

MANFRED EIGEN AWARD LECTURE



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Innovation by Evolution: Bringing New Chemistry to Life

Not satisfied with biology's vast catalyst repertoire, I want to create new enzyme catalysts and expand the chemistry of life. We use the most powerful biological design process, evolution, to optimize existing enzymes and invent new ones, thereby circumventing our profound ignorance of how a protein's sequence encodes its function. Chemistry encoded in DNA and optimized by evolution enables efficient, clean, sustainable routes to important fuels, chemicals, materials, pharmaceuticals and more. But evolution not only optimizes – it can also innovate. Thus we are now learning to use evolution to create entirely new enzyme catalysts, ones that do chemistry unknown in biology and sometimes even unprecedented in chemistry. I will illustrate how we create new-to-nature enzymes and increase the scope of molecules and materials that can be made using synthetic biology.

Monday, 12.12.2022, 2:00 pm

Host: Marina Rodnina



Manfred Eigen Hall

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