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IN BRIEF

VIROLOGY

Poliovirus entry into human brain microvascular cells requires receptor-induced activation of SHP-2

Coyne, C. B. *et al. EMBO J.* 23 August 2007
(doi:10.1038/sj.emboj.7601831)

Human brain microvascular endothelial cells (HBMECs) retain many of the characteristics of brain endothelial cells, and so provide a useful model system to study how pathogens, such as poliovirus, cross the blood–brain barrier. The poliovirus receptor was found to be necessary for poliovirus infection of HBMECs and it was shown that poliovirus enters HBMECs by dynamin-dependent caveolar endocytosis. Detailed analysis of the downstream events that follow demonstrated that the virus–receptor interaction triggers intracellular signals that are essential for virus entry, including actin rearrangements and activation of the protein tyrosine phosphatase SHP-2.

MALARIA

Plasmodium falciparum erythrocyte membrane protein 1 specifically suppresses early production of host interferon-γ

D'Ombrain, M. C. *et al. Cell Host Microbe* **2**, 130–138 (2007)

Plasmodium falciparum erythrocyte membrane protein 1 (PfEMP1) is a variable antigen that is present on the surface of *P. falciparum*-infected red blood cells, where it mediates adherence to the vascular endothelium. One of the receptors that is involved in this adherence is the scavenger receptor CD36, which is also present on the surface of antigen-presenting cells. Marthe D'Ombrain and colleagues found that PfEMP1 negatively regulates the early production of interferon- γ by natural killer cells, γδ T cells and αβ T cells, but that this effect was independent of CD36. The authors speculate that this immune suppression might involve an as-yet-unidentified receptor that is common to all three cell types.

HORIZONTAL GENE TRANSFER

Widespread lateral gene transfer from intracellular bacteria to multicellular eukaryotes

Dunning Hotopp, J. C. *et al. Science* 30 August 2007
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Although it was known that horizontal gene transfer can occur between bacteria and multicellular eukaryotes, it was assumed that this process happened only on rare occasions. A recent *Science* paper now challenges this assumption. Sequences from the maternally inherited endosymbiont *Wolbachia*, which infects a wide range of arthropod and nematode hosts, had previously been detected in the genome of the adzuki bean beetle and two *Onchocerca* nematodes. In the current analysis, *Wolbachia* sequences were detected, and their presence confirmed experimentally, in eight different species: four insects (*Drosophila ananassae* and three species of *Nasonia* wasp) and four nematodes (*Dirofilaria immitis* and three *Brugia* species). In one case (*D. ananassae*), almost the entire *Wolbachia pipientis* genome had been transferred. Although some evidence was obtained that the *Wolbachia* sequences were transcribed, the authors say that it is unclear whether the transcripts that were detected are biologically meaningful. They also point out that, in eukaryotic genome-sequencing projects, bacterial sequences are routinely discarded as contaminants, and suggest that, instead, these sequences are worthy of closer attention.