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Structure of the vasopressin hormone – V2 receptor – beta-arrestin1 ternary complex

Arrestins interact with G protein–coupled receptors (GPCRs) to stop G protein activation and to initiate key signaling pathways. Recent structural studies shed light on the molecular mechanisms involved in GPCR-arrestin coupling, but whether this process is conserved among GPCRs is poorly understood. We have recently reported the cryo–electron microscopy active structure of the wild-type arginine-vasopressin V2 receptor (V2R) in complex with beta-arrestin1.
It reveals an atypical position of b-arrestin1 compared to previously described GPCR-arrestin assemblies, associated with an original V2R/b-arrestin1 interface involving all receptor intracellular loops. Phosphorylated sites of the V2R carboxyl terminus are clearly identified and interact extensively with the b-arrestin1 N-lobe, in agreement with structural data obtained with chimeric or synthetic systems.
Overall, these findings highlight a notable structural variability among GPCR-arrestin signaling complexes.

Session

Structural biology

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