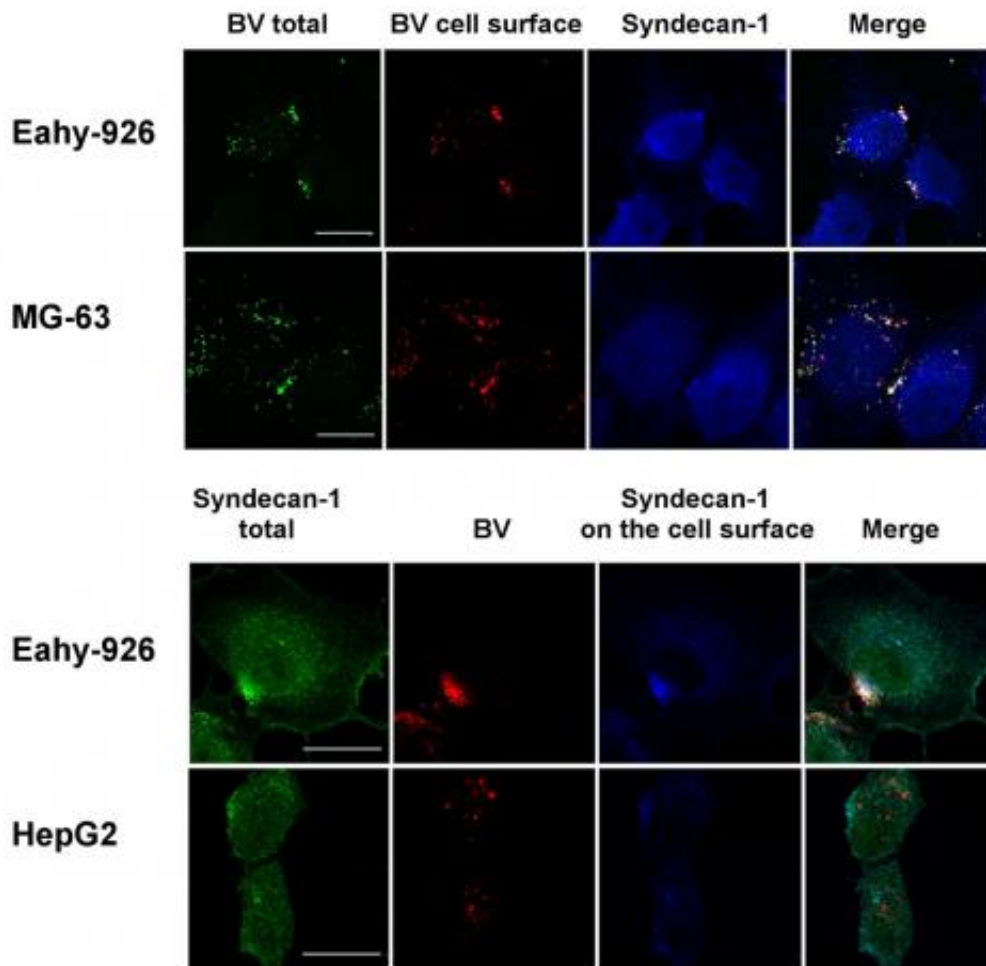


Baculovirus-recognising human cell receptor identified for the first time

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Baculovirus (BV) and its receptor syndecan-1 immunolabelled with fluorescent markers from human cells. Images were taken with confocal laser scanning microscope.

The receptor used by baculovirus to enter and interact with human cells has been identified. This syndecan–1 receptor was identified for the first time in a recent collaborative study carried out by the University of Eastern Finland and the University of Jyväskylä in Finland. The findings increase our understanding of the strategies by which the virus causes infection in cells and further facilitates the development of baculovirus for applications of gene transfer. According to the researchers, the identification of the syndecan–1 receptor helps in understanding the ways baculovirus interacts with human cells and sheds further light on the mechanisms the virus uses in human cells.

The study also focused on the role of the syndecan–1 receptor in the cell penetration of baculovirus.

The study was published in the prestigious *Journal of Virology*. The article was featured in the Spotlight section of the journal, which is reserved for especially interesting and distinguished publications.

Used in drugs and vaccines

Baculovirus is an insect-infecting virus, which is largely utilised in biotechnology applications. Baculoviruses are used, for example, in the manufacturing of Glyberan, the first gene therapy of the Western world, and in the manufacturing of the cancer vaccines Cervarix and Provenge, and the [influenza vaccine](#) Flublok. The technology is approved by the U.S. Food and Drug Administration, FDA, and the European Medicines Agency, EMA.

Baculovirus is not harmful to [human cells](#), and this is why baculoviruses have become subjects of intensive research also with regard to gene therapy. In gene therapy, DNA to correct genetic errors is transported into cells using a variety of methods. Earlier studies have not been able to identify the receptor that recognises the virus, despite the fact that

baculovirus has been studied intensively for decades.

The doctoral dissertation of Ms Paula Turkki, MA, on the topic in the field of [cell and molecular biology](#) will be publicly examined at the Department of Biological and Environmental Science of the University of Jyväskylä on 25 October 2013.

More information: Makkonen, K. et al. 6-O- and N-sulfated syndecan-1 promotes baculovirus binding and entry into Mammalian cells, *Journal of Virology*, 2013. 87(20):11148-11159, jvi.asm.org/content/87/20/11148.abstract

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