Exploring the Regeneration Potential of Salivary Glands using Organoids as a Model

English summary:
Radiotherapy is a potential life-saving treatment for head and neck cancer patients. However, despite improvements in precision of radiation dose delivered, the unavoidable co-irradiation of salivary gland still leads to irreversible diminishing of saliva secretion affecting among others the ability to speak, eat and sleep, drastically decreasing the quality of life of the patients. Existing treatments for this dry mouth syndrome, only provide short-term relief. Therefore, the development of new therapies, such as stem cell therapy, is crucial to alleviate this side effect caused by irradiation. Combining mouse injury models with 3D organoid cultures of mouse and human salivary gland derived cells, it is attempted to identify the optimal cell source for, as well as the regulatory mechanisms involved in, the salivary gland regeneration process. Thereby this work focused on the development and optimization of a potentially clinically relevant regenerative therapy approach to functionally restore the irradiated salivary gland tissue.