Papillomaviruses (PVs) are part and parcel of the skin microbiota in all mammals, and ancestral PVs already infected the ancestral amniotes. The recent discovery of PVs in fish has challenged our understanding of the origin of these viruses. The vast majority of PV infections in humans as well as in other animals are asymptomatic and virtually all individuals get infected very early in life, suggesting a very ancient virus-host interaction.

Yet, some PVs can trigger benign proliferations and cause warts in humans and in many other animals, transmitted by simple contact or by sexual route. Further, a handful of closely related PVs are responsible for ca. 5% of all human cancers, essentially in anogenital and oropharyngeal sites. Despite intense research, many questions remain open regarding the evolutionary connection between PV infections and cancer.

I will describe our research trying to establish a link between ancient and recent evolution and genotypic diversity of PVs, and the phenotypic diversity of the clinical presentations of the viral infections.