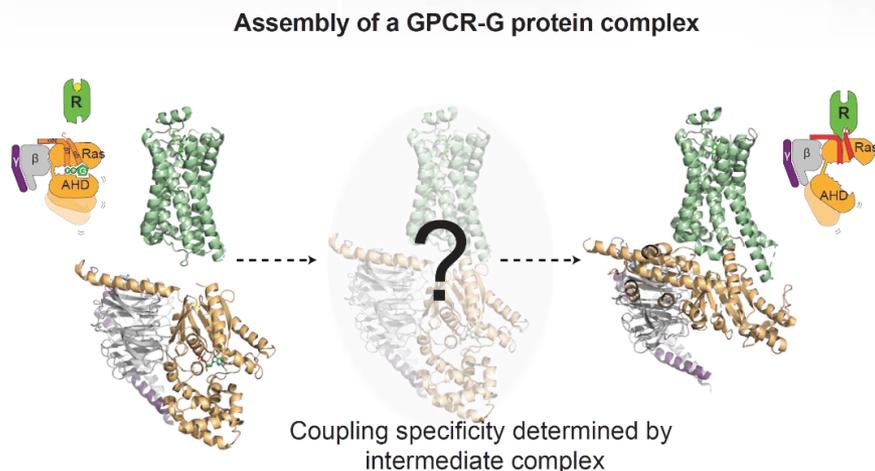


# Key Drug Target Shown Assembling in Real-Time



The image shows the GPCR in green and a heterotrimeric G protein subunit in yellow and grey. The study showed the temporal changes in the GPCR and G protein upon forming the previously unobserved, productive signaling complex.

Y. Du, N. M. Duc, S. G.F. Rasmussen, D. Hilger, X. Kubiak, L. Wang, J. Bohon, H. R. Kim, M. Wegrecki, A. Asuru, K. M. Jeong, J. Lee, M. R. Chance, D. T. Lodowski, B. K. Kobilka, K. Y. Chung, *Cell* **177**:5 1232-1242 (2019).

Work was performed in part at Brookhaven National Laboratory

## Scientific Achievement

Scientists revealed the timeline for different parts of a G-protein coupled receptor (GPCR) interacting with its signaling partners.

## Significance and Impact

Over one-third of all FDA-approved drugs act on GPCRs; therefore the findings provide insight into the fundamental mechanisms of how therapeutics influence signaling in cells.

## Research Details

- Using radiolytic footprinting that couples chemical labeling of proteins with mass analysis, snapshots of the signaling process showed changes in the protein complex's structure on timescales from milliseconds to hours.
- The study revealed temporal and structural changes during assembly of the signaling complex that thus far were not observed.
- NSLS-II XFP beamline provided the X-rays for performing the footprinting experiment.