

The gut microbiome of Irish Travellers gives a timely public health lesson

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Investigators at APC Microbiome Ireland SFI Research Center in Cork were stunned by the findings of the first microbiome study of Irish Travelers which challenges the concept of a "normal" or "healthy" microbiome and asks: "what is a normal or desirable microbiome in an ethnically diverse society?" The findings have global implications and will be published in the prestigious journal *Nature Medicine*.

The microbiome is the collective genetic material of microorganisms (bacteria, yeasts, and viruses) living in and on the human body and is known to be linked with risk or protection from developing several [chronic inflammatory diseases](#). A modern way of life increases the risk of chronic diseases, in part by influencing the microbiome. Until now, studies of the influence of modernization on the microbiome relied on transcontinental comparisons of different societies, but the story of the Irish Travelers and the changes imposed on their lives provides important new insights. Moreover, the study raises wider public health concerns for ethnic minorities, including migrants, who are pressured to change their culture and ways of life, which can have unanticipated health consequences.

Travelers have a [gut microbiome](#) which differs strikingly from that of the non-Traveler settled community. Whereas the settled or non-traveler Irish have an industrialized type of microbiome with a relatively increased risk of chronic disease, most of the Travelers retain an ancient or non-industrialized type of microbiome which may protect from many chronic inflammatory disorders. This microbiome was strikingly more similar to people living in non-industrialized countries than to the settled

Irish. Moreover, the greater the degree to which the Traveler lifestyle was adapted to that of the settled community, the more their microbiome changed from the non-industrialized type to the industrialized type associated with disease. Ethnic minorities are known to have distinct microbiomes, but the Irish Traveler study is particularly informative because it is not confounded by genetic and geographic factors.



The study scientists with members of the Cork Traveller Visibility Group (from left to right: Biddy McDonagh, David Keohane, Gene O'Donoghue, Nora Cash, Liz McGrath, Fergus Shanahan, Caroline Barnard, Michael Molloy, and Breda O'Donoghue. Credit: Science Foundation Ireland

The study investigators at University College Cork were Drs. David Keohane, Tarini Ghosh and Ian Jeffery, along with Profs. Michael G. Molloy, Paul O'Toole and Fergus Shanahan.

Why was the study undertaken? Prof. Fergus Shanahan said: "I have always been intrigued by the Travelers and was curious why Crohn's [disease](#) and [ulcerative colitis](#) are so rare among Travelers, and I wondered whether Travelers might have a protective [microbiome](#)." And so it is.

In thanking the Travelers, Prof. Shanahan said that the study represented the shared efforts of clinicians and scientists working in partnership with the insight, wisdom and input of Cork Travelers who not only participated in the study but also influenced its design and planning. He also expressed gratitude for the philanthropic support for the study.

More information: David M. Keohane et al. Microbiome and health implications for ethnic minorities after enforced lifestyle changes, *Nature Medicine* (2020). [DOI: 10.1038/s41591-020-0963-8](https://doi.org/10.1038/s41591-020-0963-8)

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