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Towards new and feasibly adapted molecular tools for managing oral premalignancy and cancer

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Oral cancer (OC) is one of the most commonly diagnosed cancer types worldwide. In some developing countries it is a leading cause of cancer death. Significantly, survival rates for OC patients have not improved for decades. To combat this, my group is working to understand the molecular alteration events that drive tumor development and to identify new molecular tools that can be applied to manage patients who present clinically with oral cancers and precancers. OC develops through a series of histological stages, beginning with movement from hyperplasia to mild/moderate dysplasia (both representing low grade oral premalignant lesions [LG OPLs]), progressing to severe dysplasia and carcinoma in situ (high grade [HG] OPLs), until finally becoming invasive cancer. While it is understood that this progression results from an accumulation of molecular alterations, attempts to identify these alterations have met with limited success. Using our expertise in the area of genomics and RNA biology, we are analyzing individual OC and OPL cases by integrative analysis of alterations in DNA dosage, mRNA expression, miRNA expression, and DNA methylation. This approach is not only helping us determine which molecular changes are critical for driving disease, yielding new knowledge regarding oral tumorigenic processes but also identifying novel biomarkers of disease behaviour which will ultimately guide disease management.

Biography

Dr. Cathie Garnis is an Assistant Professor and Director of Research for the Division of Otolaryngology at the University of British Columbia. She completed her PhD from the University of British Columbia in 2005 and went on to a post-doctoral fellowship with Dr. Philip Sharp at the MIT Center for Cancer Research. Dr. Garnis has published over 25 peer-reviewed articles and book chapters and her work has been cited more than 600 times. She has served on several national and international grant panels and is on the editorial board of Dataset Papers in Oncology.

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