# Cholesterol-Dependent Dynamic Changes in CCK1R

1. This article examines how cholesterol in the membrane influences the structure and function of the Cholecystokinin 1 receptor (CCK1R). It explains how cholesterol-binding sites on CCK1R affect its ability to bind ligands and activate G proteins like Gq and Gs. The study combines various experimental techniques to show how fluctuating cholesterol levels lead to structural changes in CCK1R. The article also discusses how these changes impact receptor function in conditions like obesity and metabolic syndrome, linking structure to potential therapeutic applications.
2. This research will primarily inform the structural and functional sections of the project. Specifically, it provides insights into how lipid environments can alter protein structure and function, which is crucial for understanding the biophysical properties of CCK1R. The discussion of cholesterol's role in modifying the receptor’s behavior can be integrated into both the structure and function analysis of the protein.

# Structures of CCK1R Bound to Gs and Gq Proteins

1. This article explores the structural relationship between the Cholecystokinin 1 receptor (CCK1R) and G proteins, specifically Gs and Gq. Using cryo-electron microscopy, the researchers determined how different conformations of the receptor enable it to interact with various G proteins. The data highlights how CCK1R triggers specific signaling pathways through its interactions with different G proteins. This structural insight helps us understand how conformational changes in the receptor's loops drive G protein selectivity and receptor activation mechanisms.
2. This article is highly relevant for the structural and functional prediction tasks. The detailed analysis of CCK1R’s interaction with G proteins will help in understanding how structural changes lead to specific functional outcomes, especially concerning signal transduction. This research can also provide information regarding the modeling of receptor-ligand interactions.

# Cholecystokinin: From Gut Hormone to Ubiquitous Messenger

1. This review highlights the roles of Cholecystokinin (CCK), from its primary role in digestive processes to its broader involvement as a neurotransmitter and growth factor. The article traces the discovery of CCK and its evolutionary conservation, focusing on its bioactive sequence. It explains how CCK peptides are produced in the gastrointestinal tract, brain, and other tissues. CCK’s widespread presence in various tissues points to its role in multiple biological systems, including disease contexts like tumors and neurodegenerative disorders.
2. This review will inform the functional analysis of CCK, particularly in understanding its diverse roles beyond the gastrointestinal system. The information on CCK’s involvement in the nervous system and its therapeutic potential in diseases will provide a broad context for its biological significance in your project. This article also supports the section on protein function and its role in multiple biological systems.

# Cholecystokinin: A Neuromodulator

1. This article discusses the role of Cholecystokinin (CCK) as a neuromodulator in the brain and its potential for therapeutic applications in neurodegenerative diseases like Alzheimer’s and Parkinson’s. It details how CCK acts as a neurotransmitter, influencing synaptic plasticity and neuronal function. It also covers important findings from both clinical and preclinical studies on CCK-based therapies. The study highlights CCK’s potential in managing cognitive function and neuronal health, emphasizing its broad relevance.
2. This source is useful for the functional section, particularly regarding CCK’s roles outside the gastrointestinal system. It provides a comprehensive look at how CCK functions in the brain and its potential therapeutic applications.

# Biochemistry of Cholecystokinin

1. This article provides a thorough overview of Cholecystokinin’s (CCK) biochemical properties, detailing its molecular structure, tissue distribution, and role in various physiological processes. It discusses the synthesis of CCK, its interaction with receptors (CCK1R and CCK2R), and the signaling pathways it activates. It also discusses important post-translational modifications, like sulfation, which are essential for CCK’s biological activity. The article covers both its role in normal physiology and its relevance in disease conditions
2. This source will be essential for both the structure and function sections of the project. The detailed biochemical properties discussed in the article will help explain how CCK functions at a molecular level, including its interactions with receptors and other molecules.

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