Title: A new mouse model for investigating xerostomia

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Abstract:
One of the factors that significantly impinges on the quality of life among elderly people is a decrease in salivary flow (hyposalivation) and a dry mouth (xerostomia). The prevalence of xerostomia increases with age and affects approximately 30% of people aged 65 or older. Xerostomia leads to problems with speech, taste, digestion, mastication and swallowing, and a high incidence of dental caries and candida. Given the large numbers of sufferers, and the potential increase in incidence given our aging population, it is important to understand the complex mechanisms that drive xerostomia and the consequences for the dentition and oral mucosa.
In this proposal we introduce a new mouse model that shows good potential for learning about xerostomia.
In humans, mutations in one copy of the FGF10 gene or its receptor, lead to Lacrimo-Auriculo-Dento-Digital (LADD) syndrome and Aplasia of Lacrimal and Salivary Glands (ALSG), both syndromes being characterized by loss or reduction of the lacrimal and salivary glands and consequently xerostomia. In the mouse, loss of one copy of the Fgf10 gene (heterozygous) also impacts on gland development, the mice forming smaller salivary glands, when compared to normal littermates. Preliminary results from the lab have shown that these Fgf10 heterozygous mice have reduced salivary gland function and as such can be used as a new model for studying xerostomia.
This project aims to study the mechanisms behind the gland defect and the consequences of salivary gland hypofunction on the oral cavity, with the aim of finding new ways to treat xerostomia.

Figure legends:

Figure 1: Reduced branching and smaller size of developing mutant Fgf10 salivary glands (B) compared to normal (WT) littermates (A) in the mouse.

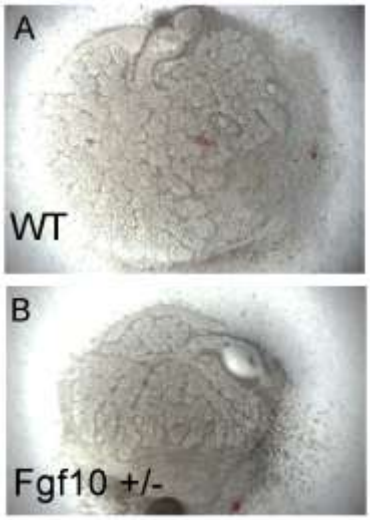

Figure 2: Keratin 5 immunohistochemistry of a mouse salivary gland at birth. The red cells label a population of putative progenitor cells in the ducts.