

# Immunology, Pathology and Infectious Disease

## Graduate student publications 2025-2026

(Not including posters or abstracts)

### Isaac Adediji:

**Isaac O. Adediji**, Christianah Aloba, Hager M. Kowash, Lynda K. Harris. Recreational drug exposure: cellular mechanisms linking ovarian dysfunction, placental impairment, and adverse pregnancy outcomes. *Journal of Developmental Origins of Health and Disease* (under review; Manuscript ID: DOHaD-2025-0059).

**Isaac O Adediji**, Kajal Kamra, Hager M Kowash, Pegah Nouri Mousa, Christianah O Aloba, Victoria L Schaal, John S Davis, Eric S Peeples, Gurudutt N Pendyala, Lynda K Harris. Melatonin Partially Attenuates Oxycodone-Induced Placental Stress Signaling and Fetal Brain Apoptosis in a Sex-Specific Manner. doi.org/10.64898/2026.04.29.721662 (Under review)

**IO Adediji**, HM Kowash, P Nouri Mousa, CO Aloba, VL Schaal, JS Davis, ES Peeples, G Pendyala, LK Harris. Delineating the effects of prenatal oxycodone exposure and melatonin treatment on placental and fetal outcomes in pregnant rats. Doi.org/10.64898/2026.04.23.720463 (Under review)

### Sam Aden:

Garman C, Armendariz S, Peklo MM, **Aden SS**, Kozisek F, Qian W, et al. Dynamic changes in cuticular chitin enhance mechanical resilience of the tick alloscutum during engorgement. *Insect Biochemistry and Molecular Biology*. 2026;104567. doi: <https://doi.org/10.1016/j.ibmb.2026.104567>

### Ridhi Bhola:

Sturgeon R, Goel P, Molczyk C, **Bhola R**, Grandgenett PM, Hollingsworth MA, Singh RK. Neutrophil Dynamics Contribute to Disease Progression and Poor Survival in Pancreatic Cancer. *Cancers* (Basel). 2025 Nov 1;17(21):3541. doi: 10.3390/cancers17213541. PMID: 41228334; PMCID: PMC12607450.

**Bhola R**, Sturgeon R, Singh RK. Cutting to the core: Proteases in the tumor-bone interface and metastatic progression. *Biochim Biophys Acta Rev Cancer*. 2026 Apr;1881(2):189567. doi: 10.1016/j.bbcan.2026.189567. Epub 2026 Feb 27. PMID: 41765208.

Sturgeon R, Goel P, Molczyk C, **Bhola R**, and Singh RK. Pancreatic Cancer-Derived Factors Enhance Neutrophil Survival and Promote a Pro-Tumorigenic Phenotype. *Cancer Letters* (Submitted).

**Bhola R**, Sturgeon R, and Singh R. Cathepsin G Orchestrates Tumor Cell Plasticity and Osteolytic Bone Metastasis in Breast Cancer. *Cancer Research* (In submission)

### Nichole Brandquist:

**Brandquist ND**, Kielian T. Differential sensitivity of leukocyte populations to *Staphylococcus aureus* biofilm. *Infect Immun*. 2026 Mar 10;94(3):e0065425. doi: 10.1128/iai.00654-25. Epub 2026 Jan 29. PMID: 41609497; PMCID: PMC12974123.

### Taylor Burke:

Razvi F, **Burke TL**, Shinde D, Ahn J, Thomas VC, Sadykov M, Fey PD. Growth and acetate metabolism of *Staphylococcus aureus* in defined medium. *Appl Environ Microbiol*. 2025 Nov

**Ashish Das:**

**Das A**, Mahfooz S, Wang F, Guan B, Xu B, Zhang C, Wang Z. "Metformin Modulates the Phenotypes of Tumor-associated Macrophages in Glioblastoma in a Context-Dependent Manner by Promoting the Homeostasis of Macrophages." [Manuscript Submitted to frontiers]

Islam F, **Das A**, Ashaduzzaman M, Ding L, Kumari N, Dai R, Oupický D. Structure-Activity Mapping of Intraperitoneal mRNA-LNPs: Decoupling Tumor and Liver Biodistribution in Pancreatic Cancer. bioRxiv [Preprint]. 2026 Mar 21:2026.03.20.712457. doi: 10.64898/2026.03.20.712457. PMID: 41889911; PMCID: PMC13015392.

Khaimar SV, **Das A**, Oupický D, Sadykov M, Romanova S. Strategies to Overcome Antibiotic Resistance: Silver Nanoparticles and Vancomycin in Pathogen Eradication. RSC Pharmaceutics, 2025; PMID: 40362173

Rumon MMH, Sayem M, Halder SK, Razia, **Das A** et al. The Promise of Functionalized Chitosan-Based Self-Healing Hydrogels. Advances in Polymer Technology, 2025; DOI: 10.1155/adv/4913728.

**Del Dsouza:**

Ryu, B., Ha, L., **Dsouza, D. L.**, Boesen, E. I., & Huh, S.-H. (2026). Mechanism of renal cyst initiation and progression through ETV transcription factors and Hedgehog signaling. PNAS. Submitted April 23, 2026

D George, **D Dsouza**, K.E. Angell, J Williamson, B Barcal, J Carstens, J.A. Conner, L Struble, J Bai, L Longacre, H.M. Creager, E Schnaubelt, A Schnaubelt, G.E.O Borgstahl, D.M. Brett-Major, M.J. Broadhurst. Serial exposure to SARS-CoV-2 pre-Omicron spike elicits functional but fast-waning antibodies against Omicron variants. (submitted to Science Immunology)

**Valerie Fousek-Schuller:**

**Fousek-Schuller, V. J.**, Struble, L. R., Al-Mugotir, M., Wallin, S., Lovelace, J. J., Pandithar, S., Slobodnik, K., & Borgstahl, G. E. O. (2025). Submitted to Nucleic Acids Research. Phosphorylation modulates replication protein A structural integrity and its coordination with RAD52 in DNA repair.

**Claire Garman:**

**Garman C**, Armendariz S, Peklo MM, Aden SS, Kozisek F, Qian W, et al. Dynamic changes in cuticular chitin enhance mechanical resilience of the tick alloscutum during engorgement. Insect Biochemistry and Molecular Biology. 2026;104567. doi: <https://doi.org/10.1016/j.ibmb.2026.104567>

**Dylan George:**

**D George**, D Dsouza, K.E. Angell, J Williamson, B Barcal, J Carstens, J.A. Conner, L Struble, J Bai, L Longacre, H.M. Creager, E Schnaubelt, A Schnaubelt, G.E.O Borgstahl, D.M. Brett-Major, M.J. Broadhurst. Serial exposure to SARS-CoV-2 pre-Omicron spike elicits functional but fast-waning antibodies against Omicron variants. (submitted to Science Immunology)

Brett-Major DM, **George D**, Morrel ED, Mikacenic C, Carstens J, Evans LE, Wurfel MM, Bhatraju PK, Broadhurst MJ. Anti-SARS-CoV-2 nucleoprotein IgA may worsen disease severity in critically ill COVID-19 pneumonia patients. (submitted to Frontiers Immunology, in review)

Angell KE, **George DS**, Broadhurst MJ, Brett-Major DM. Sensitivity analysis of limit of detection estimation using probit regression. Am J Clin Pathol. 2025 Dec 1;164(6):845-848. doi: 10.1093/ajcp/aqaf123. PMID: 41240387.

**Abigail Hall:**

**Hall AG**, Alqarzaee AA, Collins AJ, Panda S, Romanova S, Chaudhari SS, Monteith AJ, Frees D, Thomas VC. Activation of the Spx redox sensor counters cysteine-driven Fe(II) depletion under disulfide stress. bioRxiv [Preprint]. 2025 Dec 3:2025.12.03.692063. doi: 10.64898/2025.12.03.692063. PMID: 41573845; PMCID: PMC12822559.

**Abigail G Hall**, Aliyah J. Collins, Ryan Singh, Sasmita Panda, Sujata S. Chaudhari, Andrew J. Monteith and Vinai C. Thomas. Cystine import contributes to hypochlorite resistance in *Staphylococcus aureus*. mSphere, 2025 (in preparation)

### **Dawson Hollingsworth:**

**Hollingsworth D**, Srivastava S, Akter S, Kumar M, Dey SS, Panja S, Du X, Saha A, Yeapuri P, Bhattarai S, Foster EG, Kadry R, Fayez N, Oludipe D, Ehrenkranz E, Mosley RL, Oehlerking J, Swarts K, Hu G, Gendelman HE, Sil S. Colostrum extracellular vesicles are neuroprotective in models of Parkinson's disease. *Theranostics*. 2026 Jan 22;16(8):4190-4223. doi: 10.7150/thno.128257. PMID: 41695478; PMCID: PMC12905751.

### **Brigham Killips:**

**Killips B.**, Wojtkiewicz M., Gundry R., Omsland A., Gilk S.D. (Expected May 2026). *Coxiella burnetii* manipulates TFEB regulation and localization to promote bacterial survival.

Ugwu E.C., **Killips B.**, Gilk S.D., Omsland A. (Expected May 2026) Striking a Balance – *Coxiella burnetii* Metabolic Activation and Survival in the Acidic Intracellular Niche

### **Madison Love:**

**Love M**, Dang RC, Xie J, Zhang P. The Rab5 effector Rabankyrin-5 mediates endosomal fusion and trafficking of human papillomavirus during early entry. *Proc Natl Acad Sci U S A*. 2026;123(9):e2524765123. doi: 10.1073/pnas.2524765123.

### **Bright Manu:**

**Manu B**, Ofori B, Kassim AR, Lamptey EL, Tandoh KZ, Sarpong KAN. Iron Deficiency Diagnosis in Sub-Saharan Africa: Challenges, Barriers, and Opportunities. *Anemia*. 2026;2026:9089207. doi: 10.1155/anem/9089207.

### **Ashley Peer:**

Malla, S., Smith, D. R., **Peer, A. M.**, Samuelson, D. R., Knoell, D. L., & Saha, R. (2026). A Closed Computational–Experimental Loop Identifies Metabolic Collapse at the Root of Macrophage Dysfunction due to Zinc Dyshomeostasis. *bioRxiv*, 2026-01.

Smith, D. R., Haq, S., Niu, M., Malla, S., Saha, R., **Peer, A.**, Bianco, P., Romanova, S., Samuelson, D.R. & Knoell, D.L. (2026). ZIP8 loss impairs macrophage-mediated phagolysosomal removal of bacteria and is overcome by butyrate supplementation. *Communications Biology*.

### **Gabrielle Schulze:**

Schulze GF, Reslane I, Razvi F, Handke LD, Lehman MK, Fey PD. ArgT functions as an arginine transporter in *Staphylococcus aureus*. *J Bacteriol*. 2025 Dec 18;207(12):e0036225. doi: 10.1128/jb.00362-25. Epub 2025 Nov 28. PMID: 41312975; PMCID: PMC12713382.

### **Reegan Sturgeon:**

**Sturgeon R**, Goel P, Molczyk C, Bhola R, Grandgenett PM, Hollingsworth MA, Singh RK. Neutrophil Dynamics Contribute to Disease Progression and Poor Survival in Pancreatic Cancer. *Cancers* 2025, 17(21), 3541; <https://doi.org/10.3390/cancers17213541>.

Molczyk C, **Sturgeon R**, Thomas E, and Singh RK. The CXCR1 as a Putative Marker for Cancer Stem Cell-like Phenotypes in Chemotherapy-Resistant Pancreatic Ductal Adenocarcinoma. *American Journal of Cancer Research*, 15(10):4320-4329, 2025. <https://doi.org/10.62347/YLHF5834>.

Molczyk C, **Sturgeon R**, Saxena S, Johnsson E, Bhatia R, Bhyrabhatla N, Kumar S, Batra SK, and **Singh RK**. Unlocking the Power of CXCR2 Inhibition to Overcome Gemcitabine Resistance in Pancreatic Cancer. *FEBS Journal*, 2025 (Acceptable with minor revision).

Bhola R, **Sturgeon R**, and Singh RK. Cutting to the Core: Proteases in the Tumor–Bone Interface and Metastatic Progression. *BBA-Reviews on Cancer*, 2025 (Submitted).

**Sturgeon R**, Goel P, Molczyk C, Bhola R, and Singh RK. Pancreatic Cancer-Derived Factors Enhance Neutrophil Survival and Promote a Pro-Tumorigenic Phenotype. *Cancer Letters* (Submitted).

### **Debapriya Sutar:**

Acharya A, **Sutar D**, Mohan M, Govind V, Villinger F, Pallikkuth S, Byrareddy SN. Age-Associated Expansion of HIV/SIV Reservoirs in People With HIV and SIV-Infected Macaques. *Aging Cell*. 2025 Dec;24(12):e70252. doi: 10.1111/accel.70252. Epub 2025 Oct 6. PMID: 41051053; PMCID: PMC12686580.

Narendra Kumar, Arpan Acharya, Rajesh Das, Urvinder Sardarni, **Debapriya Sutar**, Oluwattayo Olasunkanmi, Swathi Murakonda, Amouda Venkatesan, Dinakara Ampasala, Samuel Cohen, Mystera Samuelson, Balasrinivasa Sajja, Ulf Dettmer, Nagendran Ramalingam, Hitendra Chand,

Siddappa Byrareddy. [Sex-and Age-Dependent Neuroimmune Dysregulation and Early Neurodegenerative Signatures Following SARS-CoV-2 Infection in Golden Syrian Hamsters](https://doi.org/10.21203/rs.3.rs-9130692/v1). <https://doi.org/10.21203/rs.3.rs-9130692/v1>. (Submitted to Nature communications March 2026)

Arpan Acharya, Michellie Thurman, **Debapriya Sutar**, Olasunkanmi Israel Tayo, Johid Reza Malik, Shetty Ravi Dyavar, Ákos Végvári, Siddappa N Byrareddy. In-Vitro Evaluation of HIV/SARS-CoV-2 Co-infection–Mediated Proteomic Changes in Astrocytes and Pericytes Reveals Altered Signaling Pathways Associated with Neurodegenerative Disorders. (Submitted to Journal of Medical virology April 2026)

**Sarah Uhm:**

Merani S, Scheele K, Fristoe L, Cloonan M, **Uhm S**, Urban M, Fisher KW, Langnas AN, Andrews MT. Prolonged Cold Ischemic Time Before Normothermic Machine Perfusion Accentuates Postreperfusion Hepatocellular Injury. *Transplantation Direct* (5):p e1943, May 2026. | DOI: 10.1097/TXD.0000000000001943

**Uhm S**, Smith H, Chen S, Iwen PC, McCutchen E, Bartling A, Cortinas R, Brett-Major D, Broadhurst MJ, Hamik J, Fauver JR. Distribution of Vector Abundance and Infection Rates in Relation to Human Vector-Borne Disease Cases in Nebraska. (Preprinted at medRxiv 2026 Feb 15)  
(Under revision at the Journal of Medical Entomology)

**Uhm S**, Alexander BT, Lyden ER, Cortes-Penfield N, Sayles HR, Azimi SF, Keintz MR, Miller MM, Rupp ME, Marcelin JR. Comparison of real-world use vs recent clinical trial in patients given dalbavancin. (Accepted at JAMA Network Open April 2026)

Freed Jr S\*, Chandler S\*, **Uhm S\***, Pella Z, Gurung D, Smith H, Dowdy T, Bartling A, Butz A, Wiley M, Broadhurst J, McCutchen E, Hamik J, Iwen P, Downey N, Herzog K, Fauver J. Genomic Characterization of a Severe West Nile Virus Transmission Season using a Single Reaction Amplicon Sequencing Approach. *PLoS Negl Trop Dis*. 2026;20(1):e0013931. Published 2026 Jan 21. doi:10.1371/journal.pntd.0013931

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