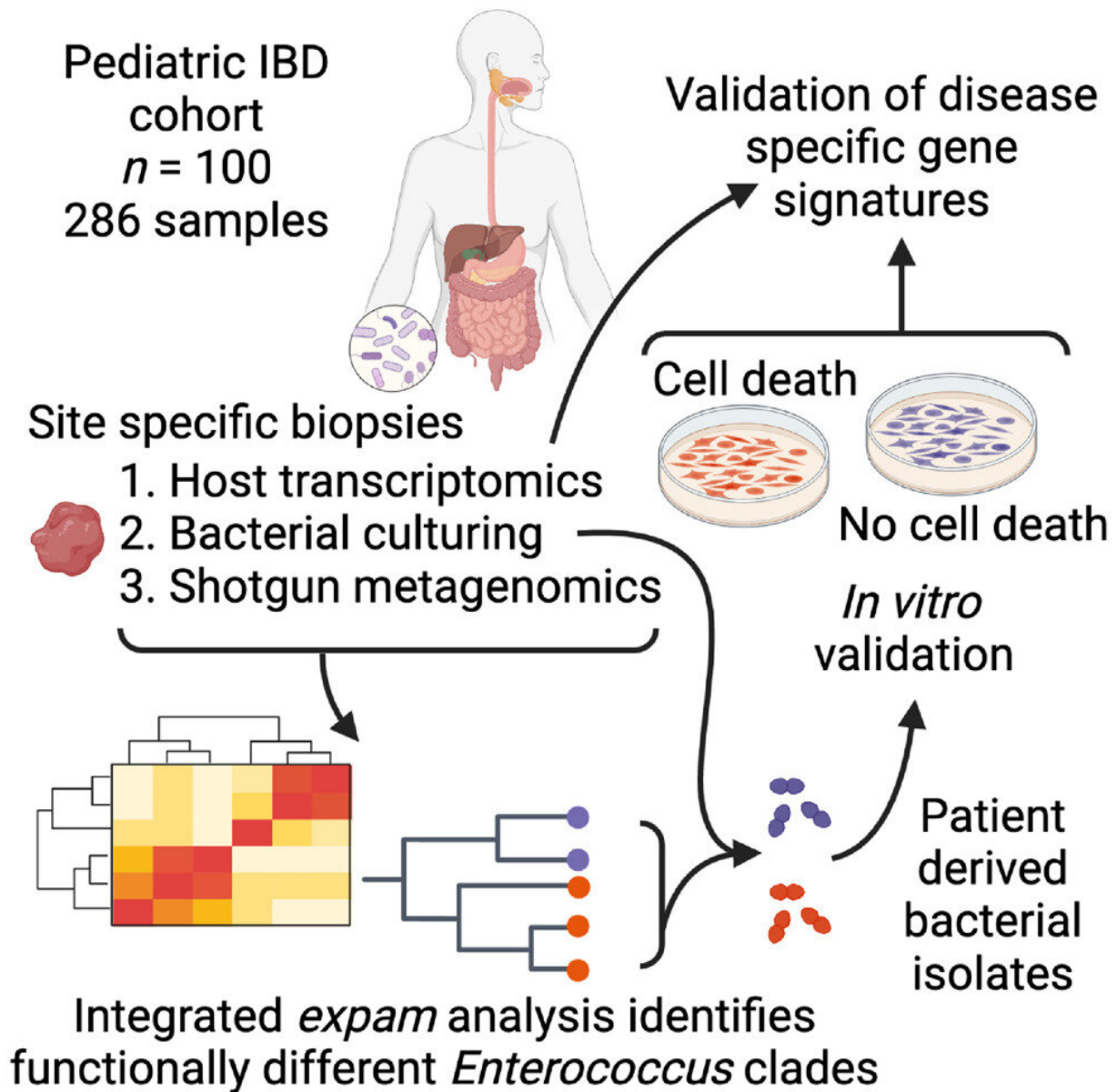


Identifying the role of the microbiome in inflammatory bowel disease

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Credit: *Cell Reports Medicine* (2023). DOI: 10.1016/j.xcrm.2023.101124

Researchers are taking a new approach to a debilitating illness by looking for a microbiome-based cause of inflammatory bowel disease (IBD).

CSL Centenary Fellow, Associate Professor Sam Forster leads a team at Hudson Institute of Medical Research studying the role of the [microbiome](#) in IBD. They have discovered a key group of [bacteria](#) connected to the disease, which are now being developed to be used in new IBD treatments. Their latest research is published this week in the journal *Cell Reports Medicine*.

"One of the keys to our research is that we've developed new, more precise methods to understand the interactions between the microbiome and disease," said Forster.

Links between microbiome and IBD

"Taking biopsies directly from the site of disease and also from healthy parts of the same patient allows the team to analyze the differences in the local microbiome—previous research typically relies on [fecal samples](#), which collect microbiome from both.

"Fecal sampling is like using a bulldozer and trying to work out what a forest looks like from the debris that you capture," Forster said. "Biopsy-based sampling is equivalent to finding an individual ant and knowing it lives only on the leaves of a particular type of tree."

Ph.D. student Gemma D'Adamo added, "Our team also uses a technique called clade-based analysis: rather than using existing species

classifications we have used a new analysis that identifies the group of bacteria which share a particular function, such as those driving a disease."

"We use this for bacteria to find the specific groups that have the ability to impact disease outcome," she said.

Identifying live biotherapeutics

The good news for the almost 75,000 Australians with IBD is that this work is identifying key candidates for development as live biotherapeutics.

"Our research identifies key bacteria that may play a role in exacerbating symptoms of inflammatory bowel disease—this provides hope of better managed symptoms for IBD patients," said Dr. Edward Giles, the lead clinical researcher from Hudson Institute of Medical Research and Monash Health.

Forster's team is working closely with the Adelaide-based biotechnology company Biomebank, whose mission is to treat and prevent disease by restoring gut microbial ecology.

More information: Gemma L. D'Adamo et al, Bacterial clade-specific analysis identifies distinct epithelial responses in inflammatory bowel disease, *Cell Reports Medicine* (2023). [DOI: 10.1016/j.xcrm.2023.101124](https://doi.org/10.1016/j.xcrm.2023.101124)

Provided by Hudson Institute of Medical Research

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