

## Urology

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### Major Scientific Interests of the Group

The molecular pathogenesis in urologic cancers, especially urothelial carcinoma, renal cell carcinoma and testicular tumor, and their translational research. Fields of bladder dysfunction, infertility, regenerative medicine and artificial intelligence as well.

### Projects for Regular Students in Doctoral or Master's Programs

- 1) Identification of novel oncogene signals and tumor immune micro-environment in urothelial cancer.
- 2) The effect and mechanism of ELOVL (Elongation of very long chain fatty acids) in the proliferation of renal cancer.
- 3) The antitumor immunity of cationized liposomal trehalose-6,6-dimycolate isolated from *Mycobacterium* in a syngeneic murine bladder cancer model.
- 4) Elucidation of carcinogenesis and invasion mechanisms in bladder cancer via ASIC (Acid-sensing ion channels) and ENaC (epithelial sodium channels).
- 5) The molecular mechanism of bladder dysfunction due to sleep/circadian rhythm disorder.
- 6) Repair and regeneration of bladder dysfunction using purified Human Skeletal Muscle-Derived Stem Cells.

### Study Programs for Short Stay Students (one week – one trimester)

Clinical clerkship/Elective: surgery (robotic, laparoscopic, reduced port, open, transurethral, micro etc), clinical conference, outpatient/inpatient care and laboratory meeting.

### Selected Publications

1. Cationized liposomal keto-mycolic acids isolated from *Mycobacterium bovis* bacillus Calmette-Guérin induce antitumor immunity in a syngeneic murine bladder cancer model. Yoshino T, Miyazaki J, Kojima T, Kandori S, Shiga M, Kawahara T, Kimura T, Naka T, Kiyohara H, Watanabe M, Yamasaki S, Akaza H, Yano I, Nishiyama H. PLoS One. 2019 Jan 4;14(1):e0209196. PMID: 30608942
2. Effect of TRPV4 activation in a rat model of detrusor underactivity induced by bilateral pelvic nerve crush injury. Takaoka EI, Kurobe M, Okada H, Takai S, Suzuki T, Shimizu N, Kwon J, Nishiyama H, Yoshimura N, Chermansky CJ. Neurourol Urodyn. 2018 Nov;37(8):2527-2534. PMID: 30095183

3. Phospholipase D2 promotes disease progression of renal cell carcinoma through the induction of angiogenin. Kandori S, Kojima T, Matsuoka T, Yoshino T, Sugiyama A, Nakamura E, Shimazui T, Funakoshi Y, Kanaho Y, Nishiyama H. *Cancer Sci.* 2018 Jun;109(6):1865-1875. PMID: 29660846
4. Ramucirumab plus docetaxel versus placebo plus docetaxel in patients with locally advanced or metastatic urothelial carcinoma after platinum-based therapy (RANGE): a randomised, double-blind, phase 3 trial. Petrylak DP, de Wit R, Chi KN, Drakaki A, Sternberg CN, Nishiyama H, Castellano D, Hussain S, Fléchon A, Bamias A, Yu EY, van der Heijden MS, Matsubara N, Alekseev B, Necchi A, Géczi L, Ou YC, Coskun HS, Su WP, Hegemann M, Percent JJ, Lee JL, Tucci M, Semenov A, Laestadius F, Peer A, Tortora G, Safina S, Del Muro XG, Rodriguez-Vida A, Cicin I, Harputluoglu H, Widau RC, Liepa AM, Walgren RA, Hamid O, Zimmermann AH, Bell-McGuinn KM, Powles T; RANGE study investigators. *Lancet.* 2017 Nov 18;390(10109):2266-2277. PMID: 28916371
5. Development of RNA-FISH Assay for Detection of Oncogenic FGFR3-TACC3 Fusion Genes in FFPE Samples. Kurobe M, Kojima T, Nishimura K, Kandori S, Kawahara T, Yoshino T, Ueno S, Iizumi Y, Mitsuzuka K, Arai Y, Tsuruta H, Habuchi T, Kobayashi T, Matsui Y, Ogawa O, Sugimoto M, Kakehi Y, Nagumo Y, Tsutsumi M, Oikawa T, Kikuchi K, Nishiyama H. *PLoS One.* 2016 Dec 8;11(12):e0165109. PMID: 27930669
6. Biomarkers for precision medicine in bladder cancer. Kojima T, Kawai K, Miyazaki J, Nishiyama H. *Int J Clin Oncol.* 2017 Apr;22(2):207-213. PMID: 27896485