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P.34 Transcriptomic analysis of intestinal genes following acquisition of pea enation mosaic virus by the pea aphid *Acyrtosiphon pisum*

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Viruses in the *Luteoviridae* family are strictly transmitted by aphids in a non-propagative circulative and persistent mode. Virions ingested by aphids, successively cross the gut and the accessory salivary gland epithelia before being released, together with saliva, in the plant vasculature. Virions transport through aphid cells occurs by a transcytosis mechanism. We conducted a transcriptomic analysis of intestinal genes of the pea aphid *Acyrtosiphon pisum* following uptake of *Pea enation mosaic virus-1* (a member of the *Luteoviridae* family). Among the 7166 transcripts analysed, 128 were significantly regulated (105 genes down-regulated and 23 up-regulated). 5% of the identified genes were involved in intracellular trafficking, endocytosis and signal transduction, three important steps in the internalization and transport of virions. The limited levels of down- (maximum of 3.45 fold) and up-regulation (maximum of 1.37 fold) suggest that the virus hijacks a constitutive endocytosis-exocytosis mechanism without heavily perturbing cell metabolism. Although limited to about 20% of the pea aphid genes, this work represents the first large scale analysis of aphid gene regulation following virus acquisition.

- Brault et al. (2010) *J. Gen. Virol.* 91, 802-808
