

## CLINICAL SCIENCE: THYROID

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2442 Thyroid Poster Session,  
Thursday, 6/22, Board 634

**Expression of Prostate-Specific Antigen and Human Glandular Kallikrein 2 in the Thyroid Gland.** Angeliki Magklara, Carol C Cheung, Sylvia L Asa, Eleftherios P Diamandis<sup>1</sup>Pathology and Laboratory Medicine, Mount Sinai Hospital; <sup>2</sup>Laboratory Medicine and Pathobiology, University of Toronto, Toronto, ON, Canada

Prostate-specific antigen (PSA) and human glandular kallikrein 2 (hK2) are two closely related, androgen-regulated kallikreins, primarily produced by the prostate. These serine proteases are now used as biomarkers for the diagnosis and management of prostate cancer.

Until recently, PSA and hK2 were thought to be strictly expressed in the prostate; however, numerous studies confirmed their presence in various biological fluids as well as in many normal and malignant tissues. Using reverse transcription-polymerase chain reaction (RT-PCR), we screened RNA extracted from 26 normal tissues and found that both genes are expressed in the thyroid. Subsequently, we analyzed 15 RNAs extracted from thyroid tissues (10 benign lesion and 5 malignant) and found that both kallikreins were expressed in the same five specimens (four benign lesions and one malignant). Sequencing of the PCR products confirmed the specificity of our experiments. Immunohistochemistry localized PSA in oxyphilic cells of corresponding paraffin tissues.

These data confirm expression of both PSA and hK2 in thyroid tissue and suggest that oxyphils are the source of production. The number of samples analyzed is small and does not allow for conclusions regarding differential expression of PSA and hK2 between benign and malignant tissues. Future studies including larger number of samples will reveal whether PSA and hK2 expression is lower in cancerous tissue, as our preliminary results indicate.

The function of these two proteases in the thyroid is currently unknown.