

Synthetic components added to DNA expand genetic alphabet

DNA stores our genetic code in an elegant double helix. But some argue that this elegance is overrated. “DNA as a molecule has many things wrong with it,” said [Steven Benner](#), an organic chemist at the Foundation for Applied Molecular Evolution in Florida.

Nearly 30 years ago, Benner sketched out better versions of both DNA and its chemical cousin RNA, adding new letters and other additions that would expand their repertoire of chemical feats. He wondered why these improvements haven’t occurred in living creatures. Nature has written the entire language of life using just four chemical letters: G, C, A and T. Did our genetic code settle on these four nucleotides for a reason? Or was this system one of many possibilities, selected by simple chance? Perhaps expanding the code could make it better.

Now, after decades of work, Benner’s team has synthesized artificially enhanced DNA that functions much like ordinary DNA, if not better. In two papers published in the Journal of the American Chemical Society last month, the researchers have shown that two synthetic nucleotides called P and Z [fit seamlessly](#) into DNA’s helical structure, maintaining the natural shape of DNA. Moreover, DNA sequences incorporating these letters [can evolve](#) just like traditional DNA, a first for an expanded genetic alphabet.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: [Chemists invent new letters for nature’s genetic alphabet](#)