

The coming of age of *de novo* protein design

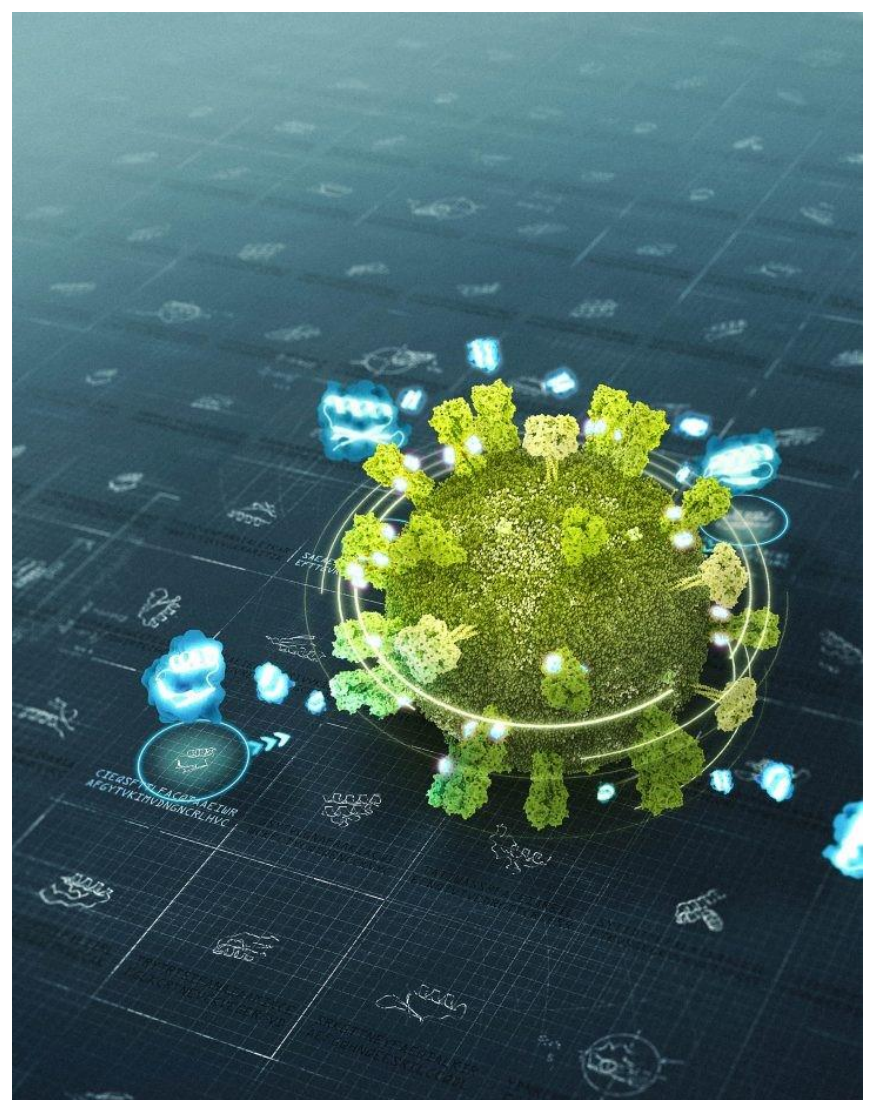
Talk by Prof. David Baker

Special colloquium on occasion of nomination to TUM
Distinguished Affiliated Professor

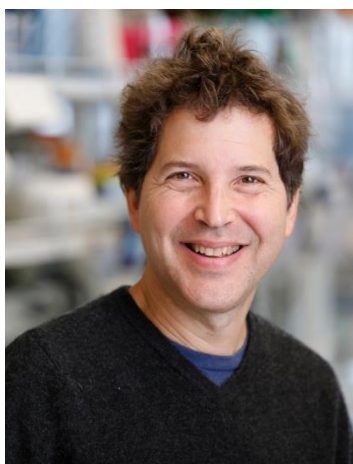
November 14, 2017 | 3 p.m.

Abstract

Proteins mediate the critical processes of life and beautifully solve the challenges faced during the evolution of modern organisms. Our goal is to design a new generation of proteins that address current day problems not faced during evolution. In contrast to traditional protein engineering efforts, which have focused on modifying naturally occurring proteins, we design new proteins from scratch based on Anfinsen's principle that proteins fold to their global free energy minimum. We compute amino acid sequences predicted to fold into proteins with new structures and functions, produce synthetic genes encoding these sequences, and characterize them experimentally. I will describe the design of ultra-stable idealized proteins, flu neutralizing proteins, high affinity ligand binding proteins, and self-assembling protein nanomaterials. I will also describe the contributions of the general public to these efforts through the distributed computing project Rosetta@Home and the online protein folding and design game Foldit.



Artist impression of designed mini-protein binders targeting Influenza hemagglutinin to effectively bind and neutralize the virus.
Source: Institute for Protein Design, University of Washington, Seattle, USA



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Location

Auditorium
TUM-IAS
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