Conformational stability and oligomerization properties of the viral GPCRs US27 and US28

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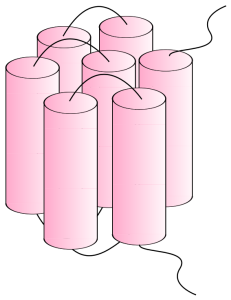
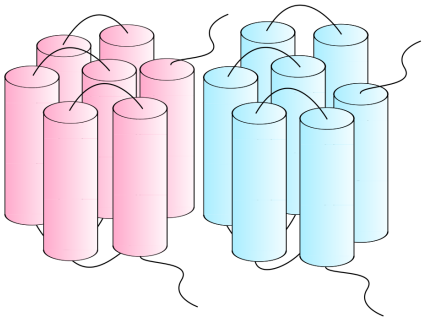
Communication is a basic task in everyday's life and even the smallest compartments of multicellular organisms have to communicate with each other. Eukaryotes developed, among others, G-protein coupled receptors (GPCR) that can be activated by a ligand outside the cell and trigger a mechanism inside the cell.



The human cytomegalovirus (HCMV) encodes four GPCRs: US27; US28; UL33; and UL78 that are known to interact with human cell receptors like CXCR4. Moreover, the viral GPCR US27 can dimerize with CXCR4 and thereby influence CXCR4's signalling behavior. It is also known that US28 can form a homodimer and a heterodimer with US27; whether this dimerization has an effect on host cell receptor signalling is still unknown.



The purpose of this study is to better understand the interactions between human and viral GPCRs. The structures of the viral GPCRs were modelled based on the 3D structure of the homodimer CXCR4. Subsequent structural analysis was be performed to assess the role of individual residues for dimer formation. In the end, this study should help experimental researchers to have a clue about protomer properties of dimerization and important residues that might be used for mutational studies.

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[3] G. Milligan, *Br J Pharmacol*, **2008**, *153*, S216–S229.