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In vivo mouse model for coxsackievirus infections: Our story

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Statement of the Problem: The introduction of cell culture techniques has simplified the work of Virologists. Scientific history shows us, however, that we cannot study a disease completely without using animal models. Though, humans are the natural hosts for coxsackieviruses B (CVB), mice have been shown to be susceptible. In mice, these viruses induce diseases like those which they cause in humans. The experimental animal models allow investigation at a pathophysiological level where the biological picture and functioning is depicted. Though the closest experimental models for the *Enteroviruses* and human diseases are maybe chimpanzees, the murine models (mice), are one of the best models for studying coxsackieviruses.

Methodology & Theoretical Orientation: We studied genetically different mice strains. Permission for the animal work was obtained from the Ethics Committee of the Slovak Health University and the State Veterinary and Food Control Authority of the Slovak Republic. Mice were infected with different CVB strains and control mice with PBS by oral gavage. Organs were collected from infected mice/groups and control (mock infected) mice/groups at different days post infection. Organs were fixed for histology and immunohistochemistry in formalin and snap frozen and stored at -80°C for detection of the viral RNA by polymerase chain reaction (PCR).

Findings & Conclusions: Our work showed differences between the oral route and intraperitoneal routes of infection. The differences were mainly in the histopathology of the pancreas, they also depended on the genetic background of the mice. We also showed pancreatitis in challenged pups of mice orally infected dams during gravidity at different times. Our work characterizes and shows the application of our model of the natural 'oral' route of infection to understand the pathogenesis of CV infections.

Biography

Shubhada Bopegamage is a Virologist. Currently, she is the Head of 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 focused 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, and experimental coxsackievirus infection during gravidity. She is involved in research and teaching and has guided several MSc and PhD students. She has Coordinated and has lead several national and international projects as a Principal or Co-investigator.

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