

19<sup>TH</sup> HERMANN STAUDINGER LECTURE  
NOBEL PRIZE LAUREATES AT FRIAS  
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STRUCTURAL INSIGHTS INTO THE DYNAMIC PROCESS  
OF G-PROTEIN-COUPLED RECEPTOR SIGNALING

G-protein-coupled receptors (GPCRs) conduct the majority of transmembrane responses to hormones and neurotransmitters, and mediate the senses of sight, smell and taste. The  $\beta_2$  adrenergic receptor ( $\beta_2$  AR), the M2 muscarinic receptor and the mu-opioid receptor are prototypical family A GPCRs. We have obtained three-dimensional structures of these receptors in inactive and active conformations, as well as a structure of the  $\beta_2$ AR in complex with the G-protein Gs. Comparison of these structures provides insights into common mechanisms for propagation of conformational changes from the agonist binding pocket to the G-protein coupling interface. We have also used fluorescence, EPR and NMR spectroscopy to study the dynamic properties of the  $\beta_2$ AR. I will discuss what these studies have taught us about allosteric regulation of GPCR structure by G-proteins and ligands.

Tuesday, June 9th, 2015  
4:15 p.m.  
Anatomy Lecture Hall  
Albertstraße 19, Freiburg

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