

## HPV Infection – Biology and Immunity

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**Project description:** The main goal of the group is to understand HPV dynamics in the families. HPV persistence is the key event in HPV-induced malignant transformation. Until now, we have found 1) a subgroup of family members with persistent oral and/or genital HPV infection 2) the mother is the most likely transmitter of HPV to her offspring, 3). HPV16-specific CMI is common in young, sexually inexperienced children, 4) a few children are tolerant to HPV. In the future studies, we will focus on mother-child transmission by exploring the role of the placenta microbiota on the newborn's oral microbiota, HPV-specific antibodies in sera, saliva and breast milk, the salivary innate immune molecule, scavenger receptor Gp340 determining individual's HPV susceptibility, HLA-G polymorphisms, HPV16 methylation pattern and HPV-specific immune responses. The studies will be done as collaborative projects with Queen Mary University of London, UK, McGill University, Montreal, Canada and Department of Immunology and Genetics, Uppsala University and University of Leiden, the Netherlands and Cancer Research Center, Heidelberg, Germany. Our family cohort with long follow-up is unique to identify both the genetic and environmental factors which predispose incident HPV infection to become chronic allowing progression toward malignancy. Of importance is also to characterize the pattern of HPV tolerance to identify subjects who might not benefit from prophylactic HPV vaccines.

### Publications:

1. Louvanto K, Rintala MA, Syrjänen KJ, Grénman SE, Syrjänen SM. Genotype-specific persistence of genital human papillomavirus (HPV) infections in women followed for 6 years in the Finnish family HPV study. **J Infect Dis** 2010; 202: 436-444, IF 5.99
2. Koskimaa HM, Waterboer T, Pawlita M, Grénman S, Syrjänen K, Syrjänen S. Human papillomavirus genotypes present in the oral mucosa of newborns and their concordance with maternal cervical human papillomavirus genotypes. **J Pediatr** 2012; 160: 837-843, IF 3.79
3. Kero K, Rautava J, Syrjänen K, Grenman S, Syrjänen S. Oral Mucosa as a Reservoir of Human Papillomavirus: Point Prevalence, Genotype Distribution, and Incident Infections Among Males in a 7-year Prospective Study. **Eur Urol** 2012; 62: 1063-1070. IF 13.94
4. Louvanto K, Rautava J, Syrjänen K, Grénman S, Syrjänen S. The clearance of oral high-risk human papillomavirus infection is impaired by long-term persistence of cervical human papillomavirus infection. **Clin Microbiol Infect** 2014; 20:1167-1172 IF 5.20
5. Koskimaa HM, Paaso A, Welters MJ, Grénman S, Syrjänen K, van der Burg SH, Syrjänen S. Human papillomavirus 16-specific cell-mediated immunity in children born to mothers with incident cervical intraepithelial neoplasia (CIN) and to those constantly HPV negative. **J Transl Med** 2015; 13:370 IF 3.93.

**Number of PhDs supervised 2010-2015: 4**

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