

**About our guest****John Leech, PhD**Bioprocessing & Fermentation Technologist
TeagascSPEAKING OF
MOL BIO

The value of community— your microbiome

Season 2, Episode 9

Episode notes

The history of fermented foods like beer, bread, and other foods can be traced back thousands of years to ancient civilizations in China and Egypt. This ancient technology was originally used to preserve foods when refrigeration was not an option. While less common in modern industrialized civilizations, we're now realizing that fermented foods play a major role in gut microbiome diversity, which is a biomarker for overall health.

Join our conversation with Dr. John Leech, Technologist at Teagasc in County Cork, Ireland to learn all about the history and how cutting-edge technologies are being applied to research in food fermentation. We learn about the complex microbial communities that define and deliver the health benefits of these foods, but we also hear about how this biological complexity makes them inherently irreproducible.

Foods like kimchi, sauerkraut, and kombucha are produced from fermentation, facilitated by complex communities of microbes.

John and his team utilize qPCR, NGS, and other methods to characterize the microbial consortia used to produce these foods. They're now working to figure out how to simplify the consortium while still delivering health benefits, all while making the process reproducible and scalable.

John's recent publications

1. Walsh AM, Leech J, Huttenhower C, Delhomme-Nguyen H, Crispie F, Chervaux C, Cotter PD. [Integrated molecular approaches for fermented food microbiome research](#). FEMS Microbiol Rev. 2023 Mar 10;47(2):fuad001
2. Pasolli E, De Filippis F, Mauriello IE, Cumbo F, Walsh AM, Leech J, Cotter PD, Segata N, Ercolini D. [Large-scale genome-wide analysis links lactic acid bacteria from food with the gut microbiome](#). Nat Commun. 2020 May 25;11(1):2610

“... Fermented foods actually lend themselves very well to being a good model ecosystem for looking at species interaction, cross feeding, for example. So, if one microbe produces a health promoting compound, it might not be able to produce that in a particular matrix like milk, unless there's another species there that produce something else from the milk that then feeds the microbe that's producing the resulting health benefit.”

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