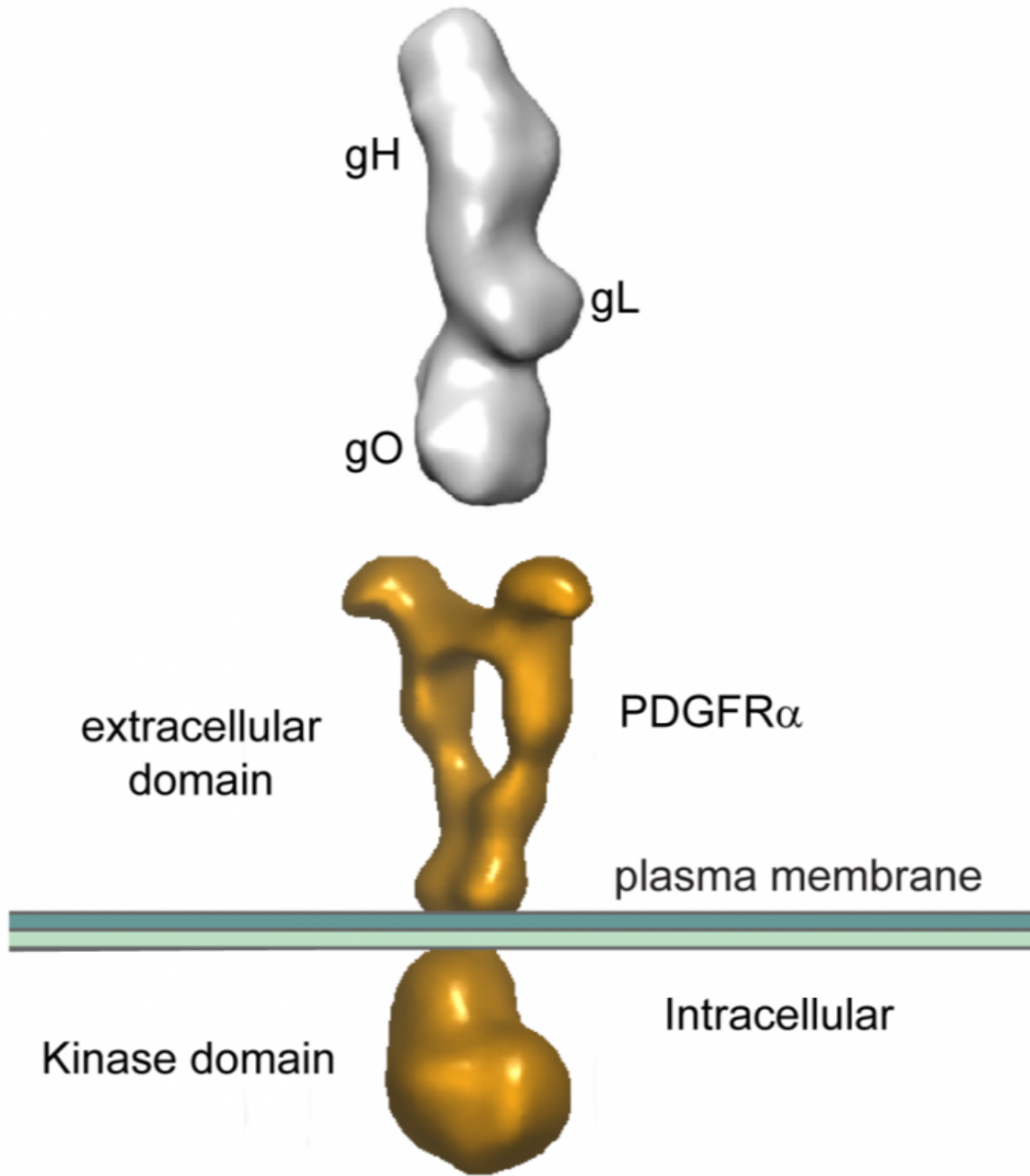


Cellular receptors for human cytomegalovirus discovered

June 7 2016



Model of HCMV trimer - gray - interacting with PDGFR - gold. Credit: Università della Svizzera italiana

A publication in the scientific journal *Nature Microbiology* identifies PDGFR α as the receptor for the trimeric gHgLgO complex of Human cytomegalovirus (HCMV). The study led by the Institute for Research in Biomedicine (IRB) affiliated to the Università della Svizzera italiana (USI) was done in collaboration with scientists from Humabs BioMed SA in Switzerland, the IRCCS Policlinico San Matteo, the Istituto Nazionale Genetica Molecolare in Milan, Italy and the Vaccine Research Center (VRC) of the American National Institutes of Health (NIH).

Background

HCMV is a widespread pathogen with a very high sero-prevalence in humans worldwide. HCMV infection in utero is the leading viral cause of congenital birth defects. In healthy individuals HCMV establishes lifelong latency, but in immunocompromised patients, viral reactivation can lead to severe clinical symptoms, such as disseminated viral infection, blindness and potentially cancer.

The discovery

The new study identified the Platelet-derived growth factor receptor alpha (PDGFR α), as a key molecule for viral entry of HCMV. PDGFR α is a cell surface tyrosine kinase receptor involved in organ development and tumor progression, it is present in multiple cell types such as mesenchymal cells, neurons, astrocytes, megakaryocytes and oligodendrocyte progenitor.

The study also reports the structural details of the viral gHgLgO complex bound to the cellular PDGFR α , demonstrating that the gO molecule is essential for the binding to PDGFR α and thus represents the key component that triggers the [infection](#) of the host. The discovery of the cellular receptor for HCMV represents a new step toward the control of

this highly prevalent human pathogen.

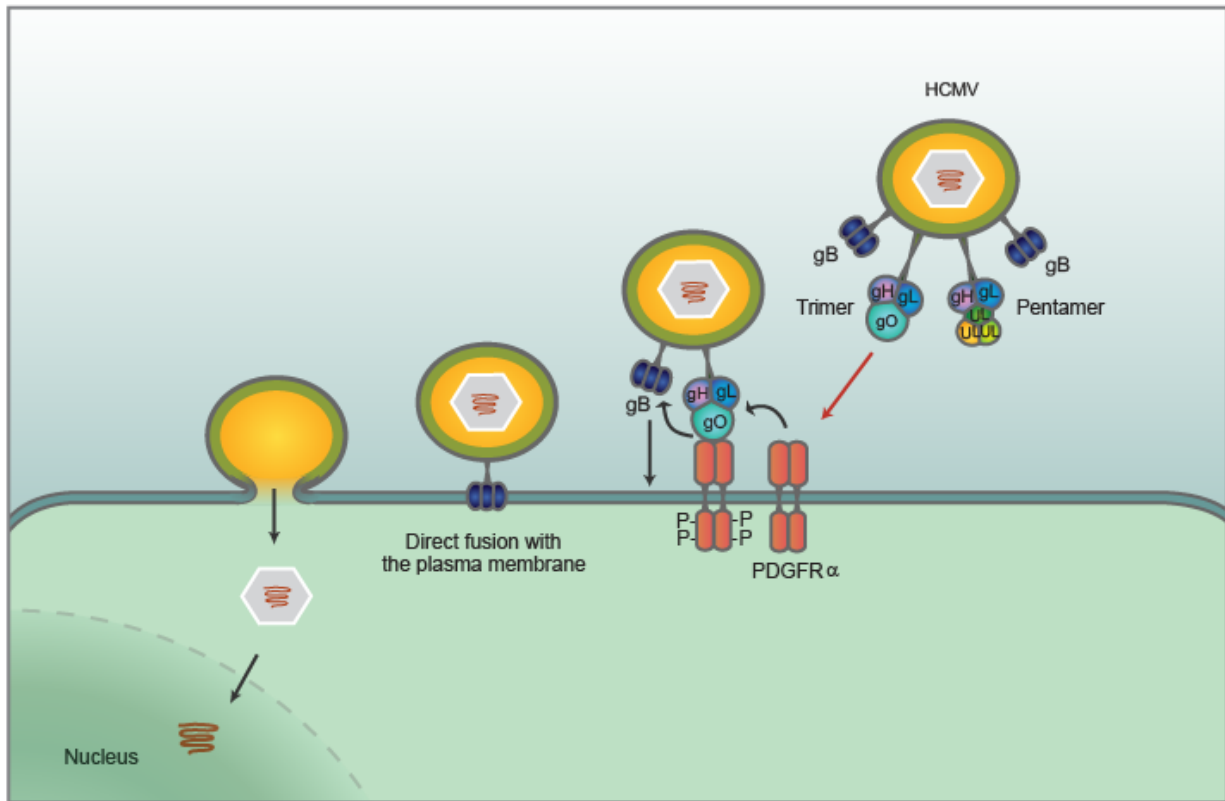


Illustration of HCMV entry mechanism by PDGFR α into fibroblastic cells.
Credit: Anna von Heyl

More information: Anna Kabanova et al. Platelet-derived growth factor- α receptor is the cellular receptor for human cytomegalovirus gHgLgO trimer, *Nature Microbiology* (2016). [DOI: 10.1038/nmicrobiol.2016.82](https://doi.org/10.1038/nmicrobiol.2016.82)

Provided by Università della Svizzera italiana

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