

## Alterations of Serum Protein Glycopatterns related to Lung Cancer (SCLC, ADC, and SqCC)

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Supporting Table 1. Glycopattern in pooled serum from HVs and patients with benign lung disease and LD-SCLC, ED-SCLC by the lectin microarray analysis based on data of 16 lectins giving significant signal.

Lectin	Specificity	HV	BPD	LD-SCLC	ED-SCLC
Jacalin	Gal $\beta$ 1-3GalNAc $\alpha$ -Ser/Thr(T), GalNAc $\alpha$ -Ser/Thr(Tn)	0.069 $\pm$ 0.016	0.04 $\pm$ 0.002	0.039 $\pm$ 0.008	0.076 $\pm$ 0.043
HHL	High-Mannose, Man $\alpha$ 1-3Man, Man $\alpha$ 1-6Man, Man5-GlcNAc2-Asn	0.008 $\pm$ 0.001	0.016 $\pm$ 0.005	0.008 $\pm$ 0.002	0.013 $\pm$ 0.002
WFA	terminating in GalNAc $\alpha$ / $\beta$ 1-3/6Gal	0.016 $\pm$ 0.003	0.021 $\pm$ 0.007	0.027 $\pm$ 0.004	0.023 $\pm$ 0.004
PHA-E	Bisecting GlcNAc, biantennary complex-type N-glycan with outer Gal	0.027 $\pm$ 0.004	0.034 $\pm$ 0.005	0.023 $\pm$ 0.004	0.019 $\pm$ 0.004
EEL	Gal $\alpha$ 1-3(Fuca1-2) Gal (blood group B antigen)	0.001 $\pm$ 0.002	0.008 $\pm$ 0.012	0.007 $\pm$ 0.012	0.002 $\pm$ 0.002
LTL	Fuca1-2Gal $\beta$ 1-4GlcNAc, Fuca1-3(Gal $\beta$ 1-4)GlcNAc	0.021 $\pm$ 0.003	0.024 $\pm$ 0.007	0.015 $\pm$ 0.001	0.021 $\pm$ 0.007
LEL	(GlcNAc) <sub>n</sub> , high mannose-type N-glycans	0.011 $\pm$ 0.001	0.015 $\pm$ 0.006	0.007 $\pm$ 0.002	0.013 $\pm$ 0.002
GSL-I	$\alpha$ GalNAc, $\alpha$ Gal, anti-A and B	0.009 $\pm$ 0.01	0.021 $\pm$ 0.003	0.012 $\pm$ 0.007	0.004 $\pm$ 0.004
DBA	$\alpha$ GalNAc, Tn antigen, GalNAc $\alpha$ 1-3(Fuca1-2)Gal (blood group A antigen)	0.009 $\pm$ 0.001	0.016 $\pm$ 0.006	0.009 $\pm$ 0.002	0.012 $\pm$ 0.004
LCA	$\alpha$ -D-Man, Fuca-1,6GlcNAc, $\alpha$ -D-Glc trimers and tetramers of GlcNAc, core (GlcNAc)	0.187 $\pm$ 0.013	0.099 $\pm$ 0.037	0.183 $\pm$ 0.028	0.114 $\pm$ 0.082
STL	of N-glycan, oligosaccharide containing GlcNAc and MurNAc	0.033 $\pm$ 0.007	0.026 $\pm$ 0.012	0.052 $\pm$ 0.005	0.044 $\pm$ 0.004
BS-I	$\alpha$ -Gal, $\alpha$ -GalNAc, Gal $\alpha$ -1,3Gal, Gal $\alpha$ -1,6Glc	0.008 $\pm$ 0.006	0.016 $\pm$ 0.004	0.012 $\pm$ 0.002	0.016 $\pm$ 0.008
NPA	High-Mannose, Man $\alpha$ 1-6Man	0.003 $\pm$ 0.004	0.012 $\pm$ 0.007	0.005 $\pm$ 0.002	0.006 $\pm$ 0.002

UEA-I	Fuc $\alpha$ 1-2Gal $\beta$ 1-4Glc(NAc)	0.01 $\pm$ 0.009	0.019 $\pm$ 0.001	0.017 $\pm$ 0.007	0.016 $\pm$ 0.003
RCA120	$\beta$ -Gal, Gal $\beta$ -1,4GlcNAc (type II), Gal $\beta$ 1-3GlcNAc (type I)	0 $\pm$ 0	0.014 $\pm$ 0.005	0.018 $\pm$ 0.003	0.021 $\pm$ 0.003
SNA	Sia2-6Gal/GalNAc	0.025 $\pm$ 0.005	0.033 $\pm$ 0.009	0.019 $\pm$ 0.005	0.021 $\pm$ 0.005

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Supporting Table 2. Fold change of the serum glycopatterns based upon ratio of the NFIs of each lectin from HVs, BPD, LD-SCLC and ED-SCLC patients.

Lectin	Specificity	Compared with HV ( <i>p</i> value) <sup>a</sup>			Compared with each other ( <i>p</i> value) <sup>b</sup>		
		BPD/HV	LD-SCLC/HV	ED-SCLC/HV	LD-SCLC/BPD	ED-SCLC/BPD	ED-SCLC/LD-SCLC
BS-I	$\alpha$ -Gal, $\alpha$ -GalNAc, Gal $\alpha$ -1,3Gal, Gal $\alpha$ -1,6Glc	2.07(0.008)	1.51(0.024)	2.08(0.002)	-	-	-
RCA120	$\beta$ -Gal, Gal $\beta$ -1,4GlcNAc (type II), Gal $\beta$ 1-3GlcNAc (type I)	/ (<0.001)	/ (<0.001)	/ (<0.001)	-	-	-
UEA-I	Fuc $\alpha$ 1-2Gal $\beta$ 1-4Glc(NAc)	1.91(0.017)	-	1.62(0.026)	-	-	-
RCA120	$\beta$ -Gal, Gal $\beta$ -1,4GlcNAc (type II), Gal $\beta$ 1-3GlcNAc (type I)	/ (<0.001)	/ (<0.001)	/ (<0.001)	-	-	-
WFA	terminating in GalNAc $\alpha$ / $\beta$ 1-3/6Gal	-	1.69(<0.001)	-	-	-	-
SNA	Sia2-6Gal/GalNAc	-	-	-	0.59(0.005)	0.63(0.049)	-
LEL	(GlcNAc) <sub>n</sub> , high mannose-type N-glycans	-	-	-	0.50(0.021)	-	1.76(0.014)
LTL	Fuc $\alpha$ 1-2Gal $\beta$ 1-4GlcNAc, Fuc $\alpha$ 1-3(Gal $\beta$ 1-4) GlcNAc	-	-	-	0.60(0.006)	-	-
PHA-E	Bisecting GlcNAc, biantennary complex-type N-glycan with outer Gal	-	-	-	-	0.55(0.016)	-
Jacalin	Gal $\beta$ 1-3GalNAc $\alpha$ -Ser/Thr(T), GalNAc $\alpha$ -Ser/Thr(Tn)	0.58(0.043)	0.56(0.006)	-	-	1.91(0.023)	1.97(0.042)
LCA	$\alpha$ -D-Man, Fuc $\alpha$ -1,6GlcNAc, $\alpha$ -D-Glc	0.53(0.021)	-	0.61(<0.001)	1.84(0.032)	-	0.63(0.028)
EEL	Gal $\alpha$ 1-3(Fuc $\alpha$ 1-2) Gal (blood group B antigen)	6.71(0.006)	5.94(<0.001)	1.99(0.023)	-	0.30(0.047)	0.34(0.012)

GSL-I	$\alpha$ GalNAc, $\alpha$ Gal, anti-A and B	2.37(0.043)	-	0.50(0.016)	0.58(0.035)	0.21(0.039)	0.36(<0.001)
NPA	High-Mannose, Man $\alpha$ 1-6Man	4.66(<0.001)	-	2.22(0.041)	0.37(0.005)	0.48(0.038)	-
HHL	High-Mannose, Man $\alpha$ 1-3Man, Man $\alpha$ 1-6Man, Man5-GlcNAc2-Asn trimers and tetramers of GlcNAc, core (GlcNAc) of N-glycan, oligosaccharide containing GlcNAc and MurNAc	2.06(0.029)	-	1.73(0.016)	0.49(0.030)	-	1.71(0.004)
STL	$\alpha$ GalNAc, Tn antigen, GalNAc $\alpha$ 1-3(Fuc $\alpha$ 1-2) Gal (blood group A antigen)	-	1.55(0.046)	-	1.97(0.007)	1.68(0.019)	-
DBA		1.87(0.010)	-	-	0.59(0.006)	-	-

<sup>a</sup> The NFIs of each lectin from BLD, LD-SCLC, and ED-SCLC groups were compared with that from HV group based on their fold change (i.e., BLD/HV, LD-SCLC/HV, and ED-SCLC/HV), respectively.

<sup>b</sup> The NFIs of each lectin from three disease groups were compared with BPD and each other based upon fold change in pairs, i.e., LD-SCLC/BLD, ED-SCLC/BLD, and ED-SCLC/LD-SCLC. -, no significant difference; /, the denominator of the fold-change was zero.

Supporting Table 3. Glycopattern in pooled serum from HVs, BPD, ADC-ES and ADC-AS patients by the lectin microarray analysis based on data of 23 lectins giving significant signal.

Lectin	Specificity	HV	BPD	ES-ADC	AS-ADC
HHL	High-Mannose, Man $\alpha$ 1-3Man, Man $\alpha$ 1-6Man, Man5-GlcNAc2-Asn	0.008 $\pm$ 0.001	0.016 $\pm$ 0.005	0.013 $\pm$ 0.001	0.013 $\pm$ 0.01
WFA	terminating in GalNAc $\alpha$ / $\beta$ 1-3/6Gal	0.016 $\pm$ 0.003	0.021 $\pm$ 0.007	0.024 $\pm$ 0.005	0.035 $\pm$ 0.003
MAL-II	Sia $\alpha$ 2-3Gal $\beta$ 1-4Glc(NAc)/Glc	0.021 $\pm$ 0.004	0.029 $\pm$ 0.005	0.03 $\pm$ 0.001	0.034 $\pm$ 0.001
PTL-I	GalNAc, GalNAc $\alpha$ -1,3Gal, GalNAc $\alpha$ -1,3Gal $\beta$ -1,3/4Glc	0.014 $\pm$ 0.003	0.018 $\pm$ 0.003	0.021 $\pm$ 0.003	0.017 $\pm$ 0.008
EEL	Gal $\alpha$ 1-3(Fuca1-2) Gal (blood group B antigen)	0.001 $\pm$ 0.002	0.008 $\pm$ 0.012	0.024 $\pm$ 0.003	0.021 $\pm$ 0.013
AAL	Fuca1-6 GlcNAc (core fucose), Fuca1-3(Gal $\beta$ 1-4) GlcNAc	0.023 $\pm$ 0.005	0.024 $\pm$ 0	0.036 $\pm$ 0.004	0.06 $\pm$ 0.018
MPL	Gal $\beta$ 1-3GalNAc, GalNAc	0.011 $\pm$ 0.009	0.014 $\pm$ 0.008	0.028 $\pm$ 0.006	0.031 $\pm$ 0.015
LEL	(GlcNAc) <sub>n</sub> , high mannose-type N-glycans	0.011 $\pm$ 0.001	0.015 $\pm$ 0.006	0.027 $\pm$ 0.003	0.023 $\pm$ 0.004
GSL-I	$\alpha$ GalNAc, $\alpha$ Gal, anti-A and B	0.009 $\pm$ 0.01	0.021 $\pm$ 0.003	0.031 $\pm$ 0.005	0.02 $\pm$ 0.011
DBA	$\alpha$ GalNAc, Tn antigen, GalNAc $\alpha$ 1-3(Fuca1-2) Gal (blood group A antigen)	0.009 $\pm$ 0.001	0.016 $\pm$ 0.006	0.021 $\pm$ 0.005	0.024 $\pm$ 0.001
LCA	$\alpha$ -D-Man, Fuca-1,6GlcNAc, $\alpha$ -D-Glc	0.187 $\pm$ 0.013	0.099 $\pm$ 0.037	0.044 $\pm$ 0.008	0.038 $\pm$ 0.014

RCA120	$\beta$ -Gal, Gal $\beta$ -1,4GlcNAc (type II), Gal $\beta$ 1-3GlcNAc (type I)	0 $\pm$ 0	0.014 $\pm$ 0.005	0.018 $\pm$ 0.003	0.021 $\pm$ 0.003
STL	trimers and tetramers of GlcNAc, core (GlcNAc) of N-glycan, oligosaccharide containing GlcNAc and MurNAc	0.033 $\pm$ 0.007	0.026 $\pm$ 0.012	0.027 $\pm$ 0.002	0.042 $\pm$ 0.008
BS-I	$\alpha$ -Gal, $\alpha$ -GalNAc, Gal $\alpha$ -1,3Gal, Gal $\alpha$ -1,6Glc	0.008 $\pm$ 0.006	0.016 $\pm$ 0.004	0.009 $\pm$ 0.003	0.005 $\pm$ 0.002
ConA	High-Mannose, Man $\alpha$ 1-6(Man $\alpha$ 1-3) Man, terminal GlcNAc	0.021 $\pm$ 0.004	0.021 $\pm$ 0.003	0.034 $\pm$ 0.001	0.028 $\pm$ 0.008
PTL-II	Gal, blood group H, T-antigen	0.01 $\pm$ 0.002	0.013 $\pm$ 0.003	0.024 $\pm$ 0.008	0.014 $\pm$ 0.003
VVA	terminal GalNAc, GalNAc $\alpha$ -Ser/Thr(Tn), GalNAc $\alpha$ 1-3Gal	0.029 $\pm$ 0.006	0.034 $\pm$ 0.009	0.041 $\pm$ 0.002	0.026 $\pm$ 0.003
NPA	High-Mannose, Man $\alpha$ 1-6Man	0.003 $\pm$ 0.004	0.012 $\pm$ 0.007	0.025 $\pm$ 0.002	0.022 $\pm$ 0.006
WGA	Multivalent Sia and (GlcNAc) <sub>n</sub>	0.064 $\pm$ 0.012	0.061 $\pm$ 0.021	0.026 $\pm$ 0.002	0.012 $\pm$ 0.004
UEA-I	Fuc $\alpha$ 1-2Gal $\beta$ 1-4Glc(NAc)	0.01 $\pm$ 0.009	0.019 $\pm$ 0.001	0.007 $\pm$ 0.001	0.006 $\pm$ 0.003
PWM	BraBLDhed (LacNAc) <sub>n</sub>	0.026 $\pm$ 0.003	0.025 $\pm$ 0.001	0.015 $\pm$ 0.001	0.012 $\pm$ 0.004
MAL-I	Gal $\beta$ -1,4GlcNAc, Sia $\alpha$ 2-3Gal, Gal $\beta$ 1-3GlcNAc, Sia $\alpha$ 2-3	0.018 $\pm$ 0.002	0.02 $\pm$ 0.006	0.03 $\pm$ 0.001	0.03 $\pm$ 0.004
SNA	Sia2-6Gal/GalNAc	0.025 $\pm$ 0.005	0.033 $\pm$ 0.009	0.034 $\pm$ 0.001	0.051 $\pm$ 0.015

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Supporting Table 4. Fold change of the serum glycoproteins based upon ratio of the NFIs of each lectin from HVs, BPD, ADC-ES and ADC-AS patients.

Lectin	Specificity	Compared with HV ( <i>p</i> value) <sup>a</sup>			Compared with each other ( <i>p</i> value) <sup>b</sup>		
		BPD/HV	ADC-ES/HV	ADC-AS/HV	ADC-ES/BPD	ADC-AS/BPD	ADC-AS/ADC-ES
HHL	High-Mannose, Man $\alpha$ 1-3Man, Man $\alpha$ 1-6Man, Man5-GlcNAc2-Asn	2.06(0.024)	1.72(0.008)	1.64(0.041)	-	-	-
PTL-I	GalNAc, GalNAc $\alpha$ -1,3Gal, GalNAc $\alpha$ -1,3Gal $\beta$ -1,3/4Glc	-	1.55(0.016)	-	-	-	-
MAL-II	Sia $\alpha$ 2-3Gal $\beta$ 1-4Glc(NAc)/Glc	-	-	1.64(0.001)	-	-	-
STL	trimers and tetramers of GlcNAc, core (GlcNAc) of N-glycan, oligosaccharide containing GlcNAc and MurNAc	-	-	-	-	1.60(0.017)	1.57(0.009)
VVA	terminal GalNAc, GalNAc $\alpha$ -Ser/Thr(Tn), GalNAc $\alpha$ 1-3Gal	-	-	-	-	-	0.64(0.011)
Jacalin	Gal $\beta$ 1-3GalNAc $\alpha$ -Ser/Thr(T), GalNAc $\alpha$ -Ser/Thr(Tn)	0.58(0.043)	0.07(0.016)	0.09(0.005)	0.12(0.032)	0.16(0.007)	-
LCA	$\alpha$ -D-Man, Fuc $\alpha$ -1,6GlcNAc, $\alpha$ -D-Glc	0.53(0.014)	0.24(0.001)	0.20(0.001)	0.45(0.033)	0.38(0.025)	-



WGA	Multivalent Sia and (GlcNAc) <sub>n</sub>	-	0.40(0.005)	0.19(0.001)	0.42(0.008)	0.20(0.001)	0.46(0.020)
PWM	BraBPDhed (LacNAc) <sub>n</sub>	-	0.56(0.001)	0.45(<0.001)	0.59(0.002)	0.20(<0.001)	-
BS-I	α-Gal, α-GalNAc, Galα-1,3Gal, Galα-1,6Glc	2.07(0.043)	-	-	0.59(0.012)	0.33(0.030)	0.56(0.038)
UEA-I	Fuca1-2Galβ1-4Glc(NAc)	1.91(0.045)	-	0.60(0.012)	0.38(0.020)	0.20(0.023)	-
EEL	Galα1-3(Fuca1-2) Gal (blood group B antigen)	6.71(0.041)	21.24(0.016)	18.44(0.037)	3.17(0.032)	2.75(0.011)	-
NPA	High-Mannose, Manα1-6Man	4.66(0.040)	9.48(<0.001)	8.46(0.001)	2.04(0.013)	1.82(0.037)	-
DBA	αGalNAc, Tn antigen, GalNAcα1-3(Fuca1-2) Gal (blood group A antigen)	1.87(0.046)	2.39(0.006)	2.83(0.001)	-	1.52(0.033)	-
RCA120	β-Gal, Galβ-1,4GlcNAc (type II), Galβ1-3GlcNAc (type I)	/( <0.001)	/( <0.001)	/( <0.001)	-	1.53(<0.001)	-
GSL-I	αGalNAc, αGal, anti-A and B	2.37(0.027)	3.44(0.019)	2.21(0.049)	-	-	0.64(0.022)
AAL	Fuca1-6 GlcNAc (core fucose), Fuca1-3(Galβ1-4) GlcNAc	-	1.55(0.014)	2.55(0.002)	1.51(0.015)	2.49(0.018)	1.65(0.018)
MPL	Galβ1-3GalNAc, GalNAc	-	2.51(0.041)	2.78(0.024)	2.06(0.031)	2.28(0.041)	-

LEL	(GlcNAc) <sub>n</sub> , high mannose-type N-glycans	-	2.60(<0.001)	2.17(0.003)	1.84(0.003)	1.54(0.040)	-
MAL-I	Gal $\beta$ -1,4GlcNAc, Sia $\alpha$ 2-3Gal, Gal $\beta$ 1-3GlcNAc, Sia $\alpha$ 2-3	-	1.68(0.004)	1.66(0.005)	1.50(0.012)	0.20(0.014)	-
WFA	terminating in GalNAc $\alpha$ / $\beta$ 1-3/6Gal	-	1.51(0.018)	2.15(0.001)	-	1.68(0.007)	-
ConA	High-Mannose, Man $\alpha$ 1-6(Man $\alpha$ 1-3) Man, terminal GlcNAc	-	1.57(0.013)	-	1.60(0.031)	-	-
PTL-II	Gal, blood group H, T-antigen	-	2.33(0.010)	-	1.78(0.032)	-	0.61(0.010)
SNA	Sia2-6Gal/GalNAc	-	-	2.08(0.008)	-	0.20(0.044)	1.51(0.015)

<sup>a</sup> The NFIs of each lectin from HB, BPD, ADC-ES and ADC-AS groups were compared with that from HV group based on their fold change (i.e., BPD/HB, ADC-ES/HV, and ADC-AS/HV), respectively.

<sup>b</sup> The NFIs of each lectin from three disease groups were compared with that from BPD group based on their fold change and compared with each other on their fold change (i.e., ADC-ES/BPD, ADC-AS/BPD, and ADC-AS/ADC-ES. -, no significant difference; /, the denominator of the fold change was zero).

Supporting Table 5. Glycopatternin in sera from HVs, BPD, SqCC-ES and SqCC-AS by the lectin microarray analysis based on data of 19

lectins giving significant signal.

Lectin	Specificity	HV	BPD	SqCC-ES	SqCC-AS
HHL	High-Mannose, Man $\alpha$ 1-3Man, Man $\alpha$ 1-6Man, Man5-GlcNAc2-Asn	0.008 $\pm$ 0.001	0.016 $\pm$ 0.005	0.009 $\pm$ 0.009	0.013 $\pm$ 0.004
MAL-II	Sia $\alpha$ 2-3Gal $\beta$ 1-4Glc(NAc)/Glc	0.021 $\pm$ 0.004	0.029 $\pm$ 0.005	0.018 $\pm$ 0.007	0.016 $\pm$ 0.004
PHA-E	Bisecting GlcNAc, biantennary complex-type N-glycan with outer Gal	0.027 $\pm$ 0.004	0.034 $\pm$ 0.005	0.03 $\pm$ 0.005	0.022 $\pm$ 0.004
SJA	Terminal in GalNAc and Gal	0.043 $\pm$ 0.008	0.039 $\pm$ 0.001	0.032 $\pm$ 0.005	0.022 $\pm$ 0.003
EEL	Gal $\alpha$ 1-3(Fuc $\alpha$ 1-2) Gal (blood group B antigen)	0.001 $\pm$ 0.002	0.008 $\pm$ 0.012	0.016 $\pm$ 0.004	0.024 $\pm$ 0.004
MPL	Gal $\beta$ 1-3GalNAc, GalNAc	0.011 $\pm$ 0.009	0.014 $\pm$ 0.008	0.037 $\pm$ 0.013	0.029 $\pm$ 0.006
LEL	(GlcNAc) <sub>n</sub> , high mannose-type N-glycans	0.011 $\pm$ 0.001	0.015 $\pm$ 0.006	0.019 $\pm$ 0.006	0.02 $\pm$ 0.002
GSL-I	$\alpha$ GalNAc, $\alpha$ Gal, anti-A and B	0.009 $\pm$ 0.01	0.021 $\pm$ 0.003	0.016 $\pm$ 0.003	0.016 $\pm$ 0.003
DBA	$\alpha$ GalNAc, Tn antigen, GalNAc $\alpha$ 1-3(Fuc $\alpha$ 1-2) Gal (blood group A antigen)	0.009 $\pm$ 0.001	0.016 $\pm$ 0.006	0.017 $\pm$ 0.007	0.025 $\pm$ 0.003
LCA	$\alpha$ -D-Man, Fuc $\alpha$ -1,6GlcNAc, $\alpha$ -D-Glc	0.187 $\pm$ 0.013	0.099 $\pm$ 0.037	0.09 $\pm$ 0.053	0.044 $\pm$ 0.012
RCA120	$\beta$ -Gal, Gal $\beta$ -1,4GlcNAc (type II), Gal $\beta$ 1-3GlcNAc (type I)	0 $\pm$ 0	0.014 $\pm$ 0.005	0.028 $\pm$ 0.002	0.021 $\pm$ 0.002
STL	trimers and tetramers of GlcNAc, core (GlcNAc) of N-glycan, oligosaccharide containing GlcNAc and MurNAc	0.033 $\pm$ 0.007	0.026 $\pm$ 0.012	0.049 $\pm$ 0.012	0.04 $\pm$ 0.007

BS-I	$\alpha$ -Gal, $\alpha$ -GalNAc, Gal $\alpha$ -1,3Gal, Gal $\alpha$ -1,6Glc	0.008 $\pm$ 0.006	0.016 $\pm$ 0.004	0.035 $\pm$ 0.007	0.032 $\pm$ 0.002
PTL-II	Gal, blood group H, T-antigen	0.01 $\pm$ 0.002	0.013 $\pm$ 0.003	0.02 $\pm$ 0.008	0.026 $\pm$ 0.003
NPA	High-Mannose, Man $\alpha$ 1-6Man	0.003 $\pm$ 0.004	0.012 $\pm$ 0.007	0.018 $\pm$ 0.005	0.031 $\pm$ 0.004
PSA	$\alpha$ -D-Man, Fuc $\alpha$ -1,6GlcNAc, $\alpha$ -D-Glc	0.037 $\pm$ 0.009	0.029 $\pm$ 0.005	0.027 $\pm$ 0.004	0.021 $\pm$ 0.002
ACA	Gal $\beta$ 1-3GalNAc $\alpha$ -Ser/Thr (T)	0.028 $\pm$ 0.002	0.032 $\pm$ 0.002	0.038 $\pm$ 0.013	0.046 $\pm$ 0.004
UEA-I	Fuc $\alpha$ 1-2Gal $\beta$ 1-4Glc(NAc)	0.01 $\pm$ 0.009	0.019 $\pm$ 0.001	0.019 $\pm$ 0.005	0.032 $\pm$ 0.002
BPL	Gal $\beta$ 1-3GalNAc, Terminal GalNAc	0.033 $\pm$ 0.007	0.031 $\pm$ 0.001	0.018 $\pm$ 0.008	0.032 $\pm$ 0.004

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Supporting Table 6. Fold change of the serum glycopatterns based upon ratio of the NFIs of each lectin from HVs, BPD, SqCC-ES and SqCC-AS patients.

Lectin	Specificity	Compared with HV ( <i>p</i> value) <sup>a</sup>			Compared with each other ( <i>p</i> value) <sup>b</sup>		
		BPD/HV	SqCC-ES/HV	SqCC-AS/HV	SqCC-ES/BPD	SqCC-AS/BPD	SqCC-AS/SqCC-ES
GSL-I	$\alpha$ GalNAc, $\alpha$ Gal, anti-A and B	2.37(0.025)	1.80(0.001)	1.82(0.037)	-	-	-
LEL	(GlcNAc) <sub>n</sub> , high mannose-type N-glycans	-	1.80(<0.001)	1.94(0.003)	-	-	-
ACA	Gal $\beta$ 1-3GalNAc $\alpha$ -Ser/Thr (T)	-	-	1.68(0.004)	-	-	-
PSA	$\alpha$ -D-Man, Fuc $\alpha$ -1,6GlcNAc, $\alpha$ -D-Glc	-	-	0.58(0.019)	-	-	-
STL	trimers and tetramers of GlcNAc, core (GlcNAc) of N-glycan, oligosaccharide containing GlcNAc and MurNAc	-	-	-	1.85(0.006)	1.51(0.002)	-
MAL-II	Sia $\alpha$ 2-3Gal $\beta$ 1-4Glc(NAc)/Glc	-	-	-	0.64(0.011)	0.54(0.008)	-
Jacalin	Gal $\beta$ 1-3GalNAc $\alpha$ -Ser/Thr(T), GalNAc $\alpha$ -Ser/Thr(Tn)	0.58(0.043)	0.27(0.043)	0.22(0.002)	0.48(0.019)	0.38(0.026)	-
LCA	$\alpha$ -D-Man, Fuc $\alpha$ -1,6GlcNAc, $\alpha$ -D-Glc	0.53(0.013)	0.48(0.008)	0.23(0.035)	-	0.44(0.008)	0.48(0.013)

BPL	Gal $\beta$ 1-3GalNAc, Terminal GalNAc	-	0.54(0.038)	-	0.58(0.015)	-	1.79(0.008)
SJA	Terminal in GalNAc and Gal	-	-	0.52(0.012)	-	0.58(0.003)	-
EEL	Gal $\alpha$ 1-3(Fuc $\alpha$ 1-2) Gal (blood group B antigen)	6.71(0.038)	14.34(0.003)	21.81(0.001)	2.14(<0.001)	3.25(<0.001)	1.52(0.0029)
BS-I	$\alpha$ -Gal, $\alpha$ -GalNAc, Gal $\alpha$ -1,3Gal, Gal $\alpha$ -1,6Glc	2.07(0.027)	4.58(<0.001)	4.14(0.002)	2.21(<0.001)	2.00(0.005)	-
NPA	High-Mannose, Man $\alpha$ 1-6Man	4.66(0.042)	6.84(0.005)	11.62(0.020)	-	2.50(0.002)	1.70(0.015)
UEA-I	Fuc $\alpha$ 1-2Gal $\beta$ 1-4Glc(NAc)	1.91(0.047)	1.93(0.037)	3.19(0.001)	-	1.67(<0.001)	1.66(0.023)
RCA120	$\beta$ -Gal, Gal $\beta$ -1,4GlcNAc (type II), Gal $\beta$ 1-3GlcNAc (type I)	/(<0.001)	/(<0.001)	/(<0.001)	2.02(<0.001)	-	-
DBA	$\alpha$ GalNAc, Tn antigen, GalNAc $\alpha$ 1-3(Fuc $\alpha$ 1-2) Gal (blood group A antigen)	1.87(0.028)	1.97(0.046)	2.87(0.018)	-	1.54(0.006)	-
MPL	Gal $\beta$ 1-3GalNAc, GalNAc	-	3.23(0.012)	2.58(0.019)	2.65(0.015)	2.11(0.028)	-
PTL-II	Gal, blood group H, T-antigen	-	2.01(0.030)	2.59(0.010)	1.54(0.003)	1.99(0.010)	-
HHL	High-Mannose, Man $\alpha$ 1-3Man, Man $\alpha$ 1-6Man, Man5-GlcNAc2-Asn	2.06(0.017)	-	1.71(0.015)	0.58(0.015)	-	-

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<sup>a</sup> The NFIs of each lectin from HB, BPD, SqCC-ES and SqCC-AS groups were compared with that from HV group based on their fold change (i.e., BPD/HB, SqCC-ES/HV, and SqCC-AS/HV), respectively.

<sup>b</sup> The NFIs of each lectin from three disease groups were compared with that from BPD group based on their fold change and compared with each other on their fold change (i.e., SqCC-ES/BPD, SqCC-AS/BPD, and SqCC-AS/SqCC-ES. -, no significant difference; /, the denominator of the fold change was zero).