Department of Biochemistry

THESIS DEFENSE

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“Protein Engineering and Structure Determination of G Protein-Coupled Receptors”

G protein-coupled receptors (GPCRs) are a subclass of transmembrane receptors that integrate extracellular signals across the cell membrane into the cytoplasm. Thus, GPCRs are promising drug targets for a wide variety of diseases. To improve and facilitate the identification of new therapeutics, a precise structural understanding of the receptor is of central importance. Structure determination of GPCRs, however, is greatly complicated by their poor biophysical properties including low native abundance and intrinsic instability. To facilitate the difficult structure determination process of GPCRs, we have developed new protein engineering approaches.

In my talk, I will demonstrate our engineering advances on the example of the therapeutically important human oxytocin receptor (OTR), which is critically involved in the regulation of social behavior and sexual reproduction. Further, I will present the first crystal structure of the OTR bound to a small molecule drug candidate which provided a structural rational for the OTR’s strong allosteric dependency on both lipids and ions and how these new insights allowed to answer long-standing biological questions of the OTR’s physiology.

Date & time: Wednesday, February 17, 2021 at 4:00 pm
Location: Meeting ID: 982 7626 4147 Passcode: 512861
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