

Funding the Future

Supporting the up-and-coming scientists who are poised to transform the field.

Soon after finishing medical school or a doctorate program, many young physicians and scientists with a keen interest in inflammatory bowel disease (IBD) come to a crossroads: Should they continue to pursue research in this area, or should they turn their attention elsewhere? That’s where we come in. At the Crohn’s & Colitis Foundation, we go to great lengths to ensure that the best and the brightest have the incentives they need to stay firmly focused on finding new and better treatments and cures for IBD.

pipeline of researchers,” says Clara Abraham, MD, co-chair of the Research Fellowship and Career Development Awards Committee. “CDAs provide important support to junior investigators at a critical time in their careers, and help them transition into independent, successful IBD researchers.”

In this issue, you’ll meet a few of the impressive junior researchers who have recently received CDAs. These talented young scientists are already



“The Foundation provides crucial initial funding for talented young researchers, positioning them well for follow-on NIH funding and successful careers in IBD.”
—CLARA ABRAHAM, MD
Co-chair of the Research Fellowship and Career Development Awards Committee

We are the leading IBD research funder that is committed to encouraging—and retaining—emerging talent in numerous ways: fostering mentor relationships with experienced investigators (pairing them on funded projects); including junior scientists in our professional education programs and conferences; and funding their innovative research projects.

One of the ways we support their research is by providing Career Development Awards (CDAs). Generally, up to 10 of these awards are given out each year.

“The Crohn’s & Colitis Foundation is committed to supporting research that advances our understanding of the underlying contributors to IBD and our ability to improve the care and treatment of patients with IBD. This requires ensuring an ongoing

conducting remarkable research and are well on their way to transforming the scientific community’s understanding of IBD. You’ll also hear from a few longtime researchers who got their starts in IBD research with grants from the Foundation and have since made major contributions to the field. 🔗



Rising Stars BRIGID BOLAND, MD

Now a gastroenterologist and assistant professor at the University of California San Diego (UCSD), Dr. Brigid Boland was doing an advanced IBD fellowship when she received the Foundation’s CDA. That award enabled her to continue studying biomarkers (indicators of disease) that she hoped could be used to predict which IBD patients would respond to vedolizumab (Entyvio), a biologic drug that targets immune overactivity in the gut.



“I’m really passionate about patient care, and a lot of what I see in the clinic drives my research questions.”

Before administering the drug, Dr. Boland was unable to predict who would respond. But she was able to determine who should stick with it. Within two weeks of starting on vedolizumab, those who would ultimately respond well had higher levels of specific inflammatory signals in their blood.

“I’m really passionate about patient care, and a lot of what I see in the clinic drives my research questions,” says Dr. Boland, who sees patients about once a week. “Support from the Foundation protected a great deal of my time, so I could keep focusing on research.”

Dr. Boland adds that receiving the CDA made her a stronger contender for other grants. In 2020, she received a grant from the National Institutes of Health (NIH) that will enable her to sequence RNA from intestinal biopsies of IBD patients to learn more about how IBD develops. Dr. Boland is also a co-investigator on a project that is part of the Foundation’s Precision Nutrition initiative. Her project focuses on creating a diet for IBD patients based on analysis of the correlation of food metabolism and gut microbiome with patients’ outcomes, using artificial intelligence methods. 🔗

LONG NGUYEN, MD

Dr. Long Nguyen had just finished a five-year prolonged fellowship at Massachusetts General Hospital when he received his CDA from the Foundation. A gastroenterologist, Dr. Nguyen says the award has helped him prioritize his research interests. “More than anything, it’s an investment in my career,” he says. “Academic medicine is really challenging. You have to justify your time.”

He is certainly putting his time to good use, as he’s setting up a lab at Mass General that will explore the role of lifestyle factors in IBD. Currently, he is using the CDA to study whether patients with increased disease activity have higher levels of a specific type of bacteria in their guts, and whether limiting foods that promote the growth of those bacteria might curtail disease activity.



“More than anything, it’s an investment in my career.”

Dr. Nguyen aims to identify and catalogue all the bacteria that are considered “sulfur metabolizing,” meaning they take the dietary sulfur from foods we eat and turn it into hydrogen sulfide, which is toxic to the epithelium, the layer of cells lining the intestines. He hopes his research will shed more light on why some people develop IBD while others with the same genetic mutations do not. “You don’t get IBD from these mutations alone,” he says.

His project has ramped up so quickly because he’s partnering on it with a “powerhouse” group of experts from Massachusetts General, Harvard, and MIT. The team’s goal: to create an IBD diet that can treat the disease. 🔗

MICHAEL SCHUMACHER, PhD

Now in the third year of his Foundation CDA, Dr. Michael Schumacher, a post-doctoral fellow at Children’s Hospital Los Angeles, is developing new treatments and cures for kids with IBD. He is investigating the role of a protein called Sprouty2, which he believes plays a role in controlling the composition of the epithelium.



“Receiving the CDA is helping me establish a track record of being able to do this research so that I can hopefully set up my own IBD lab.”

“Sprouty2 is expressed in the colon, though its function there is not known,” Dr. Schumacher explains. Using CDA funding, he determined that when you delete Sprouty2—at least in mice—the number of epithelial barrier-protective cells, called goblet and tuft cells, increased. Dr. Schumacher’s findings were recently published in *Nature Communications*.

Goblet cells secrete mucus that helps thicken the intestinal barrier; tuft cells have little projections that enable them to sense content of the intestine and control the immune response. If these beneficial cells increase when Sprouty2 goes down, then perhaps children with IBD might have too much of this protein.

To find out, Dr. Schumacher looked at the level of Sprouty2 in kids with IBD. He found that samples of colon tissue from patients contain “drastically elevated” levels of this protein. Now he is attempting to understand why and determine whether reducing it might help treat the disease.

“Receiving the CDA,” Dr. Schumacher says, “is helping me establish a track record of being able to do this research so that I can hopefully set up my own IBD lab in the next year or two.” 🔗

The Frontline Experts Helping Us Achieve Our Mission

Our advisory committee of top scientists, gastroenterologists, and other IBD experts guide grant selection, advocacy efforts, and much more.

Which junior—and senior—investigators are working on research that’s worth funding? Which legislative issues deserve our attention? The Foundation’s National Scientific Advisory Committee (NSAC), a diverse team of IBD researchers and medical professionals, is dedicated to helping us work toward cures while supporting patients today.

The NSAC is composed of 15 subcommittees, which enable the group to play an integral role in everything from evaluating advocacy efforts to ensuring that we’re funding the best, most crucial research that will bring us closer to cures. One of the group’s subcommittees specifically reviews Research Fellowship and Career Development Awards applications.



“Supporting junior investigators has always been a priority for the NSAC,” says NSAC Chair **Dr. David Rubin**. “We need to support the promising junior people so they can have a place in the field, be successful, and eventually replace all of us!”

Dr. Brent Polk, the NSAC’s immediate past chair, adds that the group aims to nurture young talent in other ways, such as through REACH-IBD, a special NSAC program for junior scientists that sets them up with robust mentorships, networking opportunities, and access to the Crohn’s & Colitis Congress®. Those career development efforts are explicitly reinforced in the Foundation’s new strategic plan, says Dr. Polk. “We recognize that we play a crucial role in identifying and nurturing the future leaders in the field,” he says, adding that in recent years there’s been a push for more diversity and inclusion so that researchers—and patients—of all backgrounds are well represented. 🔗



Stepping-stones to Success

Prominent researchers recall how support from the Foundation propelled their early careers while advancing the scientific community's understanding of IBD.

Today Dr. Balfour Sartor, MD, is co-director of a large NIH- and Foundation-funded laboratory at the University of North Carolina at Chapel Hill (UNC). A pioneer in microbiome research, he has published hundreds of papers on intestinal microbes and has consulted with at least 10 companies aiming to create live bacterial products that can restore balance to a gut that's been ravaged by IBD.

Four decades ago, when Dr. Sartor was in the middle of a clinical GI fellowship following medical school and an internal medicine residency, few people were even talking about the microbiome. "The whole focus in IBD at the time was on autoimmune responses," recalls Dr. Sartor, who is also an IBD patient. "My hypothesis was that the bacteria activated the immune responses."



"Without that first award from the Foundation, I'd probably be retired from private practice by now. I'm very grateful."

—BALFOUR SARTOR, MD
Distinguished Professor and Director of the UNC Multidisciplinary IBD Center

It was a novel idea, but a research fellowship grant from the Foundation enabled Dr. Sartor to pursue it. "They took a gamble and allowed me to develop data," he says. "I was then able to get supplemental funding from other organizations. The initial Foundation grant was absolutely pivotal for me to develop a research career."

In fact, the Foundation was one of the earliest organizations to support research on the microbiome; by doing so, it laid the groundwork for microbiome research that is now being explored for its impact on obesity, mental health, and many other disorders.



Another prominent microbiome researcher, **Lora Hooper, PhD**, had just started her own lab at The University of Texas Southwestern Medical Center when she received her first award from

the Foundation, in 2003. "I didn't have much preliminary data at that time, so my research proposal was mostly based on my postdoc work," says Dr. Hooper, who's now chair of the department of immunology at the same university. Her initial project, which focused on how microbes in the gut trigger the

expression of antibiotic proteins, paved the way for the discovery of "a whole zoo of antimicrobial proteins."

That first Foundation grant "got us on the runway, and I was able to get an NIH grant the next year," says Dr. Hooper. Her NIH grant has been renewed several times; she's had it for the past 15 years and currently focuses on how gut microbes trigger genetic changes in the gut lining. "I'm really grateful to the Foundation for taking a chance on me," she says. 📌



Help Us Change Lives

Through your support of the Crohn's & Colitis Foundation, you help accelerate the discovery of new treatments and cures for Crohn's and colitis, and you support those who struggle with the physical and emotional toll of living with IBD. Create a better tomorrow for those suffering from IBD by making a gift to the Crohn's & Colitis Foundation today.

To make a one-time contribution to the Crohn's & Colitis Foundation, please visit www.crohnscolitisfoundation.org/microscope.

To become a monthly donor, please visit www.crohnscolitisfoundation.org/monthly.

Leave a Legacy of Giving

You can help to strengthen the vision and commitment of the Crohn's & Colitis Foundation by including the Foundation in your estate planning. As a member of the Founders Society, you will be listed in our Annual Report and receive inside information and updates on our mission advancement and research progress.

If you're interested in making a planned gift or have questions regarding planned giving and the Founders Society, please contact Susan Carriker at scarriker@crohnscolitisfoundation.org.

Or visit plannedgiving.crohnscolitisfoundation.org to access a free tool that will help you make a will in 20 minutes so you can easily leave a legacy gift to the Foundation. 📌



Learn more at crohnscolitisfoundation.org

The Crohn's & Colitis Foundation is the leading nonprofit organization focused on both research and patient support for inflammatory bowel disease (IBD). The Foundation's mission is to cure Crohn's disease and ulcerative colitis, and to improve the quality of life for millions of Americans living with IBD. Our work is dramatically accelerating the research process through our database and investment initiatives. We also provide extensive educational resources for patients and their families, medical professionals, and the public.



Under the
Microscope
GROUNDBREAKING RESEARCH AND SUPPORT FOR PEOPLE WITH IBD
CROHN'S & COLITIS FOUNDATION
SPRING 2021

Nurturing the Next Generation of IBD Experts

Leading Scientists Reflect on How the Foundation Shaped Their Careers



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