

In situ proximity ligation assay for detection of Borna disease virus and host-virus protein-protein interactions

Background:

In situ proximity ligation assay (in situ PLA) is a novel method to detect single proteins or protein-protein interactions in cells or tissue. This method is highly sensitive and down to single molecules can be detected. We have established an in situ PLA for detection of Borna disease virus (BDV), an RNA-virus infecting cells of the central nervous system (CNS) of several animal species. BDV is causing neurological disorders mainly in horses, sheep, cats and parrots, though it has also been linked to neuropsychiatric disorders (e.g., depression and schizophrenia) in humans.

So far, most host-virus protein-protein interactions have been studied in vitro. In situ PLA opens up possibilities to study these interactions in tissue samples of natural hosts, thus improving the knowledge on how BDV is interacting with the host and causing disease.

Aims:

This project is aiming to study host-virus protein-protein interactions in different BDV-infected hosts (cells, experimentally and naturally infected animals). Further, this project will also include virus detection in different species mainly by in situ PLA.

Methods:

Cell culture, immunohistochemistry, in situ proximity ligation assay, RT-PCR (conventional and real-time).

Significance:

This project will increase the knowledge of mechanisms of disease, by studying known and novel host-virus protein-protein interactions.

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Location:

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Duration:

10-20 weeks

Period:

Spring 2010.