

## Lyme borreliosis: a comprehensive approach.

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**Project description:** The project focuses on Lyme borreliosis (LB) and other tick borne infections and addresses the **following questions:** Prevalence of ticks and epidemiology of LB and other borrelioses in Finland. Susceptibility of humans to disseminated LB. Pathogenesis of LB including dissemination of LB to the different target organs, the role of borrelia adhesins in this process, and the molecular mechanisms of tissue tropism of borrelia. Molecular and cellular events in the pathogenesis of Lyme neuroborreliosis. Development of novel diagnostics for LB and other borrelioses (e.g. *Borrelia miyamotoi* infection), including identification of novel biomarkers. Development of PET/CT imaging of LB.

### Publications:

- Pietikäinen A., Maximow M., Kauko T., Hurme S., Salmi M., Hytönen J.: Cerebrospinal fluid cytokines in Lyme neuroborreliosis. **J Neuroinflammation** (in press).
- Salo J., Pietikäinen A., Söderström M., Auvinen K., Salmi M., Ebady R., Moriarty TJ., Viljanen MK., and Hytönen J.: Flow tolerant adhesion of a bacterial pathogen to human endothelial cells through interaction with biglycan. **J Infect Dis** (2016), 15;213(10):1623-31, 2016
- Sajanti E., Gröndahl-Yli-Hannuksela K., Kauko T., He Q., Hytönen J.: Lyme borreliosis and deficient mannose binding lectin pathway of complement. **J Immunol** (2015) 194: 358–363.
- Hytönen J., Kortela E, Waris M., Puustinen J., Salo J., Oksi J.: CXCL13 and neopterin concentrations in cerebrospinal fluid of patients with Lyme neuroborreliosis and other diseases that cause neuroinflammation. **J Neuroinflammation** (2014) 11:103
- Salo J., Loimaranta V., Lahdenne P., Viljanen M.K., Hytönen J.: Decorin binding by DbpA and B of *Borrelia garinii*, *Borrelia afzelii* and *Borrelia burgdorferi* s.s. **J Infect Dis** (2011), 204, 65-73.

**Number of Ph.Ds. supervised 2010-2016:** 1

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