Bioprocessing Technology Institute
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Reinterpreting the Genetic Code: Non-canonical Amino Acids in Protein Design and Analysis

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Bioprocessing Technology Institute, A*STAR

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Seminar Abstract

The genetic code dictates how nucleotide sequences are translated into the functional proteins that drive biological processes. Traditionally confined to 20 canonical amino acids, recent advances have pushed the boundaries of this code through the incorporation of non-canonical amino acids (ncAAs) into proteins. This seminar will delve into the innovative applications of using ncAAs for the design and analysis of proteins, a new perspective in synthetic biology that promises to revolutionize our understanding and utilization of the genetic code. The seminar will also explore the story of a startup that extended the application of ncAAs, culminating in its acquisition for $1 billion.

About the Speaker

Xinyan Liu is a returned NSS scholar. Currently, he serves as a scientist and business development representative under the leadership of Dr. Yi Yan Yang. He earned his PhD from Caltech under the supervision of Prof. David Tirrell, where he utilized click chemistry and bioorthogonal chemistry to delve into bacterial persistence. During his doctoral studies, he interned at a startup named Protomer, later acquired by Eli Lilly and Company in 2021. He joined Eli Lilly in 2022. There, he participated the development of glucose-sensing insulin.

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