University of BRISTOL

University Hospitals Bristol NHS
NHS Foundation Trust

headandneck 5000

HPV antibody patterns beyond HPV16 E6 seropositivity in head and neck cancer

Principle Applicant: Dr. Nicole Brenner

Co-Applicants: Dr. Tim Waterboer, Dr. Michael Pawlita, Prof. Andy Ness, Prof. Miranda Pring, Dr. Julia Butt, Julia Simon

Scientific Outline

Summary

Human papillomaviruses (HPV) cause cancer at various anatomical sites including the oropharynx. The dominant HPV type in oropharyngeal cancer (OPC) is HPV16 causing approximately 90% of HPV-driven OPC (HPV-OPC). In previous studies, HPV16 E6 antibodies were highly sensitive (>90%) and specific (>99%) markers for HPV16-OPC. We have previously developed a serological assay to measure HPV antibodies against the viral proteins L1, E6 and E7 for additional HPV types (HPV18, 31, 33, 35, 45, 52, 58), and additional HPV16 proteins (L1, E1, E2, E4, E7). We now aim at extending our serological panel to measure serum antibodies against L1, E1, E2, E6 and E7 for all abovementioned HPV types in the full Head and Neck 5000 case cohort to investigate additional HPV antibody patterns as markers for HPV-driven head and neck cancer, especially for OPC. Together with available HPV16 and EBV serology and tumour tissue analyses, this will allow us to describe the attributable fractions of EBV, HPV, and lifestyle factors in all Head and Neck 5000 cancers.

Keywords: Human papillomavirus, head and neck cancer, oropharyngeal cancer, antibody patterns, machine learning