Cytomegalovirus Disintegrin-Like Peptides

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Technology description

Although human cytomegalovirus (HCMV) is capable of binding, penetrating, and initiating replication in all vertebrate cell types tested, the precise mechanism this virus uses to enter cells remains unknown. Integrins are cell surface receptors involved in the entry of many viruses into cells; however, HCMV does not contain any classic integrin-binding domains. One of the HCMV glycoproteins, glycoprotein B, plays a crucial role in attachment and fusion with the host cell. UW-Madison researchers have developed methods to inhibit the entry of viruses, such as herpesvirus, into host cells, thus preventing viral infection. They identified a conserved integrin-binding, disintegrin-like domain in glycoprotein B that engages integrins and facilitates internalization of viruses into the host cell. Synthetic versions of this disintegrin-like peptide sequence, as well as antibodies against these sequences, block entry of HCMV into cells. They are potential antiviral agents for all members of the beta herpesvirus subfamily, including HCMV and human herpesvirus-6, which cause many chronic ailments and diseases.

Application area

Preventing or treating infection with HCMV, human herpesvirus-6, and other members of the beta herpesvirus subfamily
Studying integrins
May provide anti-cancer therapies

Advantages

Provides the first known disintegrin-like domain involved in viral entry

Institution

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