



Detecting and Classifying Bladder Cancer Via Human Uroplakin Genes

Principal Investigator:
Tung-Tien Sun, Ph.D.

Background:

Bladder cancers usually arise from the transitional cells of the bladder (the cells lining the bladder). Although transitional cell carcinoma of the bladder (TCC) metastasizes frequently with devastating consequences, no marker has been available to monitor this process.

Description of Project:

Uroplakins are a group of specific markers for normal urothelium and are continuously expressed by the majority of TCCs. Uroplakin II (UPII) is a highly specific marker for human TCC and the detection of uroplakin II in the peripheral blood is associated with metastatic spread of bladder cancer cells.

The presence uroplakin-positive cells in the circulation could be a strong indication of the dissemination of tumor cells in patients with TCC. In his laboratory, Dr. Sun showed that the PCR-amplification of the mRNA encoding uroplakin II (UPII), a 15-kDa urothelium-specific marker, constitutes a highly sensitive and specific assay for detecting 100% of transitional cell carcinoma tissue, and that this assay can detect a single bladder cancer cell in a 5-ml blood sample. UPII mRNA was detected in the blood samples of 2 patients with metastatic bladder cancer without chemotherapy and 1 out of 8 such patients with chemotherapy, but not in those of 50 non-metastatic patients or normal controls.

Applications:

The specific and sensitive detection of uroplakin II provides a useful adjunct for detecting bladder cancer metastasis, staging, and monitoring chemotherapeutic response.

Patent Status:

A non-provisional US patent application has been filed.

For further information please contact:

New York University
Office of Industrial Liaison
650 First Avenue
New York, NY 10016
Tel: (212) 263-8178 Fax: (212) 263-8189