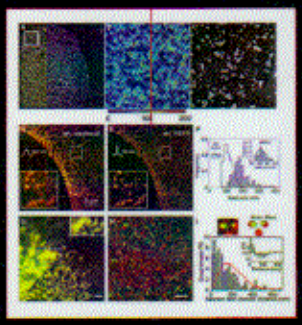
Receptor-Receptor Interactions



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The observation that receptors could oligomerize and take on different properties was not part of the simple view of hormone action 35 years ago! In that view receptors and ligands simply combined to create an activated complex. The relevance of oligomerization differs from receptor to receptor, and it is clear that different GPCRs can exist as monomers, dimers and higher order oligomers.

Understanding the mechanisms by which protein-protein interactions convey information is important since this is one of the ways that complex information is transduced into altered cell signaling. In this timely volume of Methods in Cell Biology, the topic of receptor-receptor interactions benefits from the opportunity to compare and contrast different systems.

KEY FEATURES

- 24 chapters from leaders in the field
- Describes novel tools and new methods to access receptor-receptor interactions
- Useful resource for researchers and students in cell, molecular and developmental biology
- Up-to-date information by experts in the field.

Cover image: Super-resolution techniques map protein distribution and clustering on the cell membrane. (A) Single-molecule PALM images of the raftophilic protein Lck. (B) Protein cluster maps generated from local point-pattern analysis of outline region. (C) Maps of Lck clusters and molecules inside clusters. (D-E) Confocal and STED images of the pathogen recognition receptor DC-SIGN. (F) Normalized intensity distribution of fluorescent spots obtained by STED for DC-SIGN and a mutant (ARep) compared to the intensity of spots found on glass. (G) Confocal vs NSOM image of cholera toxin-GM1 clusters at the cell membrane. (H) Dual-color NSOM of CD55 (green) and CTxB-GM1 nanodomains (red). (I) Nearest-neighbor distributions analysis of CD55 to its closest CTxB-GM1 nanodomain (bars) compared to simulations of random spatial distribution of proteins and CTxB-GM1 clusters.
A-C Reprinted by permission from Macmillan Publishers Ltd: Nature Immunology 14, 82–89 (Conformational states of the kinase Lck regulate clustering in early T cell signaling), 2013. See chapter 6, "Lipid rafts and receptor oligomerization" by Bruno M. Castro.

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