

THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.

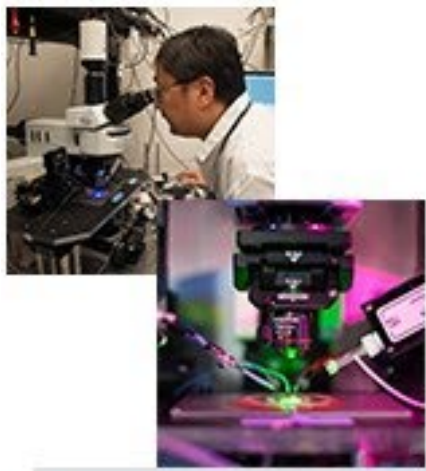


Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences

Publications

- Ma X, Wei J, Cui Y, Xia B, Zhang L, Nehme A, Zuo Y, **Ferguson D**, Levitt P, **Qiu S**. Disrupted Timing of MET Signaling Derails the Developmental Maturation of Cortical Circuits and Leads to Altered Behavior in Mice. *Cereb Cortex*. 2022 Apr 5;32(8):1769-1786. doi: 10.1093/cercor/bhab323. PMID: 34470051; PMCID: PMC9016286.
- Chen C, Wei J, Ma X, Xia B, Shakir N, Zhang JK, Zhang L, Cui Y, **Ferguson D**, **Qiu S**, Bai F. Disrupted Maturation of Prefrontal Layer 5 Neuronal Circuits in an Alzheimer's Mouse Model of Amyloid Deposition. *Neurosci Bull*. 2022 Sep 24. doi: 10.1007/s12264-022-00951-5. Epub ahead of print. PMID: 36152121.
- Chen C, Ma X, Wei J, Shakir N, Zhang JK, Zhang L, Nehme A, Cui Y, **Ferguson D**, Bai F, **Qiu S**. Early impairment of cortical circuit plasticity and connectivity in the 5XFAD Alzheimer's disease mouse model. *Transl Psychiatry*. 2022 Sep 8;12(1):371. doi: 10.1038/s41398-022-02132-4. PMID: 36075886; PMCID: PMC9458752.
- Marballi KK, Alganem K, Brunwasser SJ, Barkatullah A, Meyers KT, Campbell JM, Ozols AB, Mccullumsmith RE, **Gallitano AL**. Identification of activity-induced Egr3-dependent genes reveals genes associated with DNA damage response and schizophrenia. *Transl Psychiatry*. 2022 Aug 8;12(1):320. doi: 10.1038/s41398-022-02069-8. PMID: 35941129; PMCID: PMC9360026.
- Zhao X, Ozols AB, Meyers KT, Campbell J, McBride A, Marballi KK, Maple AM, Raskin C, Mishra A, Noss SM, Beck KL, Khoshaba R, Bhaskara A, Godbole MN, Lish JR, Kang P, Hu C, Palner M, Overgaard A, Knudsen GM, **Gallitano AL**. Acute sleep deprivation upregulates serotonin 2A receptors in the frontal cortex of mice via the immediate early gene Egr3. *Mol Psychiatry*. 2022 Mar;27(3):1599-1610. doi: 10.1038/s41380-021-01390-w. Epub 2022 Jan 10. PMID: 35001075; PMCID: PMC9210263.
- Doan AH, Arnold M and **Garofalo E**. (2022, April). Sexual Health Education Experiences of Phoenix Pride Participants. *Annual University of Arizona Public Health Poster Forum*.
- McGrath K, Eriksen AB, García-Martínez D, Galbany J, Gómez-Robles A, Massey JS, Fatica LM, **Glowacka H**, Arbenz-Smith K, Muvunyi R, Stoinski TS, Cranfield MR, Gilardi K, Shalukoma C, de Merode E, Gilissen E, Tocheri MW, McFarlin SC, Heuzé Y. Facial asymmetry tracks genetic diversity among Gorilla subspecies. *Proc Biol Sci*. 2022 Feb 23;289(1969):20212564. doi: 10.1098/rspb.2021.2564. Epub 2022 Feb 23. PMID: 35193404; PMCID: PMC8864355.
- Griffiths DR, Law LM, Young C, Fuentes A, Truran S, Karamanova N, Bell LC, Turner G, Emerson H, Mastroeni D, **Gonzales RJ**, Reaven PD, Quarles CC, Migrino RQ, Lifshitz J. Chronic Cognitive and Cerebrovascular Function after Mild Traumatic Brain Injury in Rats. *J Neurotrauma*. 2022 Oct;39(19-20):1429-1441. doi: 10.1089/neu.2022.0015. PMID: 35593008.
- Gutsol AA, Blanco P, **Hale TM**, Thibodeau JF, Holterman CE, Nasrallah R, Correa JWN, Afanasiev SA, Touyz RM, Kennedy CRJ, Burger D, Hébert RL, Burns KD. Comparative analysis of hypertensive nephrosclerosis in animal models of hypertension and its relevance to human pathology. *Glomerulopathy. PLoS One*. 2022 Feb 17;17(2):e0264136. doi: 10.1371/journal.pone.0264136. PMID: 35176122; PMCID: PMC8853553.
- Madhavpeddi L, Hammond B, Carbone DL, Kang P, Handa RJ, **Hale TM**. Impact of angiotensin II receptor antagonism on the sex-selective dysregulation of cardiovascular function induced by in utero dexamethasone exposure. *Am J Physiol Heart Circ Physiol*. 2022 Apr 1;322(4):H597-H606. doi: 10.1152/ajpheart.00587.2021. Epub 2022 Feb 18. PMID: 35179975; PMCID: PMC8934675.
- Garvin AM, **Hale TM**. State of change: epigenetic and mitochondrial regulation of cardiac fibroblast activation. *Current Opinion in Physiology*. 28(2022) 100557. 44.
- Garvin AM, **Hale TM**. Sex matters in the aging heart: implications for antifibrotic therapies. *Am J Physiol Heart Circ Physiol*. 2022 Aug 1;323(2):H360-H361. doi: 10.1152/ajpheart.00340.2022. Epub 2022 Jul 15. PMID: 35839153; PMCID: PMC9342135.
- Rudolph ML, Neve RL, **Hammer RP Jr**, **Nikulina EM**. Enhanced psychostimulant response, but not social avoidance, depends on GluA1 AMPA receptors in VTA dopamine neurons following intermittent social defeat stress in rats. *Eur J Neurosci*. 2022 May;55(9-10):2154-2169. doi: 10.1111/ejn.14884. Epub 2020 Jul 14. PMID: 32594591; PMCID: PMC9292348.





THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.

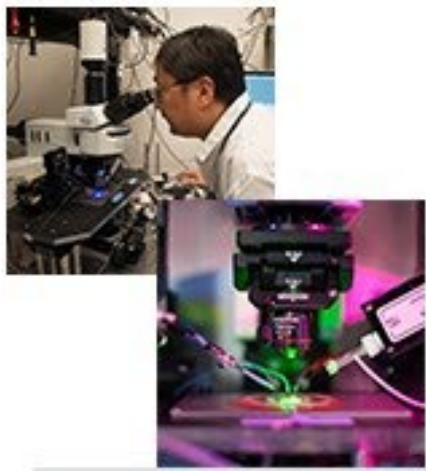


Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences

Publications Continued:

- Borden ES, Buetow KH, Wilson MA, **Hastings KT**. Cancer Neoantigens: Challenges and Future Directions for Prediction, Prioritization and Validation. *Front Oncol*. 2022 Mar 3;12:836821. doi: 10.3389/fonc.2022.836821. PMID: 35311072; PMCID: PMC8929516.
- Borden ES, Ghafoor S, Buetow KH, LaFleur BJ, Wilson MA, **Hastings KT**. NeoScore Integrates Characteristics of the Neoantigen:MHC Class I Interaction and Expression to Accurately Prioritize Immunogenic Neoantigens. *J Immunol*. 2022 Apr 1;208(7):1813-1827. doi: 10.4049/jimmunol.2100700. Epub 2022 Mar 18. PMID: 35304420; PMCID: PMC8983234. *The paper was selected by the Editors as a Top Read for the April 1 issue.*
- Adams AC, Borden ES, Macy AM, Thomson N, Cui H, Gimbel MI, Wilson MA, Buetow KH, Roe DJ, DiCaudo DJ, Homs J, **Hastings KT**. High GILT Expression Is Associated with Improved Survival in Metastatic Melanoma Patients Treated with Immune Checkpoint Inhibition. *Cancers (Basel)*. 2022 Apr 28;14(9):2200. doi: 10.3390/cancers14092200. PMID: 35565329; PMCID: PMC9100272.
- Adams AC, Macy AM, Kang P, Castro-Ochoa KF, Wijeratne EMK, Xu YM, Liu MX, Charos A, Bosenberg MW, Gunatilaka AAL, Sertil AR, **Hastings KT**. Physachenolide C induces complete regression of established murine melanoma tumors via apoptosis and cell cycle arrest. *Transl Oncol*. 2022 Jan;15(1):101259. doi: 10.1016/j.tranon.2021.101259. Epub 2021 Nov 1. Erratum in: *Transl Oncol*. 2022 Jul;21:101446. PMID: 34735896; PMCID: PMC8571524.
- Adams AC, Macy AM, Kang P, Castro-Ochoa KF, Wijeratne EMK, Xu YM, Liu MX, Charos A, Bosenberg MW, Gunatilaka AAL, Sertil AR, **Hastings KT**. Corrigendum to "Physachenolide C induces complete regression of established murine melanoma tumors via apoptosis and cell cycle arrest." *Transl Oncol*. 2022 Jul;21:101446. doi: 10.1016/j.tranon.2022.101446. Epub 2022 May 19. Erratum for: *Transl Oncol*. 2022 Jan;15(1):101259. PMID: 35598954; PMCID: PMC9136596.
- Borengasser K, Rookwood AC, Solheim JC, Godfrey M, **Hastings KT**, King KM, Butler H, Abney M, Smith R, Tamayo L, Idoate RE. Collective re-storying of mentee and mentor experiences in a cancer research education program for American Indian and Alaska Native students *Journal of STEM Outreach*; 2022 Aug: 5(2).
- Morales CG, Jimenez NR, **Herbst-Kralovetz MM**, Lee NR. Novel Vaccine Strategies and Factors to Consider in Addressing Health Disparities of HPV Infection and Cervical Cancer Development among Native American Women. *Med Sci (Basel)*. 2022 Sep 13;10(3):52. doi: 10.3390/medsci10030052. PMID: 36135837; PMCID: PMC9503187.
- Lorentzen GM, Łaniewski P, Cui H, Roe DJ, Mourad J, Mahnert ND, Farland LV, **Herbst-Kralovetz MM**. Immunometabolic profiling of cervicovaginal lavages identifies key signatures associated with adenomyosis. *iScience*. 2022 Nov 4;25(12):105508. doi: 10.1016/j.isci.2022.105508. PMID: 36419846; PMCID: PMC9676393.
- Farland LV, Khan SM, Shilen A, Heslin KM, Ishimwe P, Allen AM, **Herbst-Kralovetz MM**, Mahnert ND, Pogreba-Brown K, Ernst KC, Jacobs ET. COVID-19 vaccination and changes in the menstrual cycle among vaccinated persons. *Fertil Steril*. 2022 Dec 17:S0015-0282(22)02110-0. doi: 10.1016/j.fertnstert.2022.12.023. Epub ahead of print. PMID: 36539055; PMCID: PMC9758067.
- Łaniewski P, Cui H, Mahnert ND, Mourad J, Borst MP, Willmott L, Chase DM, Roe DJ, **Herbst-Kralovetz MM**. Protein biomarkers in cervicovaginal lavages for detection of endometrial cancer. *Biomark Res*. 2022 Dec 2;10(1):88. doi: 10.1186/s40364-022-00438-5. PMID: 36461062; PMCID: PMC9717501.
- Maarsingh JD, Łaniewski P, **Herbst-Kralovetz MM**. Immunometabolic and potential tumor-promoting changes in 3D cervical cell models infected with bacterial vaginosis-associated bacteria. *Commun Biol*. 2022 Jul 22;5(1):725. doi: 10.1038/s42003-022-03681-6. PMID: 35869172; PMCID: PMC9307755.
- Kaelin EA, Skidmore PT, Łaniewski P, Holland LA, Chase DM, **Herbst-Kralovetz MM**, Lim ES. Cervicovaginal DNA Virome Alterations Are Associated with Genital Inflammation and Microbiota Composition. *mSystems*. 2022 Apr 26;7(2):e0006422. doi: 10.1128/msystems.00064-22. Epub 2022 Mar 28. PMID: 35343798; PMCID: PMC9040584.
- Bokulich NA, Łaniewski P, Adamov A, Chase DM, Caporaso JG, **Herbst-Kralovetz MM**. Multi-omics data integration reveals metabolome as the top predictor of the cervicovaginal microenvironment. *PLoS Comput Biol*. 2022 Feb 23;18(2):e1009876. doi: 10.1371/journal.pcbi.1009876. PMID: 35196323; PMCID: PMC8901057.





THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.

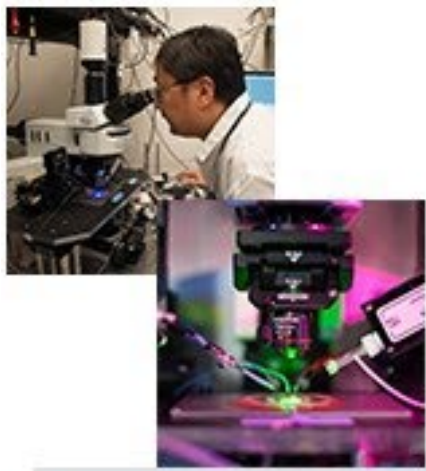


Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences

Publications Continued:

- Łaniewski P, **Herbst-Kralovetz MM**. Connecting microbiome and menopause for healthy ageing. *Nat Microbiol*. 2022 Mar;7(3):354-358. doi: 10.1038/s41564-022-01071-6. PMID: 35246661. *Article published in Nature Microbiology (IF = 18). The article was commissioned content for a focus issue to celebrate UN International Women's Day on March 8, 2022.*
- Dr. Herbst-Kralovetz** had a book chapter entitled "Microbial Drug Interactions and Human Health" published with a former postdoc in the Herbst-Kralovetz laboratory in *Metabolism of Nutrients* by *Gut Microbiota*.
- Jurutka PW**, di Martino O, Reshi S, Mallick S, Sausedo MA, Moen GA, Lee IJ, Ivan DJ, Krall TD, Peoples SJ, Perez A, Tromba L, Le A, Khadka I, Petros R, Savage BM, Salama E, Salama J, Ziller JW, Noh Y, Lee MY, Liu W, Welch JS, Marshall PA and Wagner CE. (2022) An isochroman analog of CD3254 and allyl-, isochroman-analogs of NEt-TMN prove to be more potent retinoid-X-receptor (RXR) selective agonists than bexarotene. *International Journal of Molecular Sciences* 23:16213.
- Grozić A, Coker K, Dussik CM, Sabir MS, Sabir Z, Bradley A, Zhang L, Park J, Yale S, Kaneko I, Hockley M, Harris LA, Lunsford TN, Sandrin TR and **Jurutka PW**. (2022) Identification of putative transcriptomic biomarkers in irritable bowel syndrome (IBS): Differential gene expression and regulation of TPH1 and SERT by vitamin D. *PLoS ONE* 17:e0275683.
- Khazan N, Kim KK, Hansen JN, Singh NA, Moore T, Snyder CWA, Pandita R, Strawderman M, Fujihara M, Takamura Y, Jian Y, Battaglia N, Yano N, Teramoto Y, Arnold LA, Hopson R, Kishor K, Nayak S, Ojha D, Sharon A, Ashton JM, Wang J, Milano MT, Miyamoto H, Linehan DC, Gerber SA, Kavar N, Singh AP, Tabdanov ED, Dokholyan NV, Kakuta H, **Jurutka PW**, Schor NF, Rowswell-Turner RB, Singh RK, Moore RG. (2022) Identification of a vitamin-D receptor antagonist, MeTC7, which inhibits the growth of xenograft and transgenic tumors in vivo. *J. Med. Chem.* 65:6039-6055.
- Manhas KR, Marshall PA, Wagner CE, **Jurutka PW**, Mancenido MV, Debray HZ and Blattman JN. (2022) Rexinoids modulate effector T cell expression of mucosal homing markers CCR9 and α 4 β 7 and induce their migration in vitro. *Frontiers in Immunology* 13:746484. *This work provides evidence that the novel drug compounds synthesized by Dr. Jurutka's team have prospective clinical use in immunotherapeutic approaches for pathogenic infections or cancers at mucosal surfaces.*
- Reich LA, Moerland JA, Leal AS, Zhang D, Carapellucci S, Lockwood B, **Jurutka PW**, Marshall PA, Wagner CE, Liby KT. The rexinoid V-125 reduces tumor growth in preclinical models of breast and lung cancer. *Sci Rep*. 2022 Jan 7;12(1):293. doi: 10.1038/s41598-021-04415-0. PMID: 34997154; PMCID: PMC8742020. *This work provides evidence that one of the novel drug compounds synthesized by Dr. Jurutka's team could be developed into a new cancer therapeutic.*
- Tsutsumi E, Stricklin J, Peterson EA, Schroeder JA, **Kim S**. Cxcl10 Chemokine Induces Migration of ING4-Deficient Breast Cancer Cells via a Novel Cross Talk Mechanism between the Cxcr3 and Egfr Receptors. *Mol Cell Biol*. 2022 Feb 17;42(2):e0038221. doi: 10.1128/MCB.00382-21. Epub 2021 Dec 6. PMID: 34871062; PMCID: PMC8852701.
- Kim S** and Bagchi S. (2022). Abstract 2426: GNG4 is a candidate G-proteiny-subunit downstream of the Cxcl10/Cxcr3 axis that mediates cell migration in breast cancer. *Cancer Research*, 82(12_Supplement), 2426–2426
- Jousma J, Han Z, Yan G, Nukala SB, Kwon Y, Thi Le HH, Li Y, Ong SB, **Lee WH**, Ong SG. Alteration of the N⁶-methyladenosine epitranscriptomic profile in synthetic phthalate-treated human induced pluripotent stem cell-derived endothelial cells. *Epigenomics*. 2022 Oct;14(19):1139-1155. doi: 10.2217/epi-2022-0110. Epub 2022 Oct 31. PMID: 36314267; PMCID: PMC9710528.
- Nukala SB, Jousma J, Cho Y, **Lee WH**, Ong SG. Long non-coding RNAs and microRNAs as crucial regulators in cardio-oncology. *Cell Biosci*. 2022 Mar 4;12(1):24. doi: 10.1186/s13578-022-00757-y. PMID: 35246252; PMCID: PMC8895873.
- Wei J, Ma X, Nehme A, Cui Y, Zhang L, **Qiu S**. Reduced HGF/MET Signaling May Contribute to the Synaptic Pathology in an Alzheimer's Disease Mouse Model. *Front Aging Neurosci*. 2022 Jul 12;14:954266. doi: 10.3389/fnagi.2022.954266. PMID: 35903536; PMCID: PMC9314739.
- de Vries T, Martelly W, Campagne S, Sabath K, Sarnowski CP, Wong J, Leitner A, Jonas S, **Sharma S**, Allain FH. Sequence-specific RNA recognition by an RGG motif connects U1 and U2 snRNP for spliceosome assembly. *Proc Natl Acad Sci U S A*. 2022 Feb 8;119(6):e2114092119. doi: 10.1073/pnas.2114092119. PMID: 35101980; PMCID: PMC8833184.





THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.

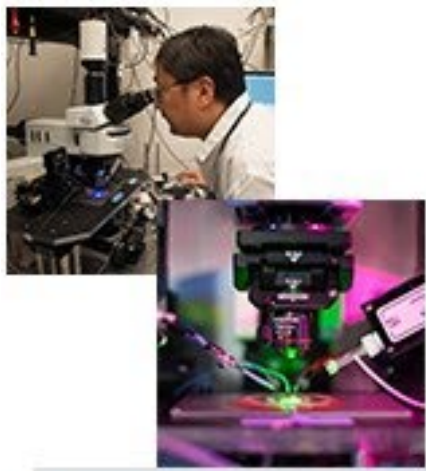


Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences



Publications Continued:

- Washburn E, Ibarra Asencios B, **Titelbaum AR**, Fehren-Schmitz L, Nesbitt J and Oelize VM. (2022). A multi-isotope approach to the study of residential mobility and diet in the Late Intermediate Period in highland Ancash, Peru. *Journal of Archaeological Science: Reports*, 41, 103291.
- **Zack SP**, Poust AW, Wagner H. Diegoaelurus, a new machaeroidine (Oxyaenidae) from the Santiago Formation (late Uintan) of southern California and the relationships of Machaeroidinae, the oldest group of sabertooth mammals. *PeerJ*. 2022 Mar 15;10:e13032. doi: 10.7717/peerj.13032. PMID: 35310159; PMCID: PMC8932314.
- Bennet D, Vo-Dinh T and **Zenhausern F**. (2022) Current and emerging opportunities in biological medium-based computing and digital data storage. *Nano Select*, Vol 3(5), 883-902.
- Ostheim P, Amundson SA, Badie C, Bazyka D, Evans AC, Ghandhi SA, Gomolka M, López Riego M, Rogan PK, Terbrueggen R, Woloschak GE, **Zenhausern F**, Kaatsch HL, Schüle S, Ullmann R, Port M, Abend M. Gene expression for biodosimetry and effect prediction purposes: promises, pitfalls and future directions - key session ConRad 2021. *Int J Radiat Biol*. 2022;98(5):843-854. doi: 10.1080/09553002.2021.1987571. Epub 2021 Oct 18. PMID: 34606416.
- **Lacombe J**, Soldevila M, **Zenhausern F**. From organ-on-chip to body-on-chip: The next generation of microfluidics platforms for in vitro drug efficacy and toxicity testing. *Prog Mol Biol Transl Sci*. 2022;187(1):41-91. doi: 10.1016/bs.pmbts.2021.07.019. Epub 2021 Aug 6. PMID: 35094781.
- Akkad AR, **Gu J**, Duane B, Norquist A, Brenner DJ, Ramakumar A, **Zenhausern F**. Automatic reagent handling and assay processing of human biospecimens inside a transportation container for a medical disaster response against radiation. *PLoS One*. 2022 May 20;17(5):e0268508. doi: 10.1371/journal.pone.0268508. PMID: 35594269; PMCID: PMC9122182.
- Summers AJ, Devadhasan JP, **Gu J**, Montgomery DC, Fischer B, Gates-Hollingsworth MA, Pflughoeft KJ, Vo-Dinh T, AuCoin DP, **Zenhausern F**. Optimization of an Antibody Microarray Printing Process Using a Designed Experiment. *ACS Omega*. 2022 Aug 30;7(36):32262-32271. doi: 10.1021/acsomega.2c03595. PMID: 36120062; PMCID: PMC9476517.
- Harris AF, **Lacombe J**, Sanchez-Ballester NM, Victor S, Curran KAJ, Nordquist AR, Thomas B, **Gu J**, Veuthey JL, Soulairol I, **Zenhausern F**. Decellularized Spinach Biomaterials Support Physiologically Relevant Mechanical Cyclic Strain and Prompt a Stretch-Induced Cellular Response. *ACS Appl Bio Mater*. 2022 Dec 19;5(12):5682-5692. doi: 10.1021/acsabm.2c00721. Epub 2022 Nov 11. PMID: 36368008.
- **Lacombe J**, **Zenhausern F**. Effect of mechanical forces on cellular response to radiation. *Radiother Oncol*. 2022 Nov;176:187-198. doi: 10.1016/j.radonc.2022.10.006. *Epub* 2022 Oct 10. PMID: 36228760.
- Devadhasan JP, Summers AJ, **Gu J**, Smith S, Thomas B, Fattahi A, Helton J, Pandit SG, Gates-Hollingsworth M, Hau D, Pflughoeft KJ, Montgomery DC, Atta S, Vo-Dinh T, AuCoin D, **Zenhausern F**. Point-of-care vertical flow immunoassay system for ultra-sensitive multiplex biothreat-agent detection in biological fluids. *Biosens Bioelectron*. 2022 Oct 10;219:114796. doi: 10.1016/j.bios.2022.114796. Epub ahead of print. PMID: 36257115.



THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Grants, Awards and Recognitions:

- **Christopher Burns, PhD, professor**, and his collaborators, Paul Haidet (Penn State) and Richard Plunkett (UBC), were selected as finalists for the 2022 Innovation Award from the Professional and Organizational Development Network in Higher Education (POD Network) for their workshop "Lessons from Jazz: A workshop in Improvisation Skills for Facilitating Great Sessions." He also received the Excellence in Educational Innovation Award from the University of Arizona College of Medicine – Phoenix; was named Innovation Award Finalist by Professional and Organizational Development Network in Higher Ed; and was nominated for MS1 Educator of the Year Award at the University of Arizona College of Medicine – Phoenix.
- **Mandi Conway, MD, clinical professor**, was promoted from interim chair of Ophthalmology to chair of Ophthalmology. She also served on the Foundation Board of International Joint Commission Health Care Professionals in Ophthalmology and was designated Treasurer.
- **Deveroux Ferguson, PhD, Associate Professor**, was Awarded \$3.06M R01MH128192-01 06/01/2022-05/31/2027 National Institute of Health/NIMH entitled, "Prefrontal-Accumbens Neurocircuits Mediating Response to Social Stress". Role: Principal Investigator – MPI (20% FTE) Ferguson (PI), Qiu (Other PI-20% FTE). He was also selected to join the Editorial Board of the prestigious *Nature* Publication journal of *Molecular Psychiatry*, the 6th highest in the field of psychiatry and 6th highest in the field of neuroscience, with an impact factor of 15.99.
- **Rebecca Fisher, PhD, professor and interim chair**, received the Stuart D. Flynn Master Educator Award from the Class of 2022, University of Arizona College of Medicine – Phoenix. She was also nominated for the Excellence in Educational Innovation Award at the University of Arizona College of Medicine – Phoenix and received a NCE for her DOD grant to continue her research on octopus-inspired soft robotics through December 2022.
- **Amelia Gallitano, MD, PhD, professor**, received the inaugural University of Arizona Women of Impact Award. She also received the Japan Society for the Promotion of Science (JSPS) Fellowship Award (6/12/22 – 8/10/22) for ~\$11,823 plus travel expenses, for her work entitled "Novel molecular tools to probe genes x environment interactions influencing mental illness risk." And she was awarded \$50,000 from the University of Arizona BIO5 Rapid Grant (Gallitano, PI), 01/14/2022 – 08/31/2022, for her work entitled "A new bioinformatic analysis to develop a diagnostic test for schizophrenia."
- **Evan Garofalo, PhD, assistant professor**, received the UAHS LGBTQIA+ Faculty Leadership Award, University of Arizona Health Sciences Office of Equity, Diversity and Inclusion PRIDE Health Equity Alliance. This is awarded to an excellent leader who demonstrates a strong commitment to providing a safe, inclusive and equitable campus for LGBTQIA+ for students, faculty, staff, alumni and patients. She was also nominated for the MS1 Educator of the Year Award at the University of Arizona College of Medicine – Phoenix; received the Women in Medicine and Science Registration Scholarship, AAMC Early Career Women Leadership Development Seminar; and received the 2022 University of Arizona Faculty Development Fellowship, Certificate in Scholarly Writing.
- **Rayna Gonzales, PhD, associate professor**, has multiple associates in her lab that earned distinctions in 2022.

Trevor Wendt – Clinical Translational Sciences (CTS) PhD Program – received the ASPET Cardiovascular Pharmacology Division Travel Award for Experimental Biology, Philadelphia, PA, as well as the CTS Travel Award from UArizona College of Medicine – Phoenix. He also placed third in the AZPS Graduate/Post-doctoral Poster Competition in Scottsdale, AZ.

Nafis Eghrari – of Barret Honors College Scholar at Arizona State University – received the APS Horwitz and Horowitz Undergraduate Competition Award for Experimental Biology in Philadelphia, PA. Eghrari was also invited to the APS Translational Physiology Flash Talk Symposium for an oral presentation in Experimental Biology in Philadelphia, PA; received the School of Life Sciences Undergraduate Research (SOLUR) Program Research Scholarship; and was accepted to Case Western Medical School, where he is currently a MS1.

- **Taben Hale, PhD, associate professor**, was awarded a \$1,947,159 R01HL153112-A1 from the National Institute of Health/NHLBI for her work as a mentor/co-investigator entitled, "Targeting Resident Cardiac Fibroblast Subpopulations for Protection Against Fibrosis." The major goals of this project are to identify the epigenetic changes that underlie a shift from an osteopontin-producing sub-population to a homeostatic population of resident cardiac fibroblasts with low fibrogenic capacity. She also received \$20,000 from the Stephen Gootter Award (Garvin) from Sarver Heart Center for her entitled, "Prohibitin as a Novel Therapeutic Target for Cardiac Fibrosis." The goal of this grant is to evaluate the degree to which prohibitin confers apoptosis resistance to activated cardiac fibroblasts.

Alexandra Garvin, PhD – a research associate in her lab – received Foundation CDA for \$231,000 for her work "Prohibitin as a Mediator of Cardiac Fibroblast Activation in the Heart."

Lakshmi Madhavpeddi – a research intern in her lab – received a CTS travel award to attend Experimental Biology, where she gave an oral presentation for award competition for graduate students.

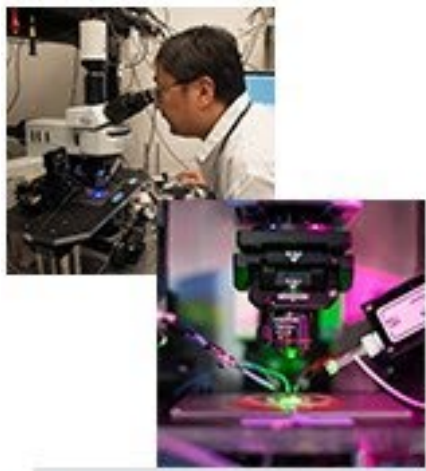
Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences





THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Grants, Awards and Recognitions Continued:

Mission:
Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences



- **Karen Hastings, MD, PhD, professor**, received the Excellence in Graduate Student Mentoring Award at the UArizona College of Medicine – Phoenix. She was also awarded \$2,828,107 R01HL153112 from National Institute of Health/NHLBI entitled, “Targeting resident cardiac fibroblast subpopulations for protection against fibrosis”. Role: co-I to provide flow cytometry; \$200,000 I01BX005336-S1 from the Department of Veterans Affairs for her work as a PI entitled, “MHC class II antigen presentation in melanoma: impact on immune recognition (Supplement);” and \$83,500 for Grand Challenges in Healthy Aging from University of Arizona Health Sciences and University of Arizona Cancer Center Tumor-specific T cell responses in skin cancer with aging for her work as a co-PI.

For her work as a mentor, she was awarded an \$84,706 T32CA009213 Integrative Cancer Scholars Training Grant (predoctoral trainee, Anngela Adams); a \$7,000 Medical Student Grant Targeting Melanoma and Skin Cancer from the American Skin Association for her role as a mentor for Adams in a work entitled, “Novel cutaneous squamous cell carcinoma model to investigate tumor-specific T cell responses;” as a mentor for MD/PhD student, Elizabeth Borden, they received a \$120,000 Training Oncology Physician Scientists from University of Arizona Cancer Center for their work entitled, “Cancer neoantigen prediction and prioritization.”

Anne Macy — an MS student in her laboratory — received a travel award from University of Arizona Cancer Center to present her thesis research at the annual meeting of the American Association of Immunologists in May 2022. Macy also successfully completed her MS thesis “Role of GILT in melanoma cells on regulating in vivo tumor growth” in January 2022.

Elizabeth Borden received the Training Oncology Physician Scientists Award from the University of Arizona Cancer Center.

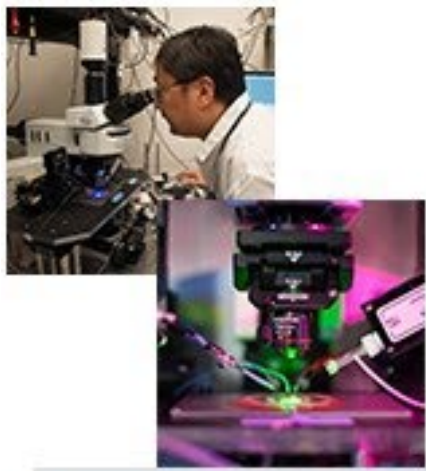
- **Melissa Herbst-Kralovetz, PhD, associate professor**, was elected as a council member for the Infectious Diseases Society of Obstetrics and Gynecology, a nationally recognized organization. She also received the J. Christian Herr Award for “Outstanding Contributions to Reproductive Immunology,” from the American Society of Reproductive Immunology, Outstanding Contributions to Reproductive Immunology particularly in tech transfer; and was awarded \$180,000 U54CA143924 Pilot Award from the National Institutes of Health/National Cancer Institute for her work as a PI entitled, “Viewing Native American Health Disparities through the Lens of the Vaginal Microbiome.” The rationale for the proposed pilot project is that understanding the vaginal microbiota (VMB) community structure in the context of human papilloma virus (HPV) infection relative to HPV negative controls in Native American women will illuminate the relationship between VMB composition, disruption or maintenance of mucosal homeostasis in the female reproductive tract and its role in cervical dysplasia and cancer pathogenesis in Native American women.

Nicole Jimenez — a postdoctoral research associate in her lab — was accepted to a data science fellowship program.

- **Peter Jurutka, PhD, professor**, was the first-round winner (\$25,000) of the ASU Skysong Innovations Start-up Challenge, Akeila Biosciences. He also received an International Award for Publishing Excellence from the journal *Calcified Tissue International* (CTI). This is awarded for publishing one of the 10 most highly-cited papers of the past 10 years in *CTI* (Haussler et al. Molecular Mechanisms of Vitamin D Action, *Calcif Tissue Int* 92, 77–98 (2013).

Jennifer Hong, a student in Dr. Jurutka's laboratory, received the American Society for Biochemistry and Molecular Biology (ASBMB) Undergraduate Research Award.

- **Suwon Kim, PhD, associate professor**, was awarded \$153,500 R03 CA270486-01A1 from National Institutes of Health/NCI for her work as a PI (5% effort) entitled, “Targeting CXCL10 Chemokine Signaling in Breast Cancer Metastasis.” She was also featured in *Inside Precision Medicine*, “Mystery Behind Protein That Helps Some Cancers Progress but Not Others Solved.”
- **Jerome Lacombe, PhD, assistant professor**, received the Career Development Award from the Radiation Research Foundation. One of the three awardees in 2022, he will receive \$15,000 for his research on the effect of mechano-transduction on cellular response to radiation. He was also awarded a grant for his work entitled, “Center for High-Throughput Minimally-Invasive Radiation Biodosimetry: Plant Exosomes-like Vesicles for Radiomitigator Countermeasures Delivery.” In addition, through the Center for Applied NanoBioscience and Medicine (ANBM) international student exchange with the School of Pharmaceutical Sciences at the University of Geneva, Dr. Lacombe mentored master thesis student Melinda Muccio, who was awarded the 2nd prize for the Best Master Thesis in 2022, “The effect of mechanical stress on the radiation response of cancer cells.”



THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Grants, Awards and Recognitions Continued:

- **Won Hee Lee, PhD, assistant professor**, was awarded the RII Faculty Seed Grant, UArizona's Research, Innovation & Impact (RII) and BIO5. She was also awarded Arizona Department of Health Services New Investigator Awards: R01HL158596-01A1 Role, co-investigator, 03/20/2022 – 02/28/2027, for her work entitled, "Role of Endothelial SOX17 Deficiency in the Pathogenesis of Pulmonary Hypertension"; R01HL148756-03S1, co-investigator, 07/01/2022 – 03/31/2025 (NCE), for her work entitled, "Dysfunctional Endosomal-Mediated Mitochondrial Clearance Linking Vascular Dysfunction to Alzheimer's Disease."
- **Shenfeng Qiu, PhD, associate professor**, was awarded a \$3.06M R01MH128192-01, 06/01/2022-05/31/2027, from the National Institutes of Health/NIMH for his work as a PI (MPI (20% FTE) Qiu (PI), Ferguson (Other PI-20% FTE)) on, "Prefrontal-Accumbens Neurocircuits Mediating Response to Social Stress." He was also awarded a \$422,125.00 R21AG078700 from the National Institutes of Health for his work as a PI on, "Rescue of synaptic pathology in an Alzheimer's mouse model by enhancing MET receptor tyrosine kinase signaling." The grant runs 09/15/22 – 08/31/24.
- **Shalini Sharma, PhD, associate professor**, was awarded \$50,000 for her work, "RNA Aptamer Mediated Splicing Inhibition for Cancer Therapy," by the University of Arizona Cancer Center. The funds were provided by the CCSG National Institutes of Health/NCI grant award P30CA023074. She also received the Faculty Award for Excellence in Research at the UArizona College of Medicine – Phoenix; and she was selected to participate in the University of Arizona's inaugural Research Leadership Institute (RLI) as part of a cohort of 24 mid-career faculty members from across the university.

Ryan Yellamaty, a research technician in her lab, received the Best Poster Award at the Annual Retreat of the University of Arizona Cancer Center (October 28, 2022) and Travel Award from the University of Arizona Health Sciences to present a poster at the 27th Annual Meeting of the RNA Society at the University of Colorado Boulder (May 31 – June 5, 2022).

Natascha Schippel, a graduate student in her lab, received a Travel Award from the University of Arizona Health Sciences to present a poster at the 51st Annual ISEH Meeting held virtually (September 1 – 4, 2022) and Travel Award from the Cancer Biology Program to present a poster at the 27th Annual Meeting of the RNA Society at the University of Colorado Boulder (May 31 – June 5, 2022).

- **Paul Standley, PhD, professor**, was nominated for the Excellence in Educational Innovation Award at the UArizona College of Medicine - Phoenix.
- **Frederic Zenhausern, PhD, MBA, professor**, was invited to attend the NASA/Space X Workshop of the Inspiration 4 Return, including the premiere screening of the documentary "Overcoming the Challenges of Space Health" at the Johnson Space Center in Houston, TX. He also received administrative supplements to existing NIH Grants and Cooperative Agreements (Parent Admin Supp Clinical Trial Optional – PA 20-272, \$113,999 over one year; was awarded \$499,265 (Phase 3: \$397,422 until 07/01/2023) from Costa Devices, Ltd. for his work entitled, "4SITe instrument design and prototyping;" and was awarded \$153,500 U19 from NIAID/CMCR Columbia University, 08/01/2022 – 07/30/2023 (renewal for second year in preparation), for his work as a PI on, "Plant Exosomes-like Vesicles for Radiomitigator Countermeasures Delivery."

ANBM team received supplemental funding — \$1.05 million from 01/15/23 – 03/31/2024 — for the VeriFAST DTRA OTA contract to initiate scale-up development toward manufacturing. Dr. Lacombe and Dr. Zenhausern received an Administrative Amendment to NIAID U01 grant (in collaboration with Georgetown University) for the development of a point-of-care biodosimetry device, which combines VFI (UArizona) and a panel of proteins markers (Columbia University). The grant is a \$100,000 direct cost for each party.

CTS graduate student in the Zenhausern laboratory, AJ Summers, received the CTS travel award for his future oral presentation at ICNDID 2022 XVI — International Conference on Novel Diagnostics of Infectious Diseases held in San Francisco, CA.

TGen Helios Summer Intern, Emma Bakall Loewgren, won the Helios Symposium Poster Award. ANBM hosted three TGEN Helios students during the summer, and they all received Best Poster Awards.

PhD graduate student, Zhu Zhao, received the CRTEC Travel Award for presenting her work at the ISEV 2023 annual meeting (May 2022).

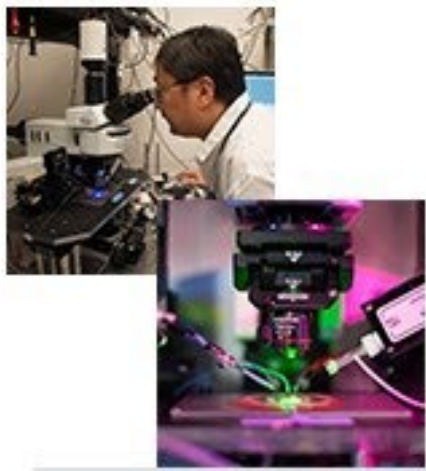
Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences





THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences



Presentations

The department hosted 29 virtual scientific presentations as part of the annual **Basic Medical Sciences Seminar Series**:

Christopher Burns, PhD, professor

- **National:**
 - **Burns CM**, Haidet P, Plunkett R. Lessons from Jazz – A Workshop in Improvisation Skills for Facilitating Great Sessions. International Association of Medical Science Educators. Denver, CO. 2022.
 - Standley C, **Burns CM**. Are your active learning objectives more difficult or more complex? What's the difference? Team-Based Learning Collaborative.
 - **Burns CM**, Ibrahim H. Improvisation Skills for Facilitating Great TBL Sessions. InteDashboard. 2022.

Rebecca Fisher, PhD, professor and interim chair

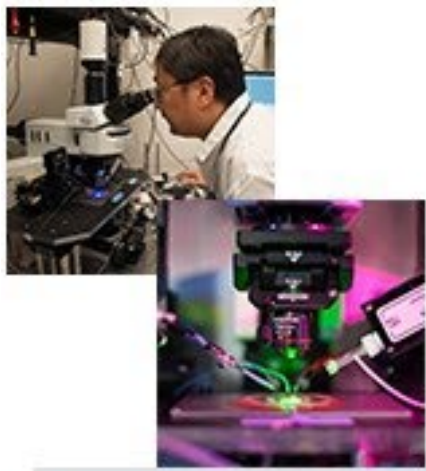
- **Local:**
 - Ngo B, Kang P, Shahriary E, **Fisher RE**; The effects of student background and peer group background on anatomy performance; Scholarly Project Research Symposium, March 2022; Phoenix, AZ.
- **National:**
 - Ahmadi S, Cummings S, Roy C, Bagheri H, Tucker B, Cherry B, **Fisher, RE**, Marvi H. Octopus muscles: a source of inspiration for soft robotics. The Society for Integrative & Comparative Biology (SICB) Meeting; January 2022.
 - He X, Marvi H, Aukes D, Berman S, **Fisher RE**, Peet M; 2022; Neuromuscular-inspired autonomous tentacles for soft robots with self-contained adaptive motions; Office of Naval Research Bioinspired Autonomous Systems Program Review; June 2022.

Amelia Gallitano, MD, PhD, professor

- **Local:**
 - University of Arizona College of Medicine – Phoenix, Featured Speaker, “From sleepy mice to schizophrenia: Translating basic science discoveries to develop diagnostics for mental illness,” February 15, 2022.
- **National:**
 - Panel Chair and Speaker, 2022 Winter Conference on Brain Research, “Sleep deprivation alters frontal cortex gene expression in a cell-type specific manner.” Snowmass, CO, February 2, 2022.
 - Presentation, Ozols AB, Wei J, Campbell JM, Qiu S, Gallitano AL, “Activity of 5-HT2ARs in the prefrontal cortex is necessary, but not sufficient, to regulate the head-twitch response of mice to the agonist DOI.” Society for Neuroscience, San Diego, CA, November 15, 2022.
- **International:**
 - International Invited Speaker, National Center for Neurology and Psychiatry, Tokyo “From sleepy mice to schizophrenia: how environment and the immediate early gene *Egr3* alter gene expression in the brain.” Tokyo, Japan, September 30, 2022.
 - Kagoshima University, “Increasing Diversity to Improve Science and Medical Care.” Kagoshima City, Kagoshima Prefecture, Japan, October 19, 2022.
- **Media:**
 - *Science Society*, on Quantum Photonics Club on Clubhouse website; Twitter @qclub1; Instagram @qphotonics; Clubhouse: March 2, 2022.
 - *Science Magazine* – Science News. Sleep deprivation increases serotonin 2a receptor response in brain, January 11, 2022.
 - *Newswise* – Sleep deprivation increases serotonin 2a receptor response in brain. Environmental stressor alters receptor involved in response to psychedelic drugs and schizophrenia in a matter of hours, January 11, 2022.
 - *ScienceDaily* – Environmental stressor alters receptor involved in response to psychedelic drugs and schizophrenia in a matter of hours, January 11, 2022.
 - *Medical Xpress* – Sleep deprivation increases serotonin 2a receptor response in brain, January 11, 2022.
 - *Phoenix Biomedical Campus Newsletter*, lead article – Sleep deprivation increases serotonin receptor response in brain, January 13, 2022.
 - *KJZZ, The Show*, Phoenix, AZ NPR station – The party drug ketamine is a risky but fast-acting antidepressant.

Evan Garofalo, PhD, assistant professor

- **Local:**
 - Doan AH, Arnold M, **Garofalo EM**. Sexual Health Education Experiences of Phoenix Pride Participants. Annual University of Arizona Public Health Poster Forum. April 1, 2022, Tucson, AZ.
- **Media:**
 - Interactive Guide to Clinical Anatomy – An interactive study and resource guide for the Clinical Anatomy Block at the University of Arizona College of Medicine – Phoenix. Developed in partnership with Dr. Dude Coudret, Director of Student Development, UArizona College of Medicine – Phoenix.



THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences



Presentations Continued:

Rayna Gonzales, PhD, associate professor

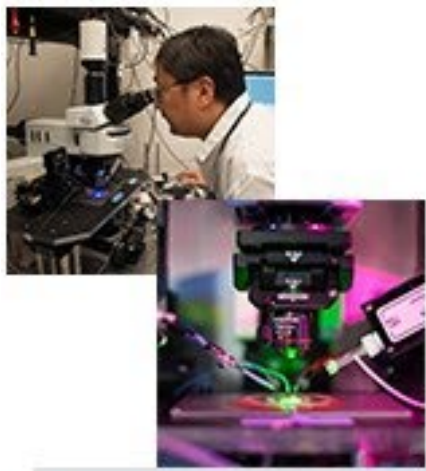
- **Local:**
 - Wendt TS and Gonzales RJ. (2022, April). Ozanimod Attenuates Human Cerebrovascular Endothelial Derived MMP-9 Activity and Preserves Barrier Properties Following In Vitro Acute Ischemic Injury. International Stroke Conference 2023. Virtual: ASPET.
 - Matt Lyons, a second-year undergraduate student at UArizona, presented his very first poster presentation on his work involving ischemia induced brain endothelial NFkappaB activation at the Arizona Chapter Physiological Society (AZPS) 2022 Meeting, ASU SkySong Center, in Scottsdale, AZ.
 - Trevor Wendt, a CTS PhD Student, was selected for an oral presentation in the Postdoc/Graduate Student session for his work on mechanisms of S1PR1 regulating brain endothelial MMP-9 activity following ischemic stroke at the Arizona Chapter Physiological Society (AZPS) 2022 Meeting, ASU SkySong Center, in Scottsdale, AZ.
- **National:**
 - Invited to the APS Translational Physiology Flash Talk Symposium for an oral presentation – Experimental Biology 2022, Philadelphia, PA

Kurt Gustin, PhD, associate professor

- **Local:**
 - Traugott E, Sattler R and **Gustin KE**. (2022, April). Genetic Mutations Associated with the Development of Amyotrophic Lateral Sclerosis Enhance Replication of a Neurotropic Virus. Seventh Annual ABRC-Flinn Research Conference in Phoenix, AZ, as well as ABRC- Flinn Oral Presentation.

Taben Hale, PhD, associate professor

- **Local:**
 - Quail Run Elementary School, Phoenix AZ, “How to Keep our Hearts Healthy”
 - “Forget Me Not: Changing Fibroblast Memory to Protect Against Cardiac Fibrosis,” Translational Cardiovascular Research Center, UArizona College of Medicine – Phoenix Seminar Series, January 12, 2022.
 - Lakshmi Madhavpeddi presented a poster and Monique Martinez and Jared Alvarez both gave oral presentations at the Arizona Physiological Society annual meeting.
 - Lakshmi Madhavpeddi, Dana Floyd, and Bobbie Garvin (Hale laboratory) presented posters at the Experimental Biology Research Conference.
- **National:**
 - “Resident Cardiac Fibroblasts to Protect Against Future Fibrosis” Distinguished Lecture Series, Center for Translational Medicine, Temple University, April 6, 2022.
 - “Targeting Fibroblast Subpopulations in Hypertensive Heart Disease: Impact of Sex” American Heart Association Basic Cardiovascular Sciences annual meeting, July 26, 2022.
 - “Sex Differences in the Developmental Programming of Autonomic Dysregulation” National Conference on Women’s Health, October 13, 2022.
 - “Sex Matters in the Hypertensive Heart: Implications for Fibrosis Research” American Heart Association Scientific Sessions, November 7, 2022.
 - “Sex-Specific Regulation of Autonomic Function – Impact of Gonadal Hormones and In Utero Glucocorticoid Exposure,” American College of Neuropsychopharmacology, December 7, 2022.
- **International:**
 - “Sex Matters in the Hypertensive Heart: Implications for Fibrosis” Global Talents in Science: Recent advances in cardiovascular disease research and therapeutics, live Zoom conference, October 21, 2022.
- **Media:**
 - College of Medicine – Phoenix – From Cardiac Patient to Research Team Member.
 - College of Medicine – Phoenix – New Study to Explore Link Between Hypertension Treatment and Development of Heart Failure.
 - University of Nebraska Medical Center YES Newsletter – Profiling mentee Kristiann Ferreira.
 - University of Nebraska Medical Center YES Newsletter – Mentor profile.
 - College of Medicine – Phoenix – Sarver Heart Center Awards Grant to Postdoctoral Researcher at the College.
 - University of Arizona Health Sciences Connect – Title IX Opened Doors for Female Faculty.
 - University of Arizona Health Sciences Connect – Building a Better Lab, One Cup of Joe at a Time.



THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences



Presentations Continued:

Ronald Hammer, Jr., PhD, professor

- **National:**

- University of Hawaii Hilo DKICP, Department of Pharmaceutical Sciences seminar, “Dopaminergic drugs in schizophrenia: better treatment through molecular plasticity,” October 20, 2022.

Karen Hastings, MD, PhD, professor

- **Local:**

- Immune recognition of melanoma. Reimagine Health: Health and Disease over the Lifespan, Phoenix, AZ, February 2022 (virtual).
- Borden ES, Adams AC, Buetow KH, Wilson MA, Bauman JE, Curiel-Lewandrowski C, Chow HHS, LaFleur BJ, **Hastings KT.** (2022) Shared gene expression and immune pathway changes associated with progression from nevi to melanoma. Translational Advances in Cancer Prevention Agent Development, Division of Cancer Prevention, NCI (virtual).
- Lauren Herrmann, a PhD student in the Hastings laboratory, presented a poster on the role of MHC class II on melanoma cells in the immune response to melanoma at the UArizona Cancer Research: Present & Future trainee conference.

- **National:**

- Biomarker development for early phase clinical trials for melanoma prevention, SWOG (Southwest Oncology Group) Cancer Research Network, Spring Group Meeting, April 2022, Seattle, WA.
- Adams AC, Borden ES, Macy AM, Buetow KH, Wilson MA, Roe DJ, **Hastings KT.** (2022) Novel cutaneous squamous cell carcinoma cell lines constrained by T cell-mediated immune responses. Society for Investigative Dermatology Annual Meeting, Portland, OR.
- Macy AM, Adams AC, **Hastings KT.** (2022) Role of GILT and MHC class II in melanoma cells on regulating the anti-tumor immune response. American Association of Immunologists Annual Meeting, Portland, OR.

Melissa Herbst-Kralovetz, PhD, associate professor

- **Local:**

- Breathe, Balance Brunch: Women’s Wellness Retreat – Informative health session entitled, “The Microbiome and Your Health—What You Need to Know,” Phoenix, AZ. The event was sponsored by the Women Investing in Science and Health with BannerHealth Foundation. Sept. 2022.
- Strategic Development Training & Workshop – Career Development Training for Mentor-Mentee Program Workshop, Phoenix, AZ. The event was sponsored by the Arizona Women in Higher Education. Oct. 2022.

- **National:**

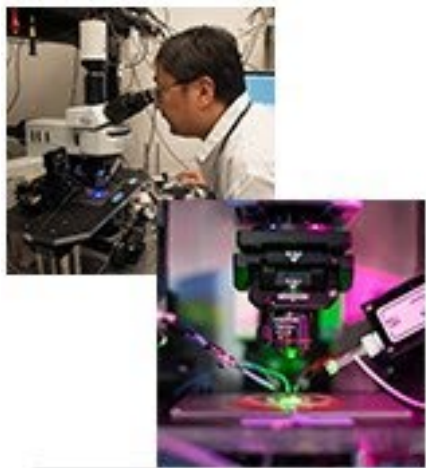
- Keynote Address for McLaughlin Colloquium in Infection and Immunity. Galveston, Texas (virtual). Mar. 2022. Leveraging Multi-Omics Analyses to Study Host-Vaginal Microbiota Interactions.
- American Society of Reproductive Immunology. Nashville, TN. May 2022. Human 3D epithelial cell models reveal the immunometabolic impact of vaginal microbiota species on gynecologic and reproductive health.
- Vaginal Biome Sciences (virtual webinar). Dec. 2022. Health impacts of vaginal bacteria-host interactions.

- **Media:**

- [Cancer Community](#) – Behind the Paper.
- [UAHS](#) – Bringing Discoveries to the Patient’s Bedside on the importance of translational science.
- [UAHS Institute News](#) – Examining the Microbiota’s Role in Infection, Immune Response, September 22, 2022.
- [UAHS Connect](#) – Dr. Herbst-Kralovetz Receives Reproductive Immunology Award, September 15, 2022.
- [College of Medicine – Phoenix](#) – Postdoctoral Fellowship Awarded to Researcher Focused on Women’s Health, June 13, 2022.
- [College of Medicine – Phoenix](#) – The Future of Translational Research is in Great Hands, June 10, 2022.
- [Roadtrip Nation](#) – All Paths Arizona! See the hidden gems and inspiring career possibilities available in Arizona as three young Arizonans interview inspiring professionals around the state, April 2022.
- [Woman Centered Beyond the Paper Gown Podcast Series](#) –The Vaginal Microbiome Explained, March 9, 2022.

- **Conference Presentations:**

- Laniewski P, Cui H, Mahnert ND, Mourad J, Borst MP, Willmott L, Chase DM, Roe DJ, **Herbst-Kralovetz MM.** Cervicovaginal protein biomarkers for non-invasive detection of endometrial cancer. American Association of Cancer Research, “Breakthroughs in Science.” Dec. 2022. Maui, HI; poster presentation.
- McCann L, Treuth A, Cui H, Laniewski P, Jimenez NR, Mahnert N, Roe D, Chase D, **Herbst-Kralovetz MM.** Reduced Quality of Life and Unique Symptomatology in Women with Benign Gynecological Conditions Compared with Endometrial Cancer. American College of Obstetrics and Gynecology (ACOG) District VIII Meeting. Sept. 2022. Maui, HI; poster Presentation.



THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
Interim Chair, Basic
Medical Sciences

Presentations Continued:

- Jimenez N, Maarsingh J, Łaniewski P, **Herbst-Kralovetz, MM**. Metabolic Contributions of Vaginal Lactobacilli Species to the Cervicovaginal Environment Utilizing Human 3D Cervical Epithelial Cell Models. Infectious Diseases Society of Gynecology. Aug 2022. Boston, MA; oral presentation.
- Krishna G, Bromberg C, **Herbst-Kralovetz MM** and Thomas TC. What's Sex Got to Do with It? Impact of Sham Procedures, Traumatic Brain Injury on Chronic Gut Microbiota Dysbiosis, and Affective Behaviors. Neurotrauma 2022. June 2022. Atlanta, GA. Poster presentation.
- Łaniewski P., **Herbst-Kralovetz, MM**. Human 3D epithelial cell models reveal the immunometabolic impact of vaginal microbiota species on gynecologic and reproductive health. American Society of Reproductive Immunology. May 2022. Nashville, TN; oral presentation.
- Jimenez N, Maarsingh J, Łaniewski P, **Herbst-Kralovetz MM**. Metabolic Profiles Suggest Health-Associated Metabolites in Vaginal Lactobacilli Species in Human 3D Cervical Epithelial Cell Models. Re-imagine health. Feb. 2022, Phoenix, AZ; poster presentation (virtual).
- Lorentzen, G., Khnanisho, M, Łaniewski P., **Herbst-Kralovetz, MM**. Antimicrobial activity of phenyllactic acid on vaginal microbiota and impact on the integrity of the cervical epithelium. 61st Annual American Society for Microbiology Arizona/S. Nevada Branch Meeting, April 2022, Tempe, AZ; poster presentation.
- Jimenez N, Maarsingh J, Łaniewski P, **Herbst-Kralovetz MM**. Metabolic Profiles Section 4, Curriculum Vitae Melissa M. Herbst-Kralovetz, Ph.D. 30 Suggest Health-Associated Metabolites in Vaginal Lactobacilli Species in Human 3D Cervical Epithelial Cell Models. 61st Annual American Society for Microbiology Arizona/S. Nevada Branch Meeting, April 2022, Tempe, AZ; poster presentation.

Peter Jurutka, PhD, Professor

- **Local:**

- Award winning presentation by student Jennifer Hong at the Arizona Physiological Society 15th Annual Meeting, Scottsdale, AZ, October 21-22, 2022. Hong J, Reshi SM, Sabir Z, Wagner CE, Marshall PA and **Jurutka PW** entitled, "Evaluation of novel drug candidates for the treatment of cancer and Alzheimer's Disease."

Suwon Kim, PhD, Associate Professor

- **National:**

- Poster – Bagchi S, and Kim S. "GNG4 is a candidate G-protein γ -subunit downstream of the Cxcl10/Cxcr3 axis that mediates cell migration in breast cancer." AACR Annual meeting, New Orleans, April 8-13, 2022
- Poster – Tsutsumi E and Kim S. "Cxcl10-induced migration of ING4-deficient breast cancer cells requires periodic recurrent formation of the Cxcr3/Egfr receptor complex." AACR Annual meeting, New Orleans, April 8-13, 2022

Won Hee Lee, PhD, Assistant Professor

- **International:**

- 22nd International Vascular Biology Meeting (Oct 13-17, 2022), "E-cigarette-induced HDAC9 activation is linked to atherosclerosis by promoting endothelial-to-mesenchymal transition."
- AHA Scientific Sessions (Nov 5-7, 2022), "Pharmacological Induction of Thermogenesis Improves Cardiometabolic Health and Diastolic Function in a Mouse Model of HFpEF" and "Sox17 Deficiency Induces Pulmonary Hypertension Through E2F1/BRD4 Signaling."

Shalini Sharma, PhD, Associate Professor

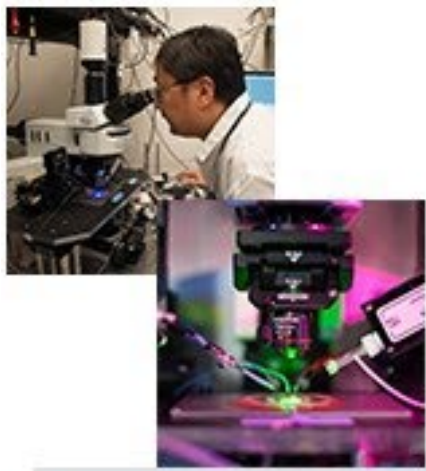
- **Local:**

- Sharma S and Schippel N. (2022, October). Cytokine Dependence of Population Dynamics in Human Erythropoiesis. Annual Retreat of the University of Arizona Cancer Center.
- Sharma S and Yellamaty R. (2022, October). Determinants of selective binding to U1-SL3 by the DExD-box helicase UAP56. Annual Retreat of the University of Arizona Cancer Center.
- Sharma S and Smith R. (2022, October). Differential SCF Signaling Under Hypoxia-Induced Stress in Erythroid Progenitor K-562 Cells. Annual Retreat of the University of Arizona Cancer Center.

- **International:**

- Sharma S and Schippel N. (2022, September). Cytokine Dependence of Population Dynamics in Human Erythropoiesis. Annual Meeting of the International Society of Experimental Hematology.
- Sharma S and Schippel N. (2022, May–June). Cytokine Dependence of Population Dynamics in Human Erythropoiesis. Annual Meeting of the IRNA Society.





THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE PHOENIX

Basic Medical Sciences



2022 Department Highlights

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Rebecca Fisher, PhD
*Interim Chair, Basic
Medical Sciences*



Presentations Continued:

- Sharma S and Yellamaty R. (2022, May–June). Determinants of selective binding to U1-SL3 by the DExD-box helicase UAP56. Annual Meeting of the RNA Society.
- Sharma S. (2022, May). Splicing functions of the U1 snRNA – Beyond 5' Splice Site Recognition. Keystone Symposia on Molecular and Cellular Biology: Small Regulatory RNAs – From Bench to Bedside.

Anne Titelbaum, PhD, Assistant Professor

• National:

- Riesgo M, Koch Z, Ivy C and **Titelbaum AR**. (2022, April). Refining anatomy teaching for first year occupational therapy students: development of a clinically relevant course. AOTA Inspire 2022 Annual Conference and Expo. San Antonio, Texas.

Shawn Zack, PhD, Assistant Professor

• Media:

- Interviewed by Scientific American concerning the publication “Diegoaelurus, a new machaeroidine (Oxyaenidae) from the Santiago Formation (late Uintan) of southern California and the relationships of Machaeroidinae, the oldest group of sabertooth mammals.”

Frederic Zenhausern, PhD, MBA, Professor

• Local:

- Ashley Harris, CTS PhD student, and Dr. Lacombe presented a poster on the Leaf Project at the Flinn-ABRC Conference while Dr. Zenhausern and Dr. Tsai had an oral presentation on their VR project. Kala M, **Lacombe J**, Knox KS, Casanova N and **Zenhausern F**. (2022, Spring). A “Lung on a Leaf” in vitro Model to Study Pulmonary Granulomatous Disease. Center for applied NanoBioscience and Medicine. ABRC.

• National:

- CTS students Ashlee Harris and AJ Summers gave poster presentations at the 2022 BMES Conference in San Antonio TX, Oct 12–15, 2022.

• Media:

- [Washington Post](#) – Macron refused to take a Russian PCR test, the Kremlin says — so he faced Putin at a 20-foot-long table.

U.S. Patents:

Peter Jurutka, PhD, professor

- US Utility Patent US20220259157A1 (2022): Compositions Comprising a Retinoid X Receptor (RXR) Agonist, a Retinoic Acid Receptor (RAR) Agonist, or a Dual RXR/RAR Agonist, awarded to Peter Jurutka, Carl Wagner, and Pamela Marshall.

Frederic Zenhausern, PhD, MBA, professor

- Safe Self-Testing of Multiplex Biomarkers in Biofluid, 8/12/2022 – 2/13/2024.
- Active Tissue Scaffold Stretching Under Cell Culture Condition, 8/1/2022 – 2/2/2024.
- DNA E2E: End-to-End Programmable Microfluidic Platform (PMP) for DNA Data “Write-to-Store-to-Read” with Cold Storage of DNA Data in Synthetic Fossils and Metal-Organic Scaffolds using Supercritical Fluid (SCF) Processing, 7/29/2022 – 7/29/2023.
- Plant-Based Electrical Source and Byproducts. This exploratory approach is supported by a crowdfunding campaign, 9/8/2022 – 9/8/2023.
- Drs. Zenhausern, Shah, Wilmes received US Patent notice of allowance entitled, “Cell Culture Apparatus and Cell Culture Using Same (HumiX).”