

Human gene origins: 37% bacterial, 35% animal, 28% eukaryotic

Curious Cat Science and Engineering Blog

The percent of human genes that emerged in various stages of evolution: 37% bacterial, 28% eukaryotic, 16% animal, 13% vertebrate, 6% primate. The history that brought us to where we are is amazing. Eukaryotes include animals, plants, amoebae, flagellates, amoeboflagellates, fungi and plastids (including algae). So eukaryotic genes are those common to us and other non-animal eukaryotes while those classified as animal genes are shared by animals but not non-animal eukaryotes.

[We are living in a bacterial world, and it's impacting us more than previously thought](#) [1] by Lisa Zyga

Bacterial signaling is not only essential for development, it also helps animals maintain homeostasis, keeping us healthy and happy. As research has shown, bacteria in the gut can communicate with the brain through the central nervous system. Studies have found that mice without certain bacteria have defects in brain regions that control anxiety and depression-like behavior. Bacterial signaling also plays an essential role in guarding an animal's immune system. Disturbing these bacterial signaling pathways can lead to diseases such as diabetes, inflammatory bowel disease, and infections. Studies also suggest that many of the pathogens that cause disease in animals have "hijacked" these bacterial communication channels that originally evolved to maintain a balance between the animal and hundreds of beneficial bacterial species.

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Scientists have also discovered that bacteria in the human gut adapts to changing diets. For example, most Americans have a gut microbiome that is optimized for digesting a high-fat, high-protein diet, while people in rural Amazonas, Venezuela, have gut microbes better suited for breaking down complex carbohydrates. Some people in Japan even have a gut bacterium that can digest seaweed. Researchers think the gut microbiome adapts in two ways: by adding or removing certain bacteria species, and by transferring the desired genes from one bacterium to another through horizontal gene transfer. Both host and bacteria benefit from this kind of symbiotic relationship, which researchers think is much more widespread than previously thought.

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We want badly for the message in 'Animals in a bacterial world,' to be a call for the necessary disappearance of the old boundaries between life science departments (e.g., Depts of Zoology, Botany, Microbiology, etc.) in universities, and societies (e.g., the American Society for Microbiology, etc.). We also want the message disseminated in college and university classes from introductory biology to advanced courses in the various topic areas of our paper."

Very cool stuff. This amazing facts scientists discover provide an amazing view of

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the world we live in and how interconnected we are to other life forms in ways we don't normally think of.

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<http://www.ecnmag.com/blogs/2013/02/human-gene-origins-37-bacterial-35-animal-28-eukaryotic>

Links:

[1] <http://phys.org/news/2013-02-bacterial-world-impacting-previously-thought.html>