfi C, **Bloodworth JC**, Papachristos A, Sweis RF. *The Urinary Microbiome and Bladder Cancer: Susceptibility and Immune Responsiveness.* Bladder Cancer. 2020 Sep 21;6(3):225-235. doi: 10.3233/BLC-200277. PMID: 33195783; PMCID: PMC7605348.

Sweis RF, Golan S, Barashi N, Hill E, Andolfi C, Werntz RP, **Bloodworth J**, Steinberg GD. "*Association of the commensal urinary microbiome with response to Bacillus Calmette-Guérin (BCG) immunotherapy in nonmuscle invasive bladder cancer."* In: J Clin Oncol 37, 2019 (suppl 7S; abstr 423); February 15, 2019; San Francisco, CA;

Abstract 423.
Bloodworth J.C., Osipo C. (2018) The Role of Notch in Breast Cancer. In: Miele L., Artavanis-Tsakonas S. (eds) Targeting Notch in Cancer. Springer, New York, NY, https://doi.org/10.1007/978-1-4939-8859-4_9
Shah N, Kumar S, Zaman N, Pan CC, Bloodworth JC, Lei W, Streicher JM, Hempel N, Mythreye K, Lee NY.
"TAK1 activation of alpha-TAT1 and microtubule hyperacetylation control AKT signaling and cell growth." Nat Commun. 2018 Apr 27;9(1):1696. doi: 10.1038/
s41467-018-04121-y.

Pandya K, Wyatt D, Gallagher B, Shah D, Baker A, Bloodworth J, Zlobin A, Pannuti A, Green A, Ellis IO, Filipovic A, Sagert J, Rana A, Albain KS, Miele L, Denning MF, Osipo C. "PKCα Attenuates Jagged-1 Mediated Notch Signaling in ErbB-2-Positive Breast Cancer to Reverse Trastuzumab Resistance." Clin Cancer Res. 2016 Jan 1;22(1):175-86. doi: 10.1158/1078-0432.CCR-15-0179. Epub 2015 Sep 8.

Pan CC, Kumar S, Shah N, Bloodworth JC, Hawinkels LJ, Mythreye K, Hoyt DG, Lee NY. "Endoglin Regulation of Smad2 Function Mediates Beclin1 Expression and Endothelial Autophagy." J Biol Chem. 2015 Jun 12;290(24):14884-92. Epub 2015 Apr 30.

Kumar S, Pan CC, Bloodworth JC, Nixon AB, Theuer C, Hoyt DG, Lee NY. "Antibody-directed coupling of endoglin and MMP-14 is a key mechanism for endoglin shedding and deregulation of TGF-β signaling." Oncogene. 2014 Jul 24;33(30):3970-9. Epub 2013 Sep 30.

Pan CC, Bloodworth JC, Mythreye K, Lee NY."Endoglin inhibits ERK-induced c-Myc and cyclin D1 expression to impede endothelial cell proliferation." Biochem Biophys Res Commun. 2012 Aug 3;424(3):620-3. Epub 2012 Jul 10.