

## Supplementary Materials:

### Morpho-molecular *ex vivo* detection and grading of non-muscle-invasive bladder cancer using forward imaging probe based multimodal optical coherence tomography and Raman spectroscopy

Fabian Placzek<sup>\*a</sup>, Eliana Cordero Bautista<sup>\*b</sup>, Simon Kretschmer<sup>c</sup>, Lara M. Wurster<sup>a</sup>, Florian Knorr<sup>b</sup>, Gerardo González-Cerdas<sup>c</sup>, Mikael T. Erkkilä<sup>a</sup>, Patrick Stein<sup>c</sup>, Çağlar Ataman<sup>c</sup>, Gregers G. Hermann<sup>d</sup>, Karin Mogensen<sup>d</sup>, Thomas Hasselager<sup>e</sup>, Peter E. Andersen<sup>g</sup>, Hans Zappe<sup>c</sup>, Jürgen Popp<sup>b, f</sup>, Wolfgang Drexler<sup>a</sup>, Rainer A. Leitgeb<sup>a</sup>, and Iwan W. Schie<sup>b, h</sup>

<sup>a</sup>Center for Medical Physics and Biomedical Engineering, Medical University of Vienna, Waehringer Guertel 18-20, 4L, 1090 Vienna, Austria

<sup>b</sup>Leibniz Institute of Photonic Technology (Leibniz-IPHT), Albert-Einstein-Straße 9, Jena, Germany

<sup>c</sup>Gisela and Erwin Sick Chair of Micro-optics, Department of Microsystems Engineering, University of Freiburg, Freiburg, Germany

<sup>d</sup>Department of Urology, Copenhagen University. Herlev/Gentofte hospital, Borgmester Ib Juuls Vej 23A, DK-2730, Herlev, Copenhagen, Denmark

<sup>e</sup>Department of Pathology, Copenhagen University. Herlev/Gentofte hospital, Borgmester Ib Juuls Vej 23A, DK-2730, Herlev, Copenhagen, Denmark

<sup>f</sup>Institute of Physical Chemistry, Friedrich Schiller University Jena, Helmholtzweg 4, 07743, Jena, Germany

<sup>g</sup>Technical University of Denmark, Department of Health Technology (DTU Health Tech), Ørstedes Plads, Building 345C, DK-2800 Kgs. Lyngby, Denmark

<sup>h</sup>University of Applied Sciences -Jena, Department of Medical Engineering and Biotechnology, Carl-Zeiss-Promenade 2, 07745, Jena, Germany

\*Equally contributed Author

Email: iwan.schie@leibniz-ipht.de

## Supplementary Materials:

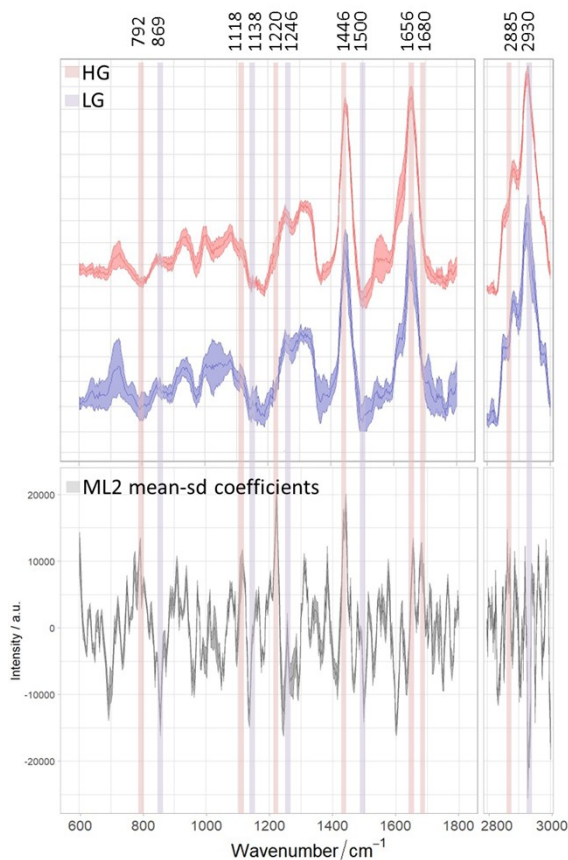


Figure S1 The main difference between mean spectra of LG and HG are highlighted in the Figure 1S. Where below the mean spectra the ML2-coefficients are plotted. Bands associated with HG tumor display positive values in the LDA coefficients, indicated by red color bars; bands associated with LG tumor display positive values in the coefficients, indicated by blue color bars. The marked bands indicate a stronger presence of proteins and nucleic acids in low grade tumor in comparison to high grade, where mainly fatty acids and lipid dominant bands are observed.