

# 4<sup>th</sup> World Congress on **Virology**

October 06-08, 2014 Hilton San Antonio Airport, TX, USA

## **Pastrel, a restriction factor for picorna-like viruses in *Drosophila melanogaster***

**Vincent Barbier**  
France

Innate immune pathways are evolutionarily conserved from insects to mammals. The fruit fly *Drosophila melanogaster* is widely used as a model to study the molecular mechanisms of innate immunity. Two types of responses are involved in the control of viral infections in *Drosophila*: a virus specific inducible response and RNA interference (RNAi), which is a broad antiviral defense against DNA and RNA viruses. We also observed that the fly genetic background can modulate the resistance to infection by the picorna-like *Drosophila* C Virus (DCV), a natural pathogen of *Drosophila*. A genome wide association study recently showed that polymorphisms in the gene named pastrel, localized on the left arm of the third chromosome, affect the resistance to DCV infection. We analyzed the role of this uncharacterized gene in the control of DCV infection. Our loss-of-function and gain-of-function experiments indicate that pastrel encodes a molecule opposing DCV infection. We also showed that Pastrel-mediated restriction of DCV infection is cell-autonomous and appears in the first hours after infection. We are now deciphering the region of the protein conferring its antiviral activity. Overall, our data reveal that Pastrel is a viral restriction factor, establishing an antiviral state in prevention of viral infection. This new viral restriction factor identified in *Drosophila* may shed light towards the understanding of intrinsic antiviral immunity which is poorly characterized in insects compared with mammals.

### **Biography**

Vincent Barbier recently graduated from the University of Strasbourg, where he completed his PhD in Pr. Jules Hoffmann laboratory (awarded Nobel Prize 2011), in the team of Pr. Jean-Luc Imler. He studied innate immune pathways involved in the control of viral infections using the fruit fly *Drosophila melanogaster* as model. During his PhD, he identified and characterized a new antiviral restriction factor for picorna-like viruses in insect *Drosophila*. He is now looking for a postdoctoral position to continue his research on innate and intrinsic antiviral immunity in insects and mammals.

[vlacoste@pasteur-cayenne.fr](mailto:vlacoste@pasteur-cayenne.fr)