

The Pediatric Inflammatory Bowel Disease (IBD) Program, Dr. Shervin Rabizadeh, MD, MBA

Research Projects Supported by Connecting to Cure Crohn's and Colitis:

The Pediatric Inflammatory Bowel Disease (IBD) Program at Cedars-Sinai Medical Center continues to thrive as the premier center in both clinical work and research caring for children with Crohn's disease and ulcerative colitis—known collectively as IBD.

The previous and ongoing contributions of Connecting to Cure Crohn's and Colitis have been critical to the mission of the Cedars-Sinai Pediatric IBD Program in advancing research objectives. The program has a multitude of ongoing research projects and the ones listed below have been most directly impacted.

Very Early Onset IBD

Though uncommon, IBD that presents in patients less than 6 years of age is known as very early onset (VEO) IBD. This small unique group of patients have distinctive genetic polymorphisms and often more severe disease compared to patients presenting later in life. In collaboration with the Translational Genomics Group and Regenerative Medicine Institute at Cedars-Sinai Medical Center, we are using stem cells derived from the blood and intestinal biopsies of VEO-IBD patients to generate intestinal epithelial cells, expressing the patient's genetics, cultivated on a chip. Though a slow arduous process, derivation of epithelial cells will be ideal for studying, in the laboratory, the phenotype of the patient's unique genetics, effect of various treatments in a controlled environment and potential novel therapies. This translational work will be a critical step towards personalizing treatment for IBD patients. Funding is being used to help enroll patients, collect samples, cultivate intestinal cells and perform critical assays.

Optimizing Treatments to Improve Response

Treatments for pediatric IBD are not successful in all patients. This could be secondary to different mechanisms of the disease in various patients or lack of optimization of therapy. In a prospective study we examined biomarkers early in the treatment of over 50 pediatric Crohn's patients that may be predictive of long-term outcomes. This work has led to publications and national presentations identifying blood markers in pediatric Crohn's patients treated with infliximab, an anti-TNF therapy, which were associated.

with remission at one year. This work will have significant implications in improving success of treatments.

Developing and Utilizing the Largest Bio-repository of Samples from IBD Patients

We continue to look at the role of genetics and immune responses in defining the natural history and success of treatments in pediatric patients with IBD. We actively participate in the Cedars-Sinai Medical Center MIRIAD biobank, which is a well-funded bio-repository to study the genetic causes of IBD. We contribute samples from our pediatric patients in building this large database and sample bank and initiate projects looking at subgroups of interest leading to a better understanding of disease mechanism and treatment outcomes especially in children. The biobank allows us an opportunity to study the genetics and other biomarkers of pediatric IBD patients presenting with certain phenotypes. We have been looking at unique populations such as IBD patients with extra-intestinal manifestations of their disease, complications with treatments, and concurrent allergy` induced intestinal inflammation. Most recently, we started a new study on the relationship of certain fungi and IBD treatments in patients with psoriasis like rashes. Funding has been instrumental in supporting our pediatric IBD research coordinator positions who are the backbone of getting and preparing data and samples.

Autologous Stem Cell Therapy in Adolescents and Young Adults with Refractory Crohn's Disease

There are limited options in the treatment of patients with severe and refractory Crohn's disease. We are starting a study on autologous stem cell therapy for this population of patients who have failed all conventional treatments. This intensive regimen can potentially reset and modify the patient's disease and lead to significant improvement in their quality of life and overall health. Funding is being used to launch this investigator-initiated project.