CMB NEWS | NORTH DAKOTA STATE UNIVERSITY

A biannual newsletter brought to you by the Cellular and Molecular Biology Graduate Program

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CMB Program Welcomes 4 New Students!

Hello! My name is **Ava Cinealis** and I started the CMB program in August. I grew up in the beautiful Sheboygan, Wisconsin (the Malibu of the Midwest). In May, I graduated with my B.S. in Applied Biochemistry and Molecular Biology from the University of Wisconsin-Stout. My undergraduate research was on protein structures of prion disease using the AI software 'AlphaFold'. I had the opportunity to present my work at the Rotunda in the Wisconsin state capitol and at the National Conference on Undergraduate Research (NCUR). I am now working towards my PhD in the lab of **Dr. Jiha Kim** (Biological Sciences), here at NDSU. I am still in the midst of developing my overall plan for my PhD, but I have been working on breast cancer and monitoring its behavior in different microenvironments.

My name is **Raquel Possemozer Santos**, and I started my PhD in August. I am originally from Brazil, born in the vibrant and bustling city of São Paulo. I completed my undergraduate degree in Pharmacy at the Federal University of São Paulo, where I began my research journey. Over the course of four years, I worked in immunology and biochemistry of fungi. Towards the end of my undergraduate studies, I also explored the evolution of Industry 4.0 and its influence on medicine, specifically focusing on digital twins in oncology and the future of treatments. At NDSU, I am working in the lab of **Dr. Roberto Gomes** (Pharmaceutical Sciences), where I am starting my research on the synthesis of new drugs. I am excited to contribute to the field and look forward to the challenges that this new journey will bring.

My name is **Farnia Ghafouri Sabzevari**. I earned my bachelor's and master's degrees in biology in my home country, Iran. My focus during my previous studies was on gene silencing and inhibiting oncogenes in colorectal cancer. Currently, I am working on cancer-detection biosensors in collaboration with my team and **Dr. Danling Wang** in the Electrical and Computer Engineering department. Studying in the U.S., especially at this academic level, has been a completely new and highly challenging experience for me. The new system, language, and different climate here posed significant challenges, but with the support of the people around me, I found the environment welcoming and was able to stay focused on my work and studies.

Baby Saroja recently completed a MS degree in the Department of Pharmaceutical Sciences at NDSU and has joined the CMB PhD program under the mentorship of **Dr. Mohi Quadir** (Coatings and Polymeric Materials). She is originally from India where she completed a MS in Medicinal Chemistry and developed expertise in drug design, synthesis, and characterization. She enjoys playing badminton and is currently serving as the NDSU Badminton Club President.

CMB Student Receives Doctoral Dissertation Fellowship!

Congratulations to **Jenna Duttenhefner** for receiving the NDSU College of Graduate and Interdisciplinary Studies Doctoral Dissertation Fellowship for Spring 2025! Jenna's research is focused on the role of glutathione S-transferase pi-1 in PDAC metabolism. Jenna plans to complete her research and dissertation this spring. Jenna is mentored by **Dr. Katie Reindl** (Biological Sciences).

CMB Students Publish Papers

Philip Salu published a first-author paper and was a co-author on an additional research paper. https://doi.org/10.1016/j.bbamcr.2024.119854 "AGR2 knockdown induces ER stress and mitochondria fission to facilitate pancreatic cancer cell death" was published in the journal BBA Molecular Cell Research. https://doi.org/10.1016/j.ijpharm.2024.124753 "Mesenchymal stem cell-delivered paclitaxel nanoparticles exhibit enhanced efficacy against a syngeneic orthotopic mouse model of pancreatic cancer" was published in the International Journal of Pharmacology. Philip's research advisor, **Dr. Katie Reindl** (Biological Sciences), also co-authored these manuscripts. Congrats, Philip!

Kazi Sarjana Safain published a first-authored paper titled “One-carbon metabolites supplementation and nutrient restriction alter the fetal liver metabolomic profile during early gestation in beef heifers” in the *Journal of Animal Science* (https://doi.org/10.1093/jas/skae258). She also co-authored two other publications: “Influence of maternal nutrition and one-carbon metabolites supplementation on bovine antimicrobial peptides in fetal and maternal tissues” in *Frontiers in Veterinary Science* (https://doi.org/10.3389/fvets.2024.1505427), and “Maternal nutrient supply: Impacts on physiological and whole animal outcomes in offspring” in the *Journal of Dairy Science* (https://doi.org/10.3168/jds.2024-25788). She is mentored by **Dr. Kendall Swanson** (Animal Sciences). Congrats, Sarjana!

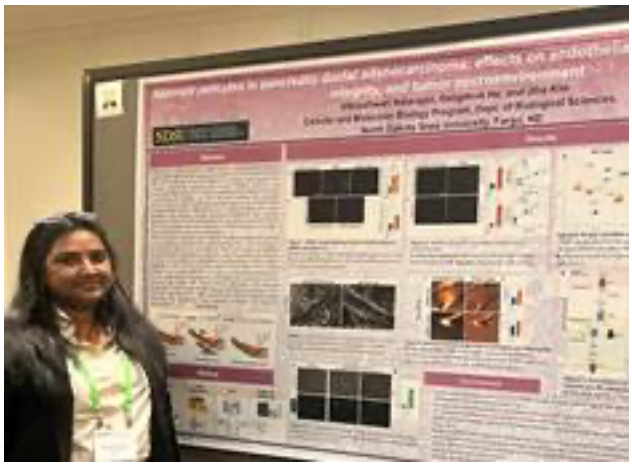
Gauthami Nair published a first-author paper titled “ Extracellular signal-regulated kinase inhibitor SCH772984 augments the anti-cancer effects of gemcitabine in nanoparticle form in pancreatic cancer models” in the International Journal of Molecular and Cellular Medicine (IJMCM). http://dx.doi.org/10.22088/IJMCM.BUMS.13.3.220 Her co-advisors **Dr. Mohi Quadir** (Coatings and Polymeric Materials) and **Dr. Katie Reindl** (Biological Sciences) were also authors. Congrats, Gauthami!

Kafi Mia published a first-author paper titled “The impact of exogenous vasoactive intestinal polypeptide on inflammatory responses and mRNA expression of tight junction genes in lambs fed a high-grain diet” in the Journal of Animal Sciences; https://doi.org/10.1093/jas/skae309. Kafi recently graduated from the CMB program and was mentored by **Dr. Kendall Swanson** (Animal Sciences), who is also a co-author on the publication. Congrats, Kafi!

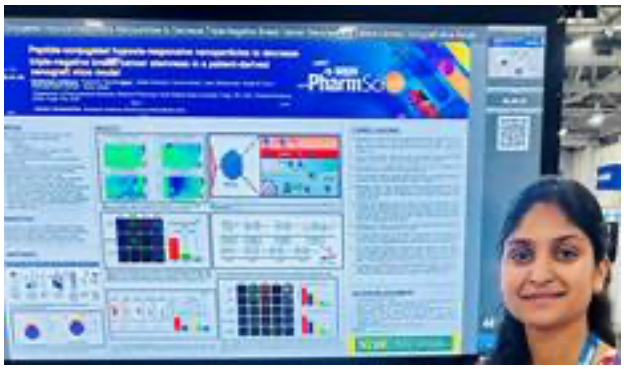
CMB Students Present Research

Gauthami Nair gave an oral presentation of her research titled “Dual targeting of the ERK and PI3K pathways to impede pancreatic adenocarcinoma progression” at the ND EPSCoR annual conference in Grand Forks, ND. Gauthami is co-mentored by **Dr. Mohi Quadir** (Coatings and Polymeric Materials) **Dr. Katie Reindl** (Biological Sciences). Great work, Gauthami!

Jenna Duttenhefner gave a poster presentation of her research titled “Metabolic reprogramming in PDAC: The contributions of GSTP1 to energy metabolism and lipid homeostasis” at the American Society for Cell Biology (ASCB) annual Conference in San Diego, CA. She was awarded a Travel Grant from the ASCB. Jenna also presented an oral talk of this research at the annual ND EPSCoR meeting. Jenna is mentored by **Dr. Katie Reindl** (Biological Sciences). Well done, Jenna!



Vikneshwari Natarajan presented her research poster titled “Aberrant pericytes in PDAC: effects on endothelial-pericyte adhesion, vascular integrity, and tumor microenvironment” at the American Association for Cancer Research (AACR) Special Conference on Advances in Pancreatic Cancer Research in Boston, Massachusetts. She also presented this research at the ND EPSCoR annual meeting in Grand Forks, ND. Vikneshwari is mentored by Dr. Jiha Kim (Biological Sciences). Great job, Vikneshwari!



Shubhashri Ambhore presented her research titled “Peptide conjugated hypoxia-responsive nanoparticles to decrease triple-negative breast cancer stemness in a patient-derived xenograft mouse model” at the American Association for Pharmaceutical Scientists (AAPS) PharmSci 360 meeting in Salt Lake City, UT. Congrats Shubhashri!