Lynne Bingle

Head, Academic Unit of Oral and Maxillofacial Medicine and Pathology
School of Clinical Dentistry, University of Sheffield

I graduated in 1985 with a BSc in Medical Sciences having spent a year in industry during my degree. My PhD studies involved the development of the first in vitro 3D model of a human alveolus; at a time when tissue culture inserts were not commercially available, I devised my own using amniotic membrane and a scaffold engineered to my design. I have continued to use and develop upper and lower airway models to investigate innate immunity and host defence. After moving to the Dental School in 2005 my attention turned to the oral cavity and we have now developed, again for the first time, 3D models of the three major salivary glands, from normal, human tissues.

I was appointed as Lecturer in the School of Clinical Dentistry, University of Sheffield in 2005 and am now a Reader in the same department.

My long-standing research interests have focused on the role and regulation of epithelial secretory proteins, principally in the fields of innate immunity, host defence and tumour biology, of airway epithelium. I have significant expertise in the use of 3D in vitro models of the airways, the oral and nasal mucosa and the epithelium of the middle ear.

Since joining the Dental School, I have developed a specific interest in the role of fusion genes in salivary gland tumourigenesis and using my tissue culture expertise have developed in vitro models of human salivary glands from fresh human tissue, adult and foetal. We are now introducing the tumour-associated fusion genes into the normal cells in order to gain a better understanding of the tumour development and progression.

I am a non-clinical scientist who has worked alongside clinical colleagues for much of my research career. The aims of my research have therefore been driven by a desire to help answer specific clinical problems for patient benefit. We are very aware that the treatments available for this form of cancer are limited and have not changed significantly for many decades.

I am intrigued by the presence of novel fusion genes in salivary gland tumours and the fact that each tumour sub-type appears to have its own associated translocation. Our current research aims to identify the specific cell types that carry a specific translocation and their location within the tumour microenvironment in order to identify potential diagnostic or prognostic biomarkers. We are also using molecular and proteomic techniques to introduce fusion genes into normal cells in order to identify novel protein- protein interactions; we hypothesise that this could lead to the development of targeted non-surgical therapies.

I have worked in oral and maxillofacial pathology since 2005 and so have a very good understanding of the pathological basis of these cancers but there is still so much more to learn in order to translate our knowledge to patient benefit.