

*A seminar series by young scientists
for young scientists*



Vincent Racaniello

Columbia University

One brain, three viruses, and one podcast

I have spent the last 40 years studying viruses and the last 10 years learning how to tell the public about them. I learned virology from Peter Palese and David Baltimore, and started my laboratory at Columbia University in 1982, working on poliovirus. We identified the cell receptor for the virus, CD155, and used the human gene to establish a transgenic mouse model for infection. We used this model over the years to study viral neurovirulence and attenuation. When Zika virus emerged globally in 2015, we decided to apply our expertise to understanding how the virus disrupted neuronal development. We established a mouse brain slice culture that we hope to use to learning how fetal infection causes brain abnormalities. More recently, the enterovirus EV-D68 emerged as a cause of serious respiratory disease and acute flaccid paralysis. Again we applied our expertise in studying neurotropic viruses to dissecting the pathogenesis of infection. Our work on Zika virus and EV-D68 revealed that neurotropism of these viruses is not a recently acquired phenotype. But then again, why would it be? Viral invasion of the central nervous system is an evolutionary dead end. And just because a virus causes paralysis does not mean that neurons are infected: we find that Zika virus, EV-D68, and even poliovirus can infect astrocytes, causing release of neurotropic substances. Over 10 years ago I realized the need to communicate science to the public, and will end with a discussion of why this is necessary and what can be done by scientists.

Wednesday, 5th December

Seminar: Y35-F-32 @10.00 am

Sign up for lunch or one-on-one meeting with the speaker

Thursday, 6th December

Y35-F-51 @11.00 am

Join us for the recording of an episode of **"This week in virology"**
microbe.tv/twiv

Host: Vincent Racaniello

Speakers: Silke Stertz, Urs Greber and Cornel Fraefel

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