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Cancer stem cells in oral tongue, lip and buccal mucosal squamous cell carcinoma express components of the renin-angiotensin system

Squamous cell carcinoma (SCC) makes up more than 90% of cancer affecting the oral cavity including the oral tongue, buccal mucosa, floor of mouth, retromolar trigone, hard palate, alveolus and the lip. Treatment of oral cavity SCC (OCSCC) typically involves surgical resection, often followed by radiotherapy, and sometimes biologic agents. Despite this radical treatment, the 5-year survival rate for SCC affecting most oral cavity subsites has remained at 50% for the past 4 decades. Cancer stem cells (CSCs) have been identified in many types of cancers including OCSCC. Our recent data demonstrates the presence of 3 different putative CSC subpopulations within SCC of the oral tongue, buccal mucosa and lip. We have also demonstrated these CSC subpopulations express components of the renin-angiotensin system (RAS). We ahve also shown that the CSCs in one of these cancers studied (oral tongue SCC) also express the protease cathepsins B, D and G (CathG), suggesting the existence of potential bypass loops for the RAS. Our work suggests CSCs as a novel therapeutic target by modulation of the RAS using existing medications.

Biography

Swee T Tan is the Director of the Gillies McIndoe Research Institute in Wellington, New Zealand. He completed his Medical Training at Melbourne University in 1985, Plastic Surgery Training in New Zealand in 1992, and gained a PhD from Otago University in 2001. In 1995, he was appointed as Consultant Plastic & Cranio-Maxillofacial Surgeon at the Wellington Regional Plastic, Maxillofacial & Burns Unit at Hutt Hospital, where he was the Director of Plastic Surgery from 2000 to 2006 and Director of Surgery 2007-2013. He was appointed as Professor in Plastic Surgery at Otago University in 2008. He is the Founder and Director of the Centre for the Study & Treatment of Vascular Birthmarks, a national referral centre. He has received numerous honours and awards and is well known internationally for his research into the stem cell basis of diseases including vascular anomalies and cancer. He is the author of more than 140 publications and has delivered over 350 lectures at conferences.

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