

Biomarkers for Cancer Diagnostics

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Description of the scientific aims

The research aims to identify new biomarkers and test concepts for cancer diagnostics (proteins, nucleic acid) using blood, urine and tissue samples. A primary target disease is prostatic cancer. Two new research approaches are 1) Cancer-associated glyco-structures and lectins to enhance clinical specificity and potential for early diagnostics of several cancers and 2) exploring the use of exosomes in non-invasive biological fluids. The group is closely involved in the design of future centralized and near-patient technological platforms and works closely with the antibody library research group. The group is networked with national and international clinical research groups and international companies.

Selected publications 2010-

1. Duijvesz D, Versluis CY, van der Fels CA, Vredenburg-van den Berg MS, Leivo J, Peltola MT, Bangma CH, Pettersson KS, Jenster G. Immuno-based detection of extracellular vesicles in urine as diagnostic marker for prostate cancer. *Int J Cancer*. Dec 15;137(12):2869-78, 2015.
2. Liton MF, Peltola MT, Vehniäinen M, Kuusela E, Pettersson T, Lamminmäki U, Pettersson K, Brockmann EC. Phage display aided improvement of a unique prostate-specific antigen (PSA) antibody unreactive with Lys(145)-Lys(146) internally cleaved forms. *J Immunol Methods*. Jul;422:72-9, 2015.
3. Stattin P, Vickers AJ, Sjöberg DD, Johansson R, Granfors T, Johansson M, Pettersson K, Scardino PT, Hallmans G, Lilja H. Improving the Specificity of Screening for Lethal Prostate Cancer Using Prostate-specific Antigen and a Panel of Kallikrein Markers: A Nested Case-Control Study. *Eur Urol*. Aug;68(2):207-13, 2015.
4. Väänänen RM, Lilja H, Kauko L, Helo P, Kekki H, Cronin AM, Vickers AJ, Nurmi M, Alanen K, Bjartell A, Pettersson K. Cancer-associated changes in the expression of TMPRSS2-ERG, PCA3, and SPINK1 in histologically benign tissue from cancerous vs noncancerous prostatectomy specimens. *Urology*. Feb;83(2):511.e1-7, 2014.
5. Carlsson SV, Peltola MT, Sjöberg D, Schröder FH, Hugosson J, Pettersson K, Scardino PT, Vickers AJ, Lilja H, Roobol MJ. Can one blood draw replace transrectal ultrasonography-estimated prostate volume to predict prostate cancer risk? *BJU Int*. Sep;112(5):602-9. 9282-9288, 2013.