Researchers explore mysterious origins of microbes

We love origin stories. When we see successful groups of animals and plants, we wonder where they came from, and how they rose to power. How did the tetrapods—the group of four-legged animals that we belong to—start walking on land? What made the insects the most diverse group of animals on the planet? Why did flowering plants suddenly start diversifying during the Cretaceous period, filling the world with blossoms?

These enduring questions are so fundamental to biology that we sometimes forget how strongly they're influenced by the limits of our senses. We can *see* the creatures they concern with our naked eyes. We can observe changes in their bodies, and we can tell that they must have gone through transformations from fins to legs, or needles into petals.

It's much harder to make such observations when you deal with microbes. At that scale, it's not so much physical features that set organisms apart, but genetic and biochemical ones. Groups differ more in what they do rather than what they look like. So to discover their origin stories, or even to know which origin questions to ask in the first place, you need to study their genes.

Shijulal Nelson-Sathi did this for the archaea, a group of single-celled microbes that excel at growing in extreme and inhospitable places. Volcanic springs and salty lakes—these are places where archaea thrive, although some also live in milder environments like your intestines.

In the Haloarchaea, a group of archaea that grow in extremely salty water, the team found 1,000 gene families that had originally come from bacteria. Some time ago, an ancestral Haloarchaean borrowed genes on a massive scale, and this loan happened at the origin of the group.

Read full, original article: A Flood of Borrowed Genes at the Origins of Tiny Extremists