MBG FOCUS TALK

hosted by Ditlev E. Brodersen

Tuesday 2 May 2023 13:00

1870-716 Seminar Room 5, MBG, Universitetsbyen 81

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DNA Adenine Base Editors: Decoding their Molecular Mechanism and the Road Ahead for Tool Development

CRISPR-Cas, the bacterial immune systems, have transformed the field of genome editing by providing efficient, easily programmable and accessible tools for targeted genome editing. DNA base editors (BE) are a state-of-the-art CRISPR-based technology, allowing for targeted modifications of individual nucleobases within the genome. Among the BEs, adenine base editors (ABEs) have shown great potential due to their ability to convert A-to-G with high efficiency. However, current ABEs have limitations in terms of their specificity, precision and targeting range.

In my talk, I will present a cryo-EM structure of ABE8e, the most efficient DNA Adenine Base Editor to date, captured in a substrate-bound state. I will discuss the advances we made in understanding the molecular mechanism of ABE8e and the reasons behind its off-target editing. I will highlight how the understanding of the molecular mechanism of ABE8e guides our future efforts in designing next-generation precision genome editors.

All welcome

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