the Torrent Server required specific IT configurations. The sequencing was successful in synchronous CRC and metastasis. The same KRAS mutation or wild type gene was identified both by Sanger and NGS. Mutations were shown to be heterozygote by both techniques. NGS provided, however, percentage for wild type and mutant reads. In addition, NGS provided information of 57 other possible mutations in KRAS gene.

Conclusions. Our results show that the PGM platform allows the simultaneous detection of multiple genetic changes relevant for diagnosis, prognosis and prediction and the technology is suited to analyse the growing number of diagnostic molecular markers. The implementation of the highly sophisticated technology, however, faces a number of obstacles namely the software needs in a restrictive IT hospital setting. Close cooperation within different pathology institutions may facilitate the rapid and widespread use of this new technology.

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FP19
An improved ex vivo model for hypoxic microenvironment investigation of prostate cancer

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Background. Intratumoral hypoxia plays an important role with regard to tumor biology and susceptibility to radio- and chemotherapy. For further investigation of hypoxia-related changes, areas of certain hypoxia must be reliably detected within cancer tissue. Pimonidazole, a 2-nitroimidazole, accumulates in hypoxic tissue and can be easily visualized using immunohistochemistry. To improve detection of highly hypoxic versus normoxic areas in prostate cancer, immunoreactivity of pimonidazole and known hypoxia-related proteins was used.

Methods. In total, 53 patients with localized prostate cancer (pT2a-pT3b, age range 47–73 years, Gleason score 6–9) were enrolled in our study. Pimonidazole was intravenously administered before radical prostatectomy was performed, using the da Vinci robot-assisted surgical system. Prostatectomy specimens were immediately transferred into buffered formaldehyde, fixed overnight and completely embedded in paraffin. Pimonidazole accumulation, hypoxia-related proteins and the degree of vascularisation were detected using immunohistochemistry.

Results. In vitro, specific pimonidazole immunoreactivity could be shown by incubating LNCaP prostate cancer cell lines under hypoxia, whereas no immunoreactivity was observed under normoxia. Based on pimonidazole staining, other hypoxia-related proteins and the degree of vascularisation in human prostatectomy specimens, maps of oxygen supply in prostate cancer were created.

Conclusions. Here, we describe a combined ex vivo model for an accurate detection of oxygen supply in human prostate cancer tissue. This platform can be used for precise colocalization of novel candidate hypoxia-related proteins in a representative and large number of prostate cancer cases. Furthermore, this study provides a source for further in situ tests and biochemical investigations.

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FP20
MUC1 in lymph node metastases predicts survival in advanced prostate cancer

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Background. MUC1 is involved in cell adhesion and the cytoplasmic component interacts with β-catenin, receptor tyrosine kinases, p53 and others. It is aberrantly expressed in prostate cancer and a potential therapeutic target. Data on the prognostic value of MUC1 are controversial and its significance in metastasizing prostate cancer is still unknown.

Methods. MUC1 expression was evaluated on tissue microarrays constructed from 119 nodal positive prostate cancer patients treated by radical prostatectomy and extended lymphadenectomy. MUC1 status was correlated with various tumor features and biochemical recurrence-free (bRFS), disease-specific (DSS) and overall (OS) survival.

Results. In primary tumors, high MUC1 expression was significantly correlated with higher tumor volume ($p=0.005$) and T-stage ($p=0.009$). Furthermore high MUC1 expression in lymph node metastases corresponded with greater total size of metastases ($p<0.001$) and total number of metastases ($p=0.014$). High MUC1 expression in lymph node metastases predicted an unfavorable outcome compared to patients with low MUC1 expression (5-year bRFS $p<0.023$, DSS and OS $p\leq0.001$), whereas in primary tumors only a tendency towards an adverse survival could be shown.

Conclusions. MUC1 in either primary tumor or lymph node metastases correlates significantly with more unfavorable clinico-pathological features. Its independent prognostic information is inherent only in lymph node metastases from prostate cancer. This indicates an important role of additional tumor sampling from metastases to utilize the prognostic value of MUC1 in prostate carcinoma. In addition, as MUC1 is a druggable target in prostate cancer it could act as a therapeutic target in metastasized disease.

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