



César de la Fuente is a Presidential Associate Professor and Director of the Machine Biology Group at the University of Pennsylvania. He is a pioneer in the use of artificial intelligence to discover new antibiotics, having developed the first computer-designed antibiotic shown to be effective in animal models. His computational approaches have compressed the identification of promising preclinical candidates from years to hours, potentially offering new ways to treat life-threatening infections for which existing therapies are increasingly ineffective. He has also pioneered computational peptide design, advancing the idea that peptides can be treated as programmable molecules and engineered for applications across medicine and biotechnology.

His work is founded on the idea that biology is fundamentally an information system—and that machines can help us uncover its organizing principles. By treating the code of life as a vast computational resource, his laboratory develops algorithms to reveal hidden biological functions and discover and design new molecules with therapeutic potential. His group also launched the field of molecular de-extinction by becoming the first to identify therapeutic molecules in extinct organisms. More recently, he has created generative AI systems that explore regions of molecular space beyond those sampled by natural evolution, expanding the range of biological structures and functions that scientists can investigate.

De la Fuente is among the youngest tenured professors in the history of Penn Medicine. He has received an honorary doctorate and numerous international distinctions, including the Princess of Girona Prize and the Fleming Prize. He has published more than 200 scientific papers, including work in *Science* and *Cell*, and is an elected Fellow of the Royal Society of Biology and the American Institute for Medical and Biological Engineering, becoming one of the youngest scientists elected.