

IMSUT Hospital

Department of Urology

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Our department of Urology was established in ISMUT hospital on July 1st, 2020 to improve the occupancy rate by introducing advanced medical treatments such as robotic surgery. We successfully performed 842 cases of urological surgery including 140 cases of robotic surgery, which resulted in increase of the revenue. Further, we have been engaged in basic research on castration resistant prostate cancer to discover novel drugs by the method of molecular and cell biology.

1. Basic research

The WNT signaling pathways (canonical and non-canonical) regulate prostate cancer progression, but the precise mechanism by which this regulation occurs has yet to be established. We investigated expression levels of WNTs in prostate cancer tissues and found that WNT5A is expressed at higher levels in cancer cells and in the stroma of non-cancerous regions than in the epithelium in prostate of cancer in patient samples. Prostate stroma-derived WPMY1 cells also highly express WNT5A. WNT5A knockdown in WPMY1 cells (WPMY1-shW5A) results in a reduction of cancer related genes, EMT-related genes, and several cytokines by microarray analysis. WNT5A expression is directly regulated by ligand inducible androgen receptor (AR) bound to the WNT5A promoter. Receptor tyrosine kinase-like orphan receptor 1 (ROR1), one of WNT5A receptors is highly expressed in samples from prostate cancer patients and in prostate cancer cell lines. ROR1 knockdown in PC3 cells (PC3-shRO1) abrogated WNT5A-induced cell proliferation. These results show that WNT5A in stroma cells regulates prostate cancer proliferation and invasion, at least in part, through the ROR1 signaling pathway.

Our results suggest that cell-to-cell communication between stromal cells and prostate cancer cells enhances prostate cancer progression and ROR1 may be a novel therapeutic target for the disease.

2. Clinic

Since we established the department of Urology in IMSUT Hospital in July, 2020, the number of patients has been increased by introduced from urological clinics, hospitals, and other departments of our hospital. Totally 1,680 patients visited our department in 2023 for the purpose of thorough examinations for diagnosis or surgical treatments.

We totally performed 292 surgical operations in 2023: 43 cases of Robotic-assisted prostatectomy, 10 Robotic-assisted partial nephrectomy, one Laparoscopic nephroureterectomy, three Radical cystectomy with ileal conduit urinary diversion, 16 open surgery, 28 Trans-urethral resection of bladder tumor, eight Trans-urethral resection of prostate, 14 Trans-urethral lithotripsy, 23 Ureteroscopy, 41 Ureteral stenting, and five Botox injection for overactive bladder

Publications

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