

**Tab. S1: Clinical data for prostate tissue specimens used in this study.**

| Specimen      | Method  | Histology                                | Gleason Score | Tumor stage | remarks                                   |
|---------------|---------|--|---------------|-------------|---|
| P11           | RNA-Seq | poorly differentiated adenocarcinoma     | 4 + 3         | pT3a        | pN0 L0 V0 R1                              |
| P12           | RNA-Seq | poorly differentiated adenocarcinoma     | 4 + 4         | pT3a        | pN0 Pn1 R0                                |
| P13           | RNA-Seq | poorly differentiated adenocarcinoma     | 4 + 4         | pT3a        | pN0 L1 V0 Pn1 R0                          |
| PCa tissue    | RT-PCR  | poorly differentiated adenocarcinoma     | 3 + 4         | pT2c        | pN0 Pn1 L0 V0 R0                          |
| benign tissue | RT-PCR  | /  | /             | /           | benign prostatic hyperplasia questionable |
| P14           | IHC     | moderately differentiated adenocarcinoma | 3 + 4         | pT1a        |   |
| P15           | IHC     | well differentiated adenocarcinoma       | 3 + 3         | pT1a        |   |

**Tab. S2: Primer sequences used for RT-PCR.**

| Gene                       | Primer sequence (5'-3') |
|----------------------------|-------------------------|
| OR51E1-forward             | CCGCCATTGGCCTGGACTCA    |
| OR51E1-reverse             | CCAAGATGACGGGCAGCGGA    |
| OR51E2-forward (LNCaP)     | CTGAAAGGAACAGGCCGAAC    |
| OR51E2-reverse             | GACCACGATGCAGTTTCCAA    |
| OR51E2-forward (prostate)  | ACTGCCTTCCAAGTCAGAGC    |
| OR51E2-reverse             | CTTGCCTCCCACAGCCTG      |
| OR2A4/7-forward (LNCaP)    | GCCTACGCCTGCAACACGGT    |
| OR2A4/7-reverse            | TCGGAGGGGGTGGCAGATGG    |
| OR2A4/7-forward (prostate) | GGTGCCCCGGATGCTGGTG     |
| OR2A4/7-reverse            | GGGGTGGCAGATGGCCACG     |
| PSA-forward                | AGTGCGAGAAGCATTCCCAA    |
| PSA-reverse                | TTTGGGGTCAAGACATCTGGC   |
| AR-forward                 | GCCTGTTGAACTCTTCTGAGC   |
| AR-reverse                 | GCTGTGAAGGTTGCTGTTCTCTC |
| KRT8-forward               | CTGGAGGCCGCCATTGCAGAT   |
| KRT8-reverse               | CAGACACCAGCTTCCCATCACG  |
| KRT18-forward              | TGAGACGACGCTCACAGAGCTGA |
| KRT18-reverse              | TATCCGGCGGGTGGTGGTCTTTT |
| GAPDH-forward              | ACCACAGTCCATGCCATCAC    |
| GAPDH-reverse              | TCCCACCACCCTGTTGCTGTA   |
| TBP-forward                | TATAATCCCAAGCGGTTTGC    |
| TBP-reverse                | GCTGGAAAACCCAACTTCTG    |