Abstracts

Poster 01

Development of pen-side methods for quick and easy detection of rabies

K. Schlottau (1), E. Eggerbauer (2), C. Freuling (2), T. Müller (2), M. Beer (1), B. Hoffmann (1)

(1) Institute of Diagnostic Virology, Friedrich-Loeffler-Institut, Greifswald - Isle of Riems, Germany

(2) Institute of Molecular Virology and Cell Biology, Friedrich-Loeffler-Institute, Greifswald - Isle of Riems, Germany

Rabies is a lethal zoonotic disease caused by lyssaviruses, a member of the family Rhabdoviridae. Although the most European countries are free of rabies, it represents a severe public threat with thousands of deaths per year in the developing countries. At present the fluorescent antibody test is the “gold standard test” for rabies diagnosis, but there is an increasing demand for rapid and simple diagnostic tools for the use in the field (pen-side tests). Some rapid immunodiagnostic assays are commercially available, but have to be further evaluated. In the last years other molecular pen-side tests were developed and could be suitable for the integration into mobile systems. Candidates for molecular pen-side assays were designed and validated in comparison to routine diagnostic tests for rabies virus. Published assays were converted into a high-speed RT-qPCR and two isothermal amplification systems (recombinase polymerase amplification, helicase-dependent amplification) were new developed. All designed tests were able to detect different rabies strains in much less time than the standard diagnostic, but are slightly less sensitive. However, the viral loads appearing in nature are much higher than the limit of detection, which makes the methods suitable for application in the field.