

Are Peyer's patches the primary site of Coxsackievirus B infection?Shubhada Bopegamage¹, Martin Sojka¹, Andreas Henke², Heikki Hyöty³, Jochem Galama⁴ and Sisko Tauriainen³¹Slovak Medical University, Slovakia²Friedrich Schiller University Jena, Germany³University of Turku, Finland⁴Radboud University, Netherlands

*E*nterovirus infections are often asymptomatic or appear as undifferentiated febrile illnesses, yet they are associated with a broad range of diseases. Most of the knowledge concerning the spread of enteroviruses in the human body is based on experimental studies of poliovirus infections in monkeys. From these studies it is generally believed that local infection of the mucosa is followed by a regional infection in the lymphatic tissues such as tonsils and Peyer's patches leading to the belief that the primary sites of replication are the epithelial cells of the small intestines and the Peyer's patches. The spread of Coxsackie B viruses (CVB) after oral infection is expected to follow a similar route. Our aim was to study the duration as well as the localization of viral markers in the murine intestine after oral and intraperitoneal (i.p.) route of infection. Transverse sections of the small intestines were chosen for this purpose. Swiss albino and CD1 male (outbred) mice were infected via oral and i.p. route of infection with different strains of CVB. Interferon alpha was localized by immunohistochemistry, whereas viral markers were assessed by viral protein VP1 immunohistochemical analysis, *in situ* hybridization and detection of CVB3e-GFP in cryosections. Irrespective of the virus strain and dose of infection, the small intestines showed enlarged Peyer's patches with enlarged germinating centers. Prolonged presence of virus was observed in the smooth muscle of the small intestines after oral infection, but not after i.p. infection and was confirmed by PCR. Interferon alpha was detected in the Peyer's patches and in the mucosal layer of the small intestine. We observed a total absence of VP1, 3A and the e-GFP in the Peyer's patches at all stages of infection irrespective of the virus strain used. In conclusion, infection of the epithelial cells was observed in the small intestine but not in murine Peyer's patches. Therefore, based on a mouse model of CVB3 infection, our results do not support the hypothesis of viral replication or even presence of CVB in the Peyer's patches.

Biography

Associate Professor Shubhada Bopegamage, MSc., PhD is a Virologist currently heading the Enterovirus Laboratory and the National Reference Center for Identification of Enteroviruses at the Medical Faculty of the Slovak Medical University in Bratislava, Slovakia. Her work is focussed on the pathogenesis and diagnosis of enteroviruses. She received her BSc. Microbiology degree from Pune, India and MSc. Microbiology degree from Mumbai, India. She got her PhD in Biological Sciences from the Academy of Medical Sciences, Moscow, Russia. She is known in the Enterovirus research since 2005 for her work on the *in vivo* experimental coxsackievirus oral infection of mice. She is involved in research and teaching and has guided several MSc. and PhD students. She has co-ordinated and has lead several national and international projects as a principal or co-investigator.

shubhada.bopegamage@szu.sk

Notes: