Episode 90 – AI-Assisted Prognostic Test to Predict Oral Cancer Risk
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Dr. Renick is an oral surgeon with an interest in oral disease, cysts, and tumours. He has been in private practice in Newmarket, ON and a staff surgeon at Southlake Hospital for over 25 years. He is the only dentist in Canada with dual specialty training in both oral surgery and oral pathology. His training includes experience at Toronto General and Toronto Western Hospitals, the Wellesley Hospital, Sick Kids, Sunnybrook Hospital, Odette Cancer Clinic, Princess Margaret Hospital, and the Sunnybrook Interdisciplinary Mouth Clinic.

Dr. Renick is the Chief Medical Officer for Proteocyte AI, a company dedicated to producing a range of technological solutions that predict the risk of developing oral cancer. Proteocyte's first product, Straticyte™, is a test that predicts the progression of premalignant lesions (oral potentially malignant disorders)[1] to invasive oral cancer,[2] using an AI-assisted[3] subcellular S100A7 bioprotein assay.

Proteocyte AI
https://proteocyte.com/

Additional Resources
Using an AI-assisted subcellular S100A7 bioprotein assay to manage oral potentially malignant disorders/pre-cancers, Renick, B; Hwang, J; McGuire, T; McGaw, T. *Oral Health,* June 7, 2023 https://www.oralhealthgroup.com/features/using-an-ai-assisted-subcellular-s100a7-bioprotein-assay-to-manage-oral-potentially-malignant-disorders-pre-cancers/

Assessing oral epithelial dysplasia risk for transformation to cancer: Comparison between histologic grading systems versus S100A7 immunohistochemical signature-based grading. Darling, M; Hwang, J; Dickson, B; et al. *Applied Immunohistochemistry & Molecular Morphology,* Volume 31, Issue 6, July 2023, p 399-405 https://journals.lww.com/appliedimmunohist/Abstract/2023/07000/Assessing_Oral_Epithelial_Dysplasia_Risk_for.7.aspx

[1] Refer to Episode 76 for discussion on oral potentially malignant disorders (OPMDs).
[2] Refer to Episodes 7, 9, 76, 77, and 78 for additional information on oral cancer.
[3] Refer to Episode 85 for discussion on the use of artificial intelligence in oral healthcare.

Oral potentially malignant disorders (OPMD): What is the clinical utility of dysplasia grade? Pritzker, K; Darling, M; Hwang, J; Mock, D. *Expert Review of Molecular Diagnostics*, Volume 21, Issue 3, 2021, p 289-298 https://www.tandfonline.com/doi/abs/10.1080/14737159.2021.1898949

Psoriasin: A new biomarker in the identification of cancer risk in oral lesions. Darling, M; Hassan, A; McLean, L. *Oral Health*, December 11, 2018 https://www.oralhealthgroup.com/features/psoriasin-a-new-biomarker-in-the-identification-of-cancer-risk-in-oral-lesions/

Individualized five-year risk assessment for oral premalignant lesion progression to cancer, Hwang, J; Gu, Y; Shen, M; et al. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology,* Volume 123, Issue 3, March 2017, p 374-381 https://www.ooojournal.net/article/S2212-4403(16)30676-9/fulltext

Prediction of recurrence-free survival using a protein expression-based risk classifier for head and neck cancer, Chauhan, S; Kaur, J; Kumar, M; et al. *Oncogenesis*, Volume 4, p 1-7 https://www.nature.com/articles/oncsis20157

S100A7 overexpression is a predictive marker for high risk of malignant transformation in oral dysplasia, Kaur, J; Matta, A; Kak, I; et al. *International Journal of Cancer*, Volume 134, Issue 6, p 1379-1388 https://onlinelibrary.wiley.com/doi/full/10.1002/ijc.28473

Nuclear S100A7 is associated with poor prognosis in head and neck cancer, Tripathi, S; Matta, A; Kaur, J; et al. *PLoS ONE*, Volume 5, Issue 8, August 3, 2010, p 1-10 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0011939

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Client resource

Proteocyte AI client brochure https://proteocyte.com/wp-content/uploads/Straticyte_Patient_Brochure.pdf