CIBSS Seminar Series

“REFLECT”

iGEM Team Freiburg 2019

Engineering proteins to enhance their activity or make them acquire new desired properties is a major goal of synthetic biology. Most approaches limit themselves to the 20 canonical L-amino acids. However, their stereochemical counterparts, D-amino acids, harbor an immense potential. When assembled into peptides these cannot be recognized by the cellular machineries, thus evading proteolytic breakdown and immunological recognition. This makes them perfect candidates for therapeutics. By establishing a multitude of tools we empower D-amino acids for synthetic biology. We demonstrate the potency of mirror-image phage display by identifying D-ligands towards a toxin of the multiresistant Staphylococcus aureus. We create finDr, a software to perform this method in silico for any target enabling fast, cost-effective prediction of D-ligands. Alongside chemical synthesis, we implement methods to synthesize, incorporate and detect D-amino acids in bacteria. Altogether, we lay the foundations for advancing the use of D-amino acids in cells or as therapeutics.

Wednesday, October 9, 2019; 12:00
SR 00.023, Signalhaus Freiburg, Schänzlestr. 18

Host: Dr. Nicole Gensch (Signalling Factory)

Inquiries: christine.ehler@cibss.uni-freiburg.de | +49 761 203 97374

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