2026 Research Summer Scholar Projects

Projects	Division(s)	Short Project Description
Project 1	Neonatology and Infectious Disease	This project introduces a Summer Scholar to bench-based translational research in microbiology and gut epithelial biology. You will culture probiotic bacteria, inactivate them using physical methods (heat and UV light), and test the resulting "postbiotics" in cell culture models of intestinal inflammation and wound healing. By the end of summer, you will have generated novel comparative data, presented your findings at our research symposium, and contributed to a novel therapeutic approach for protecting premature infants from serious intestinal disease.
Project 2	Center for Children's Healthy Lifestyles and Nutrition	The Summer Scholar will develop laboratory and clinical intervention skills on two projects: 1) an observational study examining appetite regulation and skeletal muscle function in teenagers initiating anti-obesity therapy, and 2) a randomized controlled trial examining different doses of exercise on glucose metabolism in teenagers. For #1, we will assess body weight and composition change six months after initiation of AOM, along with changes in appetite (self-reported ratings of hunger) and markers of skeletal muscle function (substrate oxidative capacity, strength/power, motor unit recruitment, and cardiorespiratory fitness). For #2 we will examine the minimum dose of exercise necessary to observe improvements in glucose tolerance.
Project 3	Radiology	This project aims to develop and validate automated lesion segmentation tools for pediatric cerebral palsy (CP) using brain MRI. Scholars will work on implementing and optimizing deep learning and conventional image processing methods to accurately segment lesions and evaluate their clinical relevance. The work provides hands-on experience in neuroimaging, algorithm development, and quantitative analysis, contributing to scalable solutions for large datasets.
Project 4	Developmental Medicine	Understanding normal trachea development is critical to fully understanding respiratory disorders and diseases. How tracheal cartilage develops from highly migratory and multipotent neural crest cells during development is unknown. Here, we will determine the spatial temporal dynamics of migration, proliferation and differentiation of neural crest cells into cartilage using the chick and mouse embryo model systems.
Project 5	Clinical Pharmacology, Toxicology, & Therapeutic Innovation	This summer project is a part of an ongoing clinical trial to evaluate the use of naltrexone for the treatment of eating disorders in teens. The Summer Scholar will get hands on experience with pediatric clinical research, actively engaging with study participants while gaining valuable patient care experience. The summer project will involve 1) patient care experience (e.g., participate in active recruitment, obtain informed consent from participants, assist with clinical trial study days, process biological samples), 2) a data analysis project in adolescent precision therapeutics, and 3) an opportunity for community engagement.

Project 6	Clinical Pharmacology, Toxicology, and Therapeutic Innovation	Antidepressants are commonly prescribed to anxious and depressed children and adolescents, but response and side effects vary substantially between individuals due to differences in drug levels in the body. This project focuses on identifying the optimal concentration ranges that minimize side effects and enhance effectiveness for three antidepressants—escitalopram, sertraline, and fluoxetine—in pediatric patients. The scholar will analyze clinical data from an ongoing study to characterize this relationship, which will help establish a target exposure range that clinicians can use to personalize antidepressant dosing.
Project 7	Health Services and Outcomes Research	Research in ACTion is a community-engaged, knowledge-translation pilot program that is being developed for launch in Fall, 2026. The program aims to engage Kansas City high school students in creating research-based theater to disseminate findings from health and social science research to their communities. Over the summer of 2026, a Summer Scholar will facilitate an interdisciplinary project advisory board, conduct and analyze qualitative interviews, and prepare program/study materials; while gaining hands-on experience in social science research translation, qualitative research methods, community engagement, and team science.
Project 8	Palliative Care and Bioethics	Join our summer research team to explore how families of children with home invasive mechanical ventilation navigate daily life and healthcare challenges. You'll gain hands-on experience in both qualitative interviews and quantitative data analysis, with opportunities to contribute to posters, abstracts, and manuscripts. This is a unique chance to make a meaningful impact while building skills in patient-oriented research and working closely with a dedicated mentor.
Project 9	Genomic Medicine Center	Patient-derived cellular models are powerful tools for dissecting disease biology and illuminating novel therapeutic avenues. This Summer Scholars project focuses on Angelman Syndrome and leverages datasets generated using brain organoids derived from patients in the Angelman Syndrome Clinic at Children's Mercy. Specifically, the scholar will spend the summer working with an induced pluripotent stem cell model of Angelman Syndrome to explore cellular processes that are dysregulated in children impacted by Angelman Syndrome.
Project 10	Genomic Medicine Center	This project is to determine inflammatory state of individuals with rare pediatric disease using an interferon-stimulated gene (ISG) signature. The overall goal is to use these ISG signatures to identify patients that would benefit from interferon inhibitors and to monitor the efficacy of these treatments. The student will perform the molecular assays to determine ISG signatures from blood cells and determine how these change over time. This project will establish a molecularly informed foundation for precision clinical trials of Interferon inhibitors in pediatric patients with rare interferon-driven diseases.

Project 11	Emergency Medicine & Adolescent and Young Adult Medicine	This community-engaged study will examine barriers to pediatric emergency telehealth in rural Kansas and Missouri. The Summer Scholar will gain hands-on experience with clinician interviews, qualitative data analysis, and scientific writing, with opportunities for co-authorship and clinical shadowing. This work will guide culturally responsive strategies for implementation of telehealth to improve pediatric emergency care for children in rural communities.
Project 12	Health Services and Outcomes Research & Ear, Nose and Throat	Treatment of neonates with Micrognathia (MG), defined as neonates with a small mandible, can range from conservative measures (observation, nutritional support, positioning) to maximally invasive surgical procedures (mandibular distraction osteogenesis, tracheostomy tube placement, tongue lip adhesion). This project seeks to utilize analytical and statistical techniques to identify clinical variables and/or parameters from sleep studies that contribute to risk stratification of treatment groups (conservative vs. surgical treatment).
Project 13	Heart Center / Cardiology	Children and adolescents with chronic medical conditions such as congenital heart disease, cancer, and pain disorders can become physically frail. The aim of this project is to determine the best approach for measuring physical frailty in youth with chronic medical conditions. This will be accomplished through exploration of existing frailty data and hands-on experience with an exercise-based cardiac rehabilitation clinical trial in teens with congenital heart disease.