



## M.I.R.I.A.D. Biobank

### Material and Information Resources for Inflammatory And Digestive Diseases

A Newsletter about Research at Cedars-Sinai IBD

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## What is the MICROBIOME and what does it have to do with IBD?

The **microbiome** has been making headlines lately and research suggests the microbiome plays an important role in IBD.

The term “microbiome” refers to the community of billions of microorganisms that live in everyone’s gastrointestinal tract. In health, this interactive microscopic community achieves a balanced relationship known as homeostasis. In disease, genetic abnormalities and disruptions to this balance can lead to inflammation and IBD. The members of the microbiome community include bacteria and viruses. With the help of MIRIAD Biobank participants, Cedars-Sinai IBD researcher David Underhill, PhD, recently discovered that fungi also live in the intestine. Exciting early evidence suggests that fungi may play an important role in IBD.

Because of the vast number and enormous variety of organisms that comprise the microbiome and the large number of genetic variations that are known to be associated with IBD, understanding how they interact requires sophisticated research and data analysis tools. In addition to genetic and fungal data, we combine data from bacterial, serologic, metabolic and proteomic studies in an approach we call **IBD 360°** to study the microbiome from every vantage point, including laboratory research, genetics research, translational research and clinical research, and the Cedars-Sinai IBD3 Unit is working to identify targets in the microbiome that will lead to new treatments.

Many people with IBD wonder whether diet affects their symptoms and while it is unlikely that a simple dietary solution will be found that will benefit all individuals with IBD, our research on the microbiome suggests a future in which specific recommendations may be made based on a personalized profile of individual patient genetics and microbiome components.

You, as our research partner, are helping the effort every time you participate by filling out a form, giving a blood or biopsy donation, and for the microbiome, **donations of stool are vitally important.**

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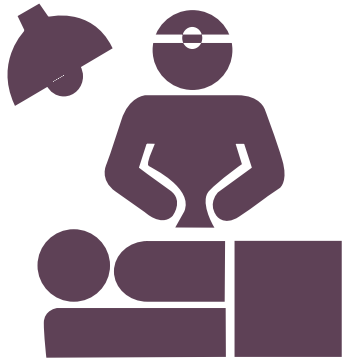
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## We couldn't have done it without you!

Here are some examples of how MIRIAD Biobank participants have made a difference.

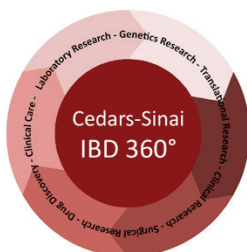


### 1. Improving Outcomes for People Undergoing Surgery for IBD

As many as 20 percent of patients with IBD will undergo surgery at some point in their lives. Research at Cedars-Sinai IBD, led by surgeon **Phillip Fleshner, MD**, has resulted in information that will reduce post-operative complications. By analyzing blood specimens and the information provided by MIRIAD Biobank participants when they complete our extensive questionnaires, Dr. Fleshner discovered that higher levels of biologic agents such as infliximab before surgery are associated with complications in patients with Crohn's disease. Such findings add to a large body of knowledge developed by Dr. Fleshner surrounding the effects of many important factors on the success of surgical treatments for IBD, including recommendations for the use of steroids and immunosuppression therapies in the weeks leading up to IBD surgery.

### 2. Azathioprine and 6-MP Patient Selection and Dosing

Azathioprine and 6-MP are commonly prescribed to patients with IBD. While these drugs have been around for a long time, participants in the MIRIAD Biobank contributed to research that allows doctors to enhance the efficacy and minimize the side effects of these powerful immune-suppressing drugs. Because the MIRIAD Biobank has specimens with matched patient data, Cedars-Sinai IBD researchers were able to review the treatment records going back many years to compare the use of these medications in different disease groups to better understand how they work and develop guidelines and blood tests to help doctors manage azathioprine (Imuran) and 6-MP on an individual patient basis, based on the way his/her body processes the drug.



## Cedars-Sinai IBD 360°

Watch the Video!

[www.cedars-sinai.edu/Research/Departments-and-Institutes/IBD/index.aspx](http://www.cedars-sinai.edu/Research/Departments-and-Institutes/IBD/index.aspx)



## Dermot McGovern MD, PhD,

Director of IBD Translational Medicine, answers frequently asked questions about IBD and genetics.

### 1. Which genes are contributing to my IBD?

It's difficult to pinpoint which of the more than 200 IBD-associated genes contribute to any individual's disease. We do know that the more IBD-associated gene variations a person has the more likely he/she is to have a severe type of IBD. Genetics holds clues to identify the pathways leading to IBD in individuals. As we develop new therapies and approaches to managing disease based on genetic discoveries, this knowledge will allow us target the best therapy to the right patient (i.e., a more personalized approach to treating IBD). Similar techniques may also allow us to identify people who don't have IBD but are at high risk of disease and develop ways to intervene early and perhaps prevent disease from occurring.

### 2. Why IBD is more prevalent in Ashkenazi Jewish people?

The genetics of the Ashkenazi Jewish IBD population is a particular interest of my group. Ashkenazi Jews carry more IBD genetic variants than their non-Jewish peers. One theory is that IBD gene variations may have protected us in the past from developing mycobacterial diseases such as tuberculosis and there is evidence that the Ashkenazi Jewish population has lower rates of tuberculosis than the non-Jewish populations. Another factor is that the Ashkenazi Jewish population is a relatively genetically "isolated" population, which allows certain genes to persist in populations. This is true not only for IBD also for diseases such as Tay-Sach's disease, and Gaucher's disease, which too are more prevalent in Jewish populations.

### 3. I have a family history of IBD, does that mean I will develop it?

There is an increased risk but the majority of people with a family history do not develop IBD. Interestingly, IBD genes are "shared" with other 'autoimmune' diseases such as diabetes,

spondylitis, thyroid disease and psoriasis, thus there may be an increased family history of these conditions.

### 4. Did I inherit my IBD?

The genetic changes that increase risk for developing IBD are inherited from parents. However, its important to emphasize that there are also environmental factors associated with disease that contribute including smoking, vitamin D deficiency, and possibly excessive use of antibiotics. It's the combination of genetic and these environmental factors that leads to IBD in some people.

### 5. Will I pass on IBD to my children?

More than 90 percent of children of people with IBD do not develop IBD. While more work is needed to understand how to prevent IBD, I would advise avoiding smoking (including passive smoking exposure), ensuring an adequate intake of vitamin D, and avoiding the use of unnecessary medications, taking antibiotics only when necessary (most colds go away by themselves and often are viral so they do not require antibiotics), and also limiting use of anti-inflammatories such as ibuprofen and other similar medications.

### 6. How does my blood sample help IBD genetics research?

Every person with or without IBD who has consented to research and contributed a blood sample has taken us one step closer to a cure for IBD. Without these samples we would not have been able to identify the genes for IBD or do the studies that are allowing us to understand how these genes lead to changes in the immune system that increase the risk of IBD. In the past 14 years, we have moved from knowing no "IBD genes" to now having more than 200. This gives researchers a fantastic framework on which to build strategies to develop new therapies and identify cures.

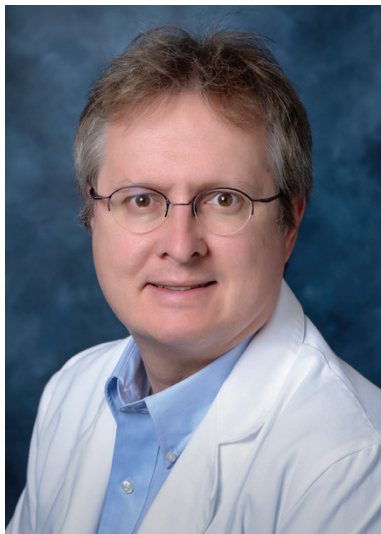


## Get to know Elmar Park, LVN!

MIRIAD Biobank Clinical Research Coordinator

Many of you already have met Elmar Park. Here is some information so you will know her even better! Elmar has more than 16 years of experience working as a special collections nurse for various research projects for preclinical and clinical applications in biology, immunotherapy and cell therapy. Elmar joined the Inflammatory Bowel Disease and Immunobiology Research Institute at Cedars Sinai in 2010. Currently, as clinical research coordinator, Elmar works collaboratively with our physician/scientists, clinicians and other coordinators to identify study subjects, collect blood and maintain study documents.

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Meet Cedars-Sinai IBD Physician/Researcher:

## Eric Vasiliauskas, MD (“Dr. V”)

Eric Vasiliauskas, MD, (Dr. V) is the associate clinical director of the Cedars-Sinai Inflammatory Bowel Disease Center and a member of the F. Widjaja Foundation Inflammatory Bowel and Immunobiology Research Institute.

Dr. V has been described as “a diet-friendly doctor” and is a strong advocate of living a healthy lifestyle. He recognizes the significant potential benefits of both traditional and nontraditional approaches to IBD care, while at the same time acknowledging the shortcomings of each approach practiced in isolation. Throughout his career, Dr. V has been open to incorporating a broad spectrum of nontraditional options to help patients fine tune their health to wellness. He is a firm believer that a complementary or integrative approach to IBD management optimizes desired outcomes, well-being and quality of life.

In his role as director of the Cedars-Sinai Nutrition and Integrative IBD Subspecialty Clinic, Dr. V continues to explore the role of a variety of dietary manipulations and other nontraditional interventions in the management of Crohn’s disease and ulcerative colitis.



Featured MIRIAD Research Project:

## The roles of IBD-associated genes ATG16L and TNFSF15 in Gut Mucosal Inflammation

*David Q. Shih, MD*

The MIRIAD Biobank supports more than **70 research projects**. When you participate, your data or specimen may be used in one or more projects, all focused on finding ways to understand, improve treatments or prevent IBD. If you have donated biopsies, blood or stool, your specimen may be used by Dr. Shih in this study.

Dr. Shih is performing a basic science research project to understand how certain genes interact with each other and the environment to cause IBD. The TNFSF15 gene affects production of a protein known as TL1A, which plays a key role in severe Crohn's disease. The ATG16L gene affects a process by which cells react to bacteria in the gut known as autophagy. When your specimens are distributed to Dr. Shih for investigation, you are helping us to identify the causes of IBD and also to improve drugs that will specifically treat diseases resulting from variations in the TNFSF15 or ATG16L genes.

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**CEDARS-SINAI IBD HAS CLINICAL TRIALS  
ENROLLING RIGHT NOW!**

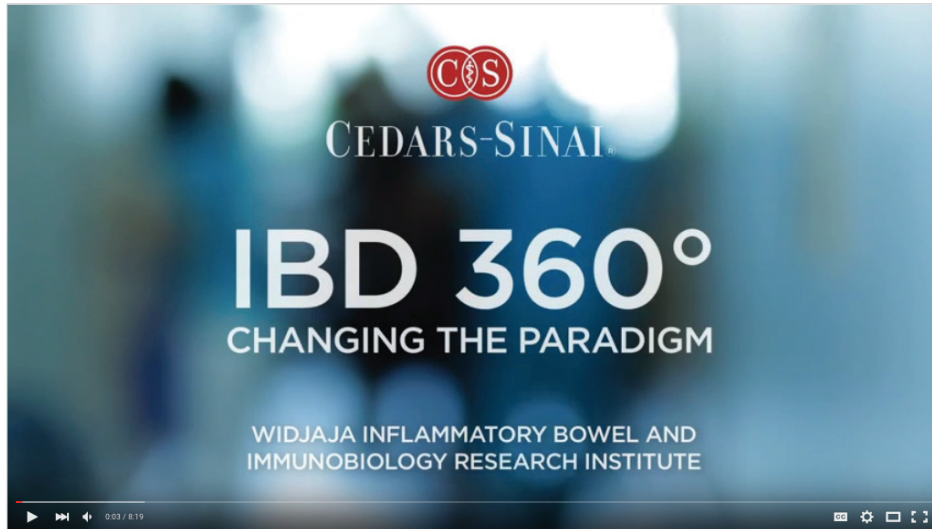
Ask your physician about eligibility requirements.





## Cedars-Sinai IBD 360°

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### Important numbers and contact information:

- Patient appointments  
310-423-4100
- Research Project Information  
310-423-3550
- Email address  
[MIRIAD.IBDBiobank@cshs.org](mailto:MIRIAD.IBDBiobank@cshs.org)
- Cedars-Sinai IBD clinical webpage  
[cedars-sinai.edu/ibd](http://cedars-sinai.edu/ibd)
- Cedars-Sinai IBD research webpage  
[cedars-sinai.edu/Research/Departments-and-Institutes/IBD/index.aspx](http://cedars-sinai.edu/Research/Departments-and-Institutes/IBD/index.aspx)
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