Supporting Information (SI) for

The complexity and dynamics of the tissue glycoproteome associated with prostate cancer progression

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Running title: The glycoproteome dynamics underpinning prostate cancer progression

Supplementary Figures Legends

Supplemental Figure 1 Example of N-glycan isomeric separation by PGC and MSMS fragment-specific substructure diagnostic ions. A) Distinct PGC-LC elution pattern for α2,6 and α2,3 sialic acid and fragment-specific substructure diagnostic ions for core fucosylation and 6 arm composition. B) Fragment-specific substructure diagnostic ions for LacdiNac containing N-glycans. C) Fragment-specific substructure diagnostic ions for bisecting containing N-glycans. D) Fragment-specific substructure diagnostic ions for NeuGc containing N-glycans.

Supplementary Figure 2 Overview of the reproducibility of unique glycoform identified in the prostate tissue. A) Distribution of (number) and % of unique glycoforms identified across 10-100% of the 54 files. The numbers in parenthesis show the number of glycoforms. B) Distribution of (number) and % of unique glycoforms identified across 1-6 conditions (five Pca grades and BPH) is shown in the bar graph.

Supplementary Tables Legends

Supplemental Table SA: Clinical information of the patients included in the study

Supplementary Table SB: Overview of the raw files and search parameters.

Supplementary Table S1: N-glycome dataset of PCa and BPH tissues.

Supplementary Table S2: O-glycome dataset of PCa and BPH tissues.

Supplementary Table S3: Intact N-glycopeptide dataset of PCa and BPH tissues.

Supplementary Table S4: Intact O-glycopeptide dataset of PCa and BPH tissues.

Supplementary Table S5: De-N-glycopeptide dataset of PCa and BPH tissues.

Supplementary Table S6: Proteome dataset of PCa and BPH tissues.

Supplementary Table S7: Significant correlated intact N-glycopeptide with N-glycan structure.

Supplementary Table S8: Significant correlated intact O-glycopeptide with O-glycan structure.

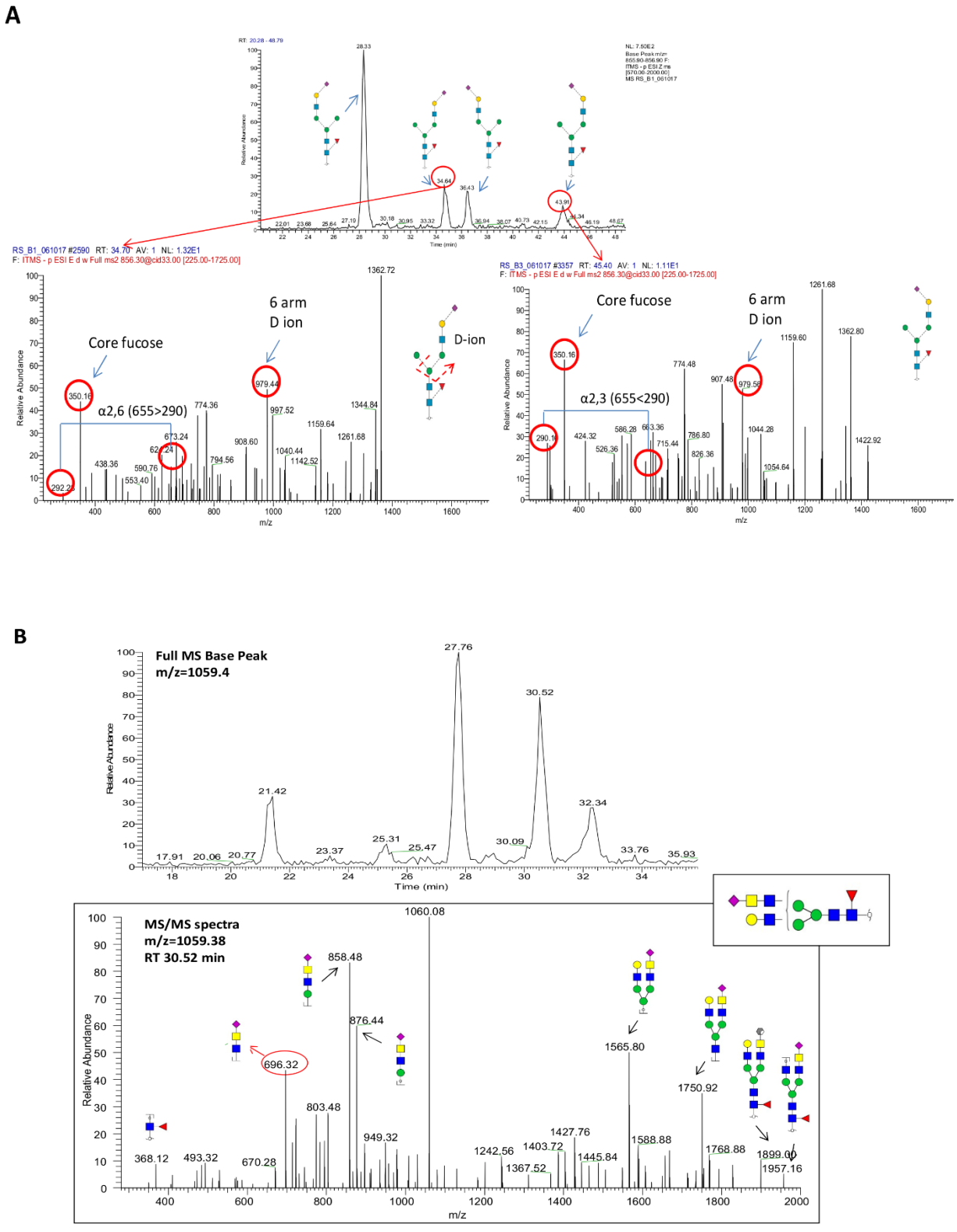
Supplementary Data Legends

Supplementary Data S1: Spectra evidences for reduced N-glycans (alditols) released from PCa and BPH tissues

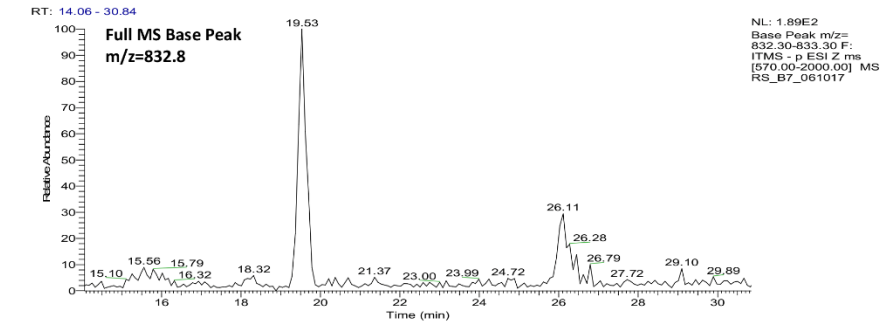
Supplementary Data S2: Spectra evidences for reduced O-glycans (alditols) released from PCa and BPH tissues

Supplementary Figures

Supplementary Figure S1



C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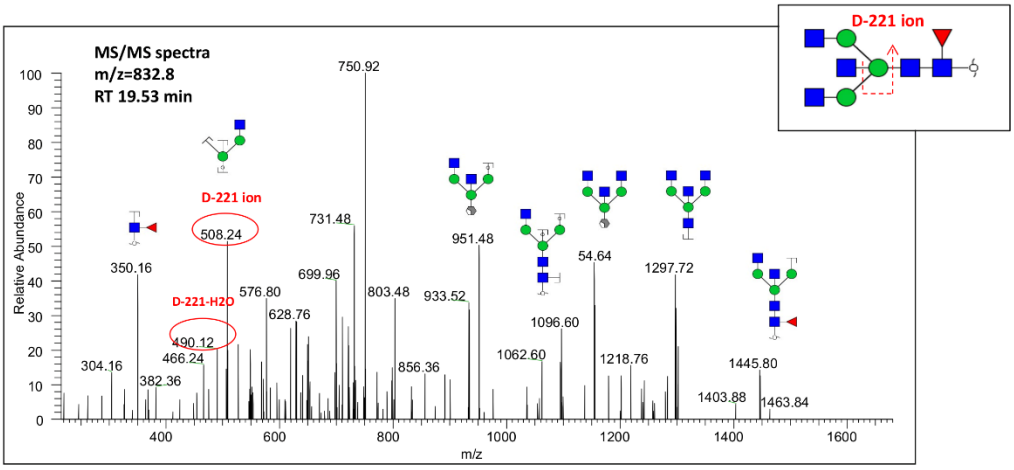
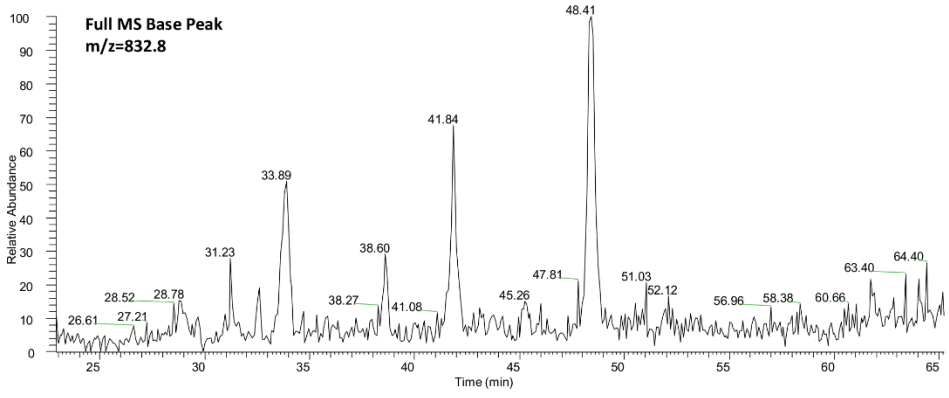
m/z=832.8
NL: 1.89E2
Base Peak m/z=
832.30-833.30 F:
ITMS - p ESI Z ms
[570.00-2000.00] MS
RS_B7_061017
Relative Abundance
Time (min)
19.53
26.11
26.28
26.79
29.10
29.89
27.72
24.72
23.99
23.00
21.37
18.32
16.32
15.79
15.56
15.10


MS/MS spectra
m/z=832.8
RT 19.53 min
D-221 ion
Relative Abundance
m/z
750.92
731.48
951.48
54.64
1297.72
699.96
803.48
933.52
576.80
628.76
1096.60
1062.60
1218.76
1445.80
1403.88
1463.84
856.36
508.24
350.16
D-221-H2O
490.12
466.24
304.16
382.36

D


Full MS Base Peak
m/z=832.8
Relative Abundance
Time (min)
48.41
41.84
33.89
31.23
38.60
47.81
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52.12
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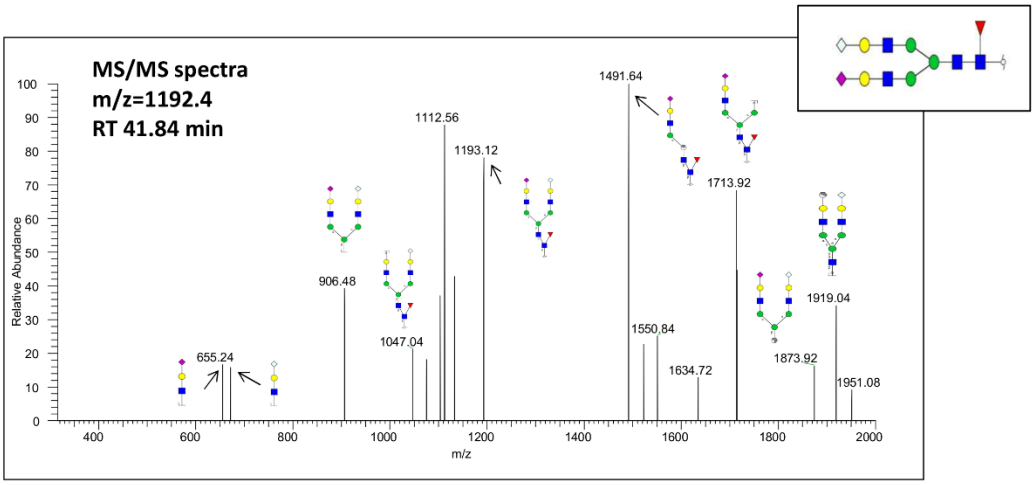
38.27
41.08
28.52
28.78
27.21
26.61


MS/MS spectra
m/z=1192.4
RT 41.84 min
Relative Abundance
m/z
1491.64
1112.56
1193.12
1713.92
906.48
1919.04
1550.84
1047.04
1873.92
1634.72
1951.08
655.24

Supplementary Figure S2