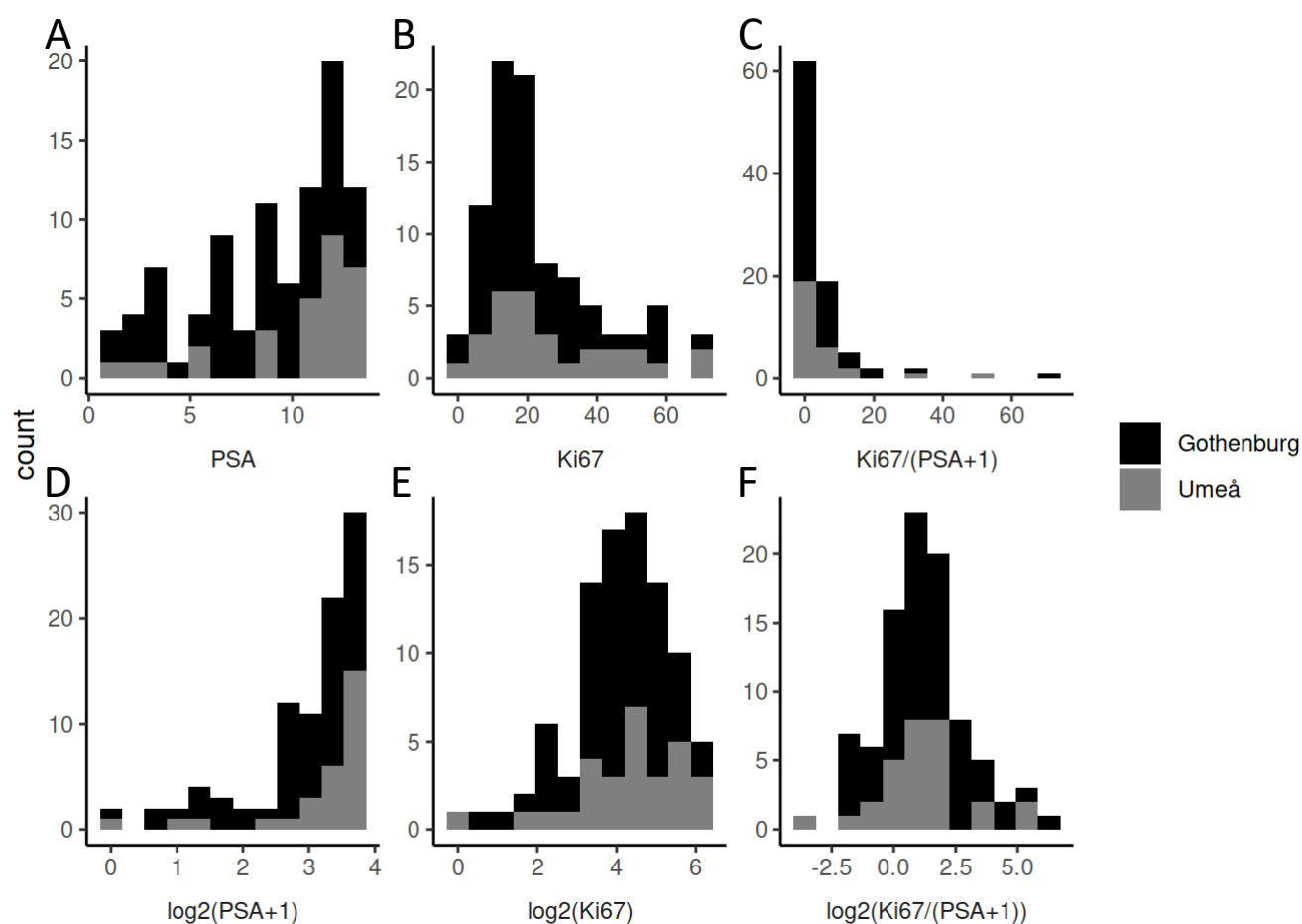
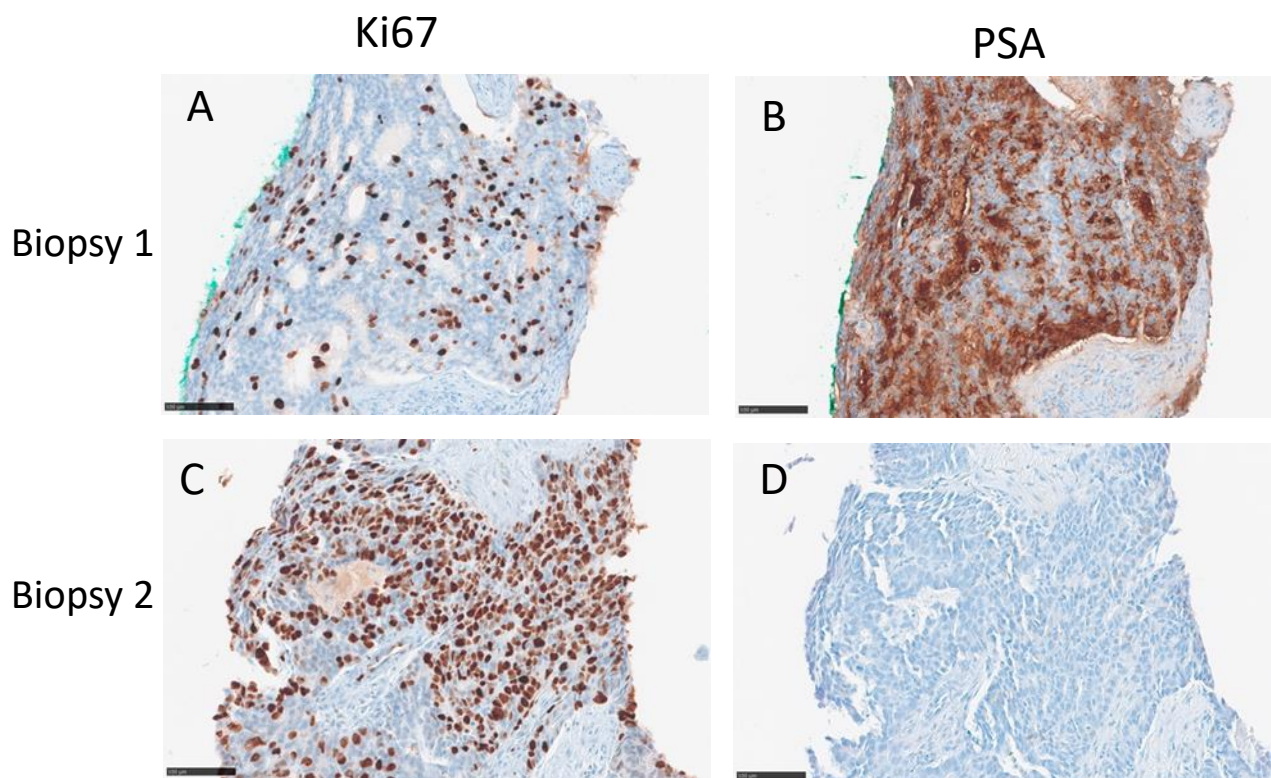
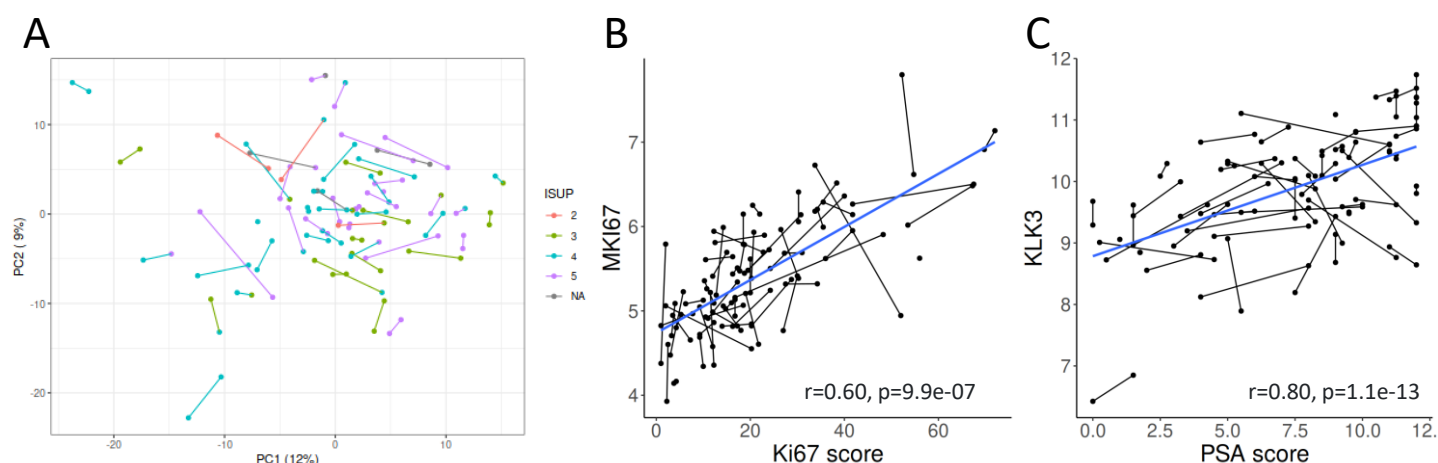




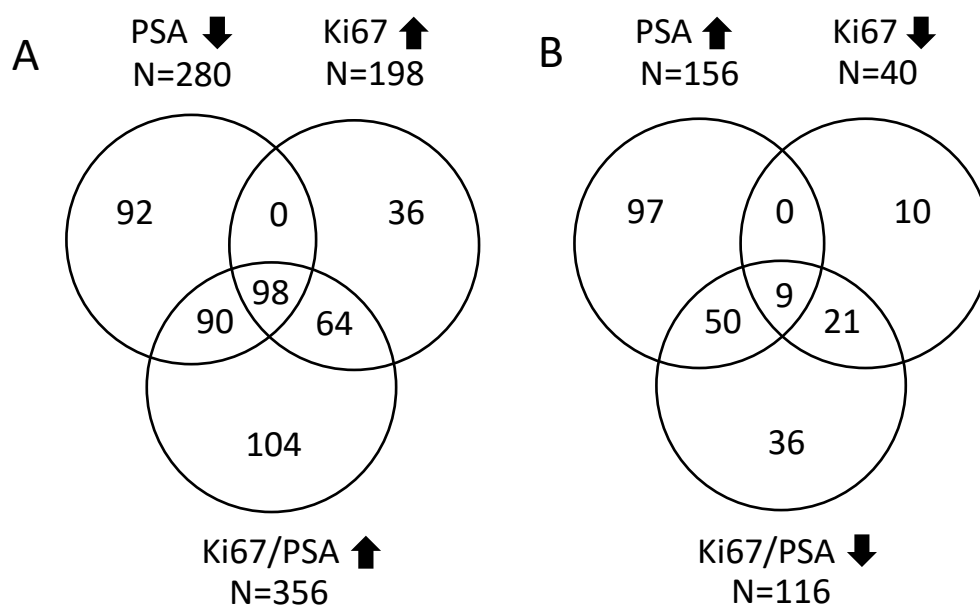
Supplementary Figure S1. Distribution of the cases in the Gothenburg and Umeå cohorts. A) Distribution of PSA scores, B) Distribution of Ki67 scores, C) Distribution of Ki67/PSA scores. D-E) Corresponding distributions regarding log-transformed scores. Gothenburg cases are displayed in black and Umeå cases in grey.



Supplementary Figure S2. Representative stainings of PSA and Ki67 in two prostate biopsies containing cancer with ISUP grade 4 (Gleason score 4+4). Biopsy 1 has a Ki67 staining in the 4th quartile (A) and a strong PSA staining (B). Biopsy 2 has Ki67 staining in the 4th quartile (C) and a weak PSA staining. Scale bar: 100 μ m.

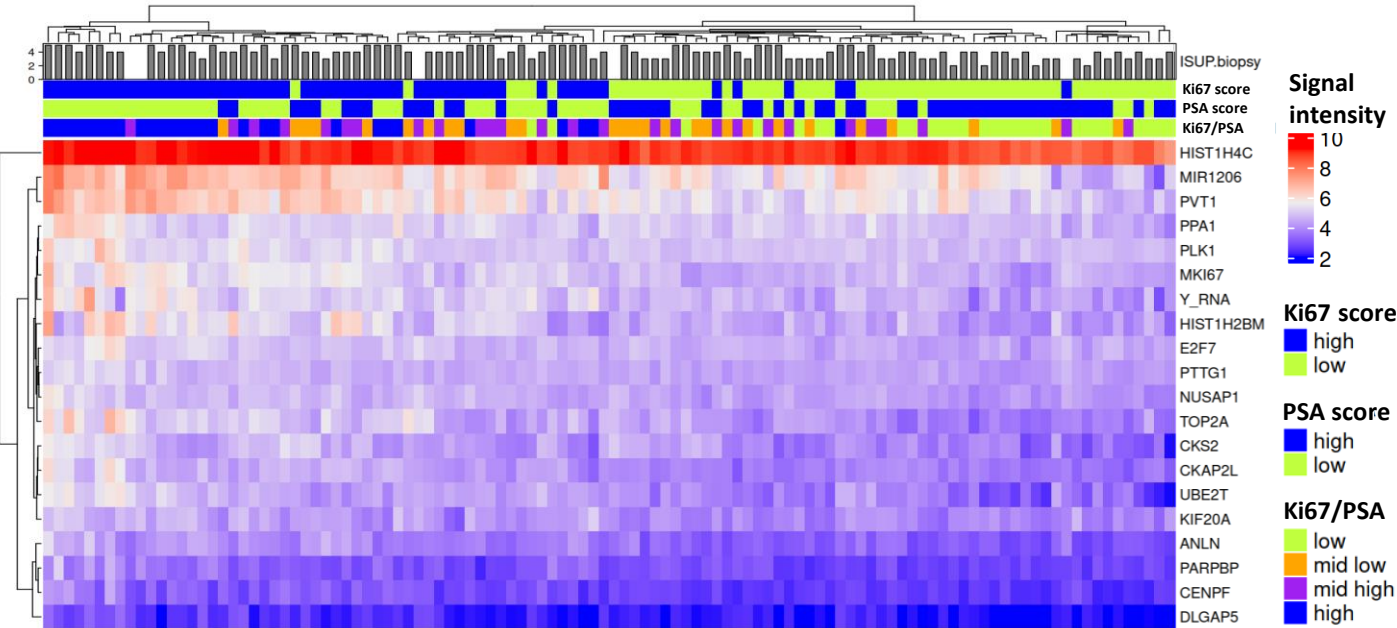


Supplementary Figure S3. Illustration of the gene expression data. The array analysis resulted in a total of 132,397 transcripts with a good coverage indicated by that 90% of the transcripts (119,539) were detected in at least 12 of the samples. The inter-individual heterogeneity was in most cases larger than the intra-individual differences from the two biopsies as illustrated by the principal component analysis (PCA) based on RMA normalized mRNA data, after batch effect correction, the most varying transcripts in A. The score plot is colored according to GS. B) Association between mRNA expression of MKI67 and Ki67 IHC scores and C) association between mRNA expression of KLK3 and PSA IHC scores. Samples from the same patient are connected by lines. Regression statistics are calculated using Pearson's correlation of mean values per patient.

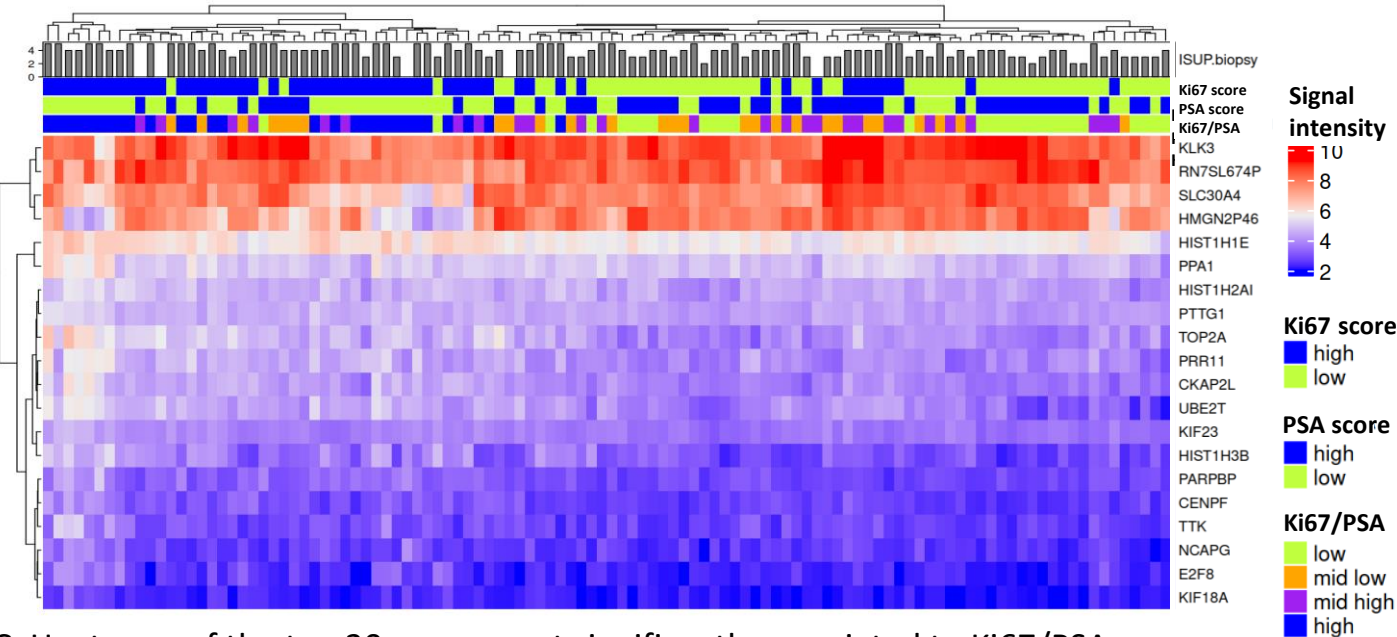


Supplementary Figure S4. Illustration of the overlap between the genes that are significantly associated to the immunohistochemical scores of PSA and Ki67 and their ratio. Among the genes associated to a high Ki67/PSA ratio (A), 104 (29%) were unique for the ratio, while 27% were associated to both low PSA scores and high Ki67 scores. 25% and 18 % were associated to either low PSA scores or high Ki67 scores, respectively. Among the genes inversely associated to the Ki67/PSA ratio (B), 36 (31%) were unique for the ratio. 7,7% were associated also to both high PSA scores and low Ki67 scores, while 43 % and 18% were associated to high PSA scores or low Ki67 scores, respectively.

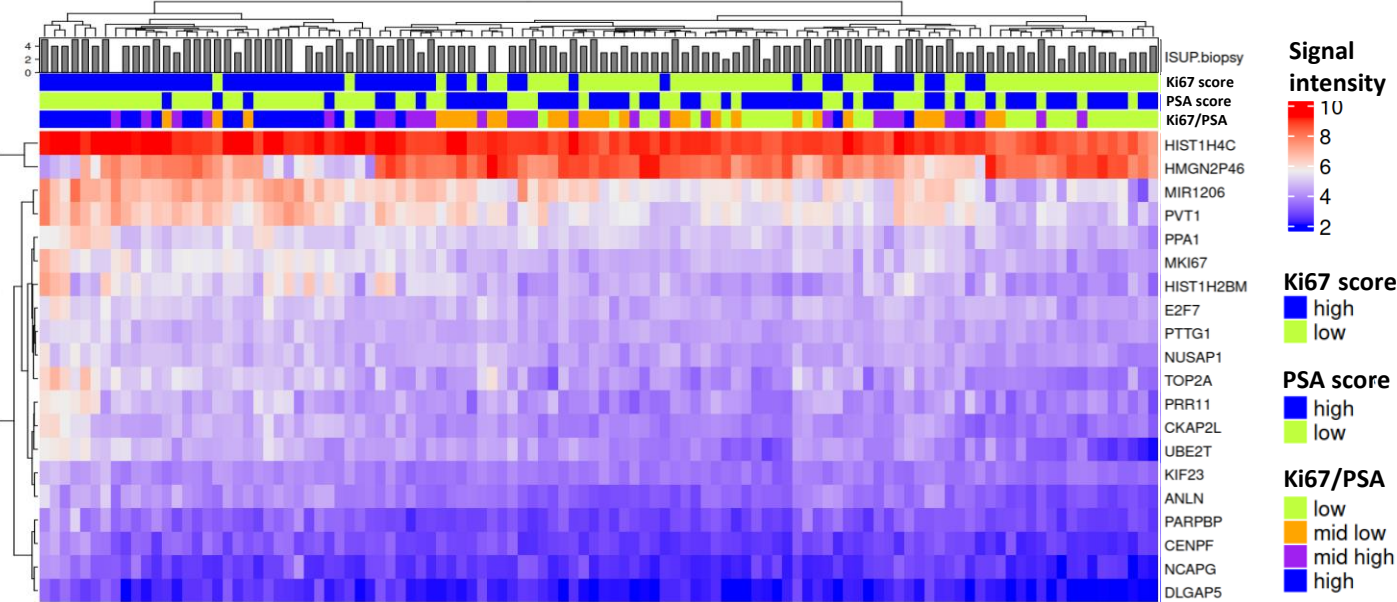
A. Heat map of the top 20 genes most significantly associated to Ki67 score



B. Heat map of the top 20 genes most significantly associated to PSA score



C. Heat map of the top 20 genes most significantly associated to Ki67/PSA



Supplementary figure S5. Heat map of the top 20 genes most significantly associated to A) Ki67, B) PSA, and C) Ki67/PSA