

A common gut virus that maps our travels

July 8 2019



Bioinformatics researcher and professor Rob Edwards tests samples at the viromics lab at San Diego State University Credit: San Diego State University

Travelling abroad for the summer can change a person's perspective—and it can also change the makeup of his gut.

A San Diego State University researcher has found evidence that a [virus](#) nicknamed crAssphage, found in the guts of about 70 percent of the

world's population, has a country-specific biomarker that changes rapidly as humans travel from one location to another.

Bioinformatics researcher and professor Rob Edwards' study is the first to examine the global similarity of viruses in the human microbiome. His research also suggests that a relative of this crAssphage was living in primates and may have evolved alongside humans for millions of years. The research will be published in *Nature Microbiology* July 8th.

Edwards and colleagues discovered the existence of crAssphage in 2014 by using computer software rather than petri dishes to analyze fecal samples. This data-driven approach indicated crAssphage was not only "a benign globetrotter," but also "an integral part of the normal human gut virome."

He challenged the [scientific community](#) to join him in a kind of global treasure hunt for the virus, also called a bacteriophage. The response was overwhelming: 117 researchers, clinicians and academics together analyzed 32,273 different crAssphage sequences from more than 65 countries on six continents and found the phage, a type of virus that specifically infects bacteria, to be "a cosmopolitan inhabitant of the human gut the world over."

Key to this discovery were the worldwide scientific community of volunteers who helped make it happen by testing water from [sewage plants](#), rivers, lakes, and ponds in their native countries.

Edwards said this recent discovery "is an illustration of how viruses move around the planet and are reflected in our microbiomes. We're just beginning to scratch the surface, but eventually, we may be able to manipulate the microbiome to target harmful bacteria. That would be a key step toward personalized medicine."

More information: Global phylogeography and ancient evolution of the widespread human gut virus crAssphage, *Nature Microbiology* (2019). [DOI: 10.1038/s41564-019-0494-6](https://doi.org/10.1038/s41564-019-0494-6) , [nature.com/articles/s41564-019-0494-6](https://www.nature.com/articles/s41564-019-0494-6)

Provided by San Diego State University

Citation: A common gut virus that maps our travels (2019, July 8) retrieved 9 May 2024 from <https://phys.org/news/2019-07-common-gut-virus.html>

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