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Gene regulation: Breaking the second genetic code

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Abstract

Diverse messenger RNAs, and thus proteins, can be generated from a single piece of DNA. A computational approach is helping to uncover complex combinatorial rules by which specific gene instructions are selected.

At face value, it all sounds simple: DNA makes RNA, which then makes protein. But the reality is much more complex. For instance, depending on what further processing the transcribed messenger RNA sequence undergoes before being translated into a protein, it could code for different proteins.