

In Yellowstone's hot springs, biotechnology revolution was born

Arguably, the most important enzyme ever discovered was found in a bacterium that lived in one of Yellowstone's hot springs. That microbe, along with its amazing enzyme, revolutionized molecular biology and helped birth modern biotechnology.

In 1969, a microbiologist by the name of Thomas D. Brock was poking around Yellowstone. He took samples of hot spring water back to his laboratory and cultured the bacteria found within them in conditions that mimicked the hot spring. He isolated a bacterium, which he called *Thermus aquaticus* ([PDF](#)), that optimally grew at a toasty 70 deg C (158 deg F). Little did he know that this basic scientific discovery would come in handy about two decades later.

In 1983, the [LSD-using, AIDS-denying, UFO-believing, yet somehow Nobel Prize-winning biochemist Kary Mullis](#) invented a technique to multiply small segments of DNA. The process, called polymerase chain reaction (PCR), is now a common procedure used in research and medical laboratories across the world. In fact, molecular biology wouldn't even be possible without this reaction. Because DNA manipulation is not terribly efficient, many copies of identical molecules are required to do even basic things, such as cloning. PCR solves this by amplifying DNA segments exponentially; i.e., after just a few hours, a single segment of DNA can be converted into several billion identical copies.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: How Yellowstone Revolutionized Biotechnology