Electronic Supplementary Material (ESI) for RSC Advances.

Table. S1 The normalized fluorescent intensities for each lectin in DN and four NDRD groups by the lectin microarray analysis based on data of 37 lectins[a]

Lectin	Specificity of lectin	DN	NDRD			
			MN	MPGN	IgAN	FSGS
Jacalin	Galβ1-3GalNAcα-Ser/Thr(T), GalNAcα-Ser/Thr(Tn), GlcNAcβ1-3-GalNAcα-Ser/Thr(Core3), sialyl-T(ST). not bind to Core2, Core6, and sialyl-Tn (STn)	0.033 ± 0.019	0.063 ± 0.014	0.062 ± 0.022	0.046 ± 0.007	0.035 ± 0.003
ECA	Galβ-1,4GlcNAc (type II), Galβ1-3GlcNAc (type I)	0.025 ± 0.012	0.029 ± 0.009	0.016 ± 0.003	0.029 ± 0.003	0.011 ± 0.002
HHL	High-Mannose, Manα1-3Man, Manα1-6Man, Man5-GlcNAc2-Asn	0.022 ± 0.010	0.022 ± 0.003	0.014 ± 0.005	0.026 ± 0.003	0.012 ± 0.001
WFA	terminating in GalNAcα/β1-3/6Gal	0.012 ± 0.005	0.031 ± 0.010	0.016 ± 0.003	0.020 ± 0.002	0.007 ± 0.002
GSL-II	GlcNAc and α- or β-linked N-acetylglucosamine residues on the nonreducing terminal of oligosaccharides, agalacto-type, tri- or tetra-antennary N-glycans	0.013 ± 0.006	0.015 ± 0.009	/	0.017± 0.002	0.003 ± 0.003
MAL-II	Siaα2-3Galβ1-4Glc(NAc)/Glc, Siaα2-3Gal, Siaα2-3, Siaα2-3GalNAc	0.021 ± 0.010	0.028 ± 0.012	0.014 ± 0.004	0.035 ± 0.002	0.009 ± 0.003
PHA-E	Bisecting GlcNAc, biantennary complex-type N-glycan with outer Gal	0.021 ± 0.010	0.011 ± 0.009	0.013 ± 0.003	0.017 ± 0.002	0.010 ± 0.002

PTL-I	GalNAc, GalNAcα-1,3Gal, GalNAcα-1,3Galβ-1,3/4Glc	0.010 ± 0.002	0.017 ± 0.008	0.006 ± 0.005	0.017± 0.005	0.006 ± 0.002
SJA	Terminal in GalNAc and Gal, anti-A and anti-B human blood group	0.014 ± 0.007	0.015 ± 0.003	0.006 ± 0.005	0.018 ± 0.002	0.006 ± 0.002
PNA	Galβ1-3GalNAcα-Ser/Thr(T)	0.019 ± 0.010	0.017 ± 0.002	0.009 ± 0.001	0.019 ± 0.001	0.009 ± 0.002
EEL	Galα1-3(Fucα1-2)Gal (blood group B antigen)	0.029 ± 0.011	0.032 ± 0.005	0.020 ± 0.001	0.039 ± 0.004	0.020 ± 0.003
AAL	Fucα1-6 GlcNAc(core fucose), Fucα1-3(Galβ1-4)GlcNAc	0.058 ± 0.023	0.028 ± 0.009	0.026 ± 0.002	0.031 ± 0.004	0.039 ± 0.010
LTL	Fucα1-3Galβ1-4GlcNAc, Fucα1-anti-H blood group specificity	0.017 ± 0.008	0.014 ± 0.004	0.009 ± 0.002	0.037 ± 0.005	0.006 ± 0.005
MPL	Galβ1-3GalNAc, GalNAc	0.024 ± 0.011	0.022 ± 0.005	0.015 ± 0.003	0.018 ± 0.002	0.004 ± 0.001
LEL	LacNAc and poly LacNAc	0.021 ± 0.010	0.015 ± 0.013	0.010 ± 0.009	0.024 ± 0.001	0.012 ± 0.002
GSL-I	αGalNAc, αGal, anti-A and B	0.015 ± 0.004	0.022 ± 0.004	0.014 ± 0.003	0.019 ± 0.001	0.011 ± 0.002
DBA	αGalNAc, Tn antigen, GalNAcα1-3((Fucα1-2))Gal (blood group A antigen)	0.023 ± 0.012	0.016 ± 0.005	0.011 ± 0.001	0.016 ± 0.003	0.003 ± 0.002
LCA	Fucα-1,6GlcNAc, α-D-Glc	0.036 ± 0.015	0.038 ± 0.001	0.032 ± 0.003	0.041 ± 0.003	0.050 ± 0.010
RCA120	β-Gal, Galβ-1,4GlcNAc (type II), Galβ1-3GlcNAc (type I)	0.033 ± 0.013	0.051 ± 0.023	0.087 ± 0.009	0.040 ± 0.005	0.056 ± 0.010

STL	trimers and tetramers of GlcNAc, core (GlcNAc) of N-glycan, oligosaccharide containing GlcNAc and MurNAc	0.015 ± 0.005	0.026 ± 0.008	0.022 ± 0.004	0.020 ± 0.001	0.012 ± 0.001
BS-I	α-Gal, α-GalNAc, Galα-1,3Gal, Galα-1,6Glc	0.005 ± 0.001	0.016 ± 0.003	/	0.016 ± 0.004	0.014 ± 0.001
ConA	High-Mannose, Manα1-6(Manα1-3)Man, terminal GlcNAc	0.042 ± 0.021	0.043 ± 0.010	0.110 ± 0.007	0.036 ± 0.006	0.012 ± 0.002
PTL-II	Gal, blood group H, T-antigen	0.009 ± 0.004	0.031 ± 0.003	0.009 ± 0.001	0.028 ± 0.004	0.007 ± 0.001
DSA	β-D-GlcNAc, (GlcNAcβ1-4)n, Galβ1-4GlcNAc	0.088 ± 0.029	0.033 ± 0.007	0.203 ± 0.011	0.023 ± 0.004	0.019 ± 0.002
SBA	□α- or β-linked terminal GalNAc, (GalNAc)n, GalNAcα1-3Gal, blood-group A	0.016 ± 0.008	0.018 ± 0.001	0.008 ± 0.002	0.018 ± 0.001	0.008 ± 0.002
VVA	terminal GalNAc, GalNAcα-Ser/Thr(Tn), GalNAcα1-3Gal	0.019 ± 0.007	0.031 ± 0.007	0.021 ± 0.003	0.033 ± 0.006	0.014 ± 0.003
NPA	High-Mannose, Manα1-6Man	0.017 ± 0.008	0.036 ± 0.012	0.018 ± 0.003	0.036 ± 0.007	0.013 ± 0.002
PSA	Fucα-1,6GlcNAc, α-D-Man, α-D-Glc	0.017 ± 0.007	0.019 ± 0.003	0.013 ± 0.001	0.021 ± 0.002	0.010 ± 0.002
ACA	Galβ1-3GalNAcα-Ser/Thr (T antigen), sialyl-T(ST) tissue staining patterns are markedly different than those obtained with either PNA or Jacalin	0.101 ± 0.013	0.036 ± 0.009	0.115 ± 0.012	0.021 ± 0.002	0.218 ± 0.003
WGA	Multivalent Sia and $(GlcNAc)_n$	0.039 ± 0.021	0.052 ± 0.010	0.026 ± 0.001	0.063 ± 0.006	0.018 ± 0.001

UEA-I	Fucα1-2Galβ1-4Glc(NAc)	0.010 ± 0.001	0.024 ± 0.007	/	0.021 ± 0.005	0.003 ± 0.001
PWM	Oligomers of β(1,4)-linked N-acetyl-D-glucosamine, N-acetyllactosamine	0.021 ± 0.009	0.033 ± 0.007	0.023 ± 0.002	0.033 ± 0.000	0.016 ± 0.003
MAL-I	Galβ-1,4GlcNAc	0.024 ± 0.011	0.029 ± 0.002	0.011 ± 0.002	0.019 ± 0.001	0.012 ± 0.003
GNA	High-Mannose, Manα1-3Man	0.014 ± 0.006	0.033 ± 0.007	/	0.047 ± 0.004	0.011 ± 0.002
BPL	Galβ1-3GalNAc, Terminal GalNAc	0.004 ± 0.001	0.015 ± 0.003	0.016 ± 0.007	0.016 ± 0.001	0.283 ± 0.058
PHA-E+L	Bisecting GlcNAc, bi-antennary N-glycans, tri- and tetra-antennary complex-type N-glycan	0.004 ± 0.004	0.019 ± 0.006	/	0.022 ± 0.004	0.002 ± 0.002
SNA	Sia2-6Gal/GalNAc	0.024 ± 0.009	0.021 ± 0.005	0.0234 ± 0.003	0.019 ± 0.001	0.019 ± 0.003

[a]Normalized fluorescent intensities (NFI) obtained for three repeated slides were averaged and its SD was counted; /, negative signals. DN, diabetic nephropathy; MN, membranous nephropathy; MPGN, mesangial proliferative glomerulonephritis; IgAN, IgA nephropathy; FSGS, Focal Segmental Glomerular Sclerosis.

Table S2A The signal pathways showed enriched in proteins that increased or unique to in DN

Term	Count	*P* Value	Genes	Fold Enrichment

Focal adhesion	8	3.69E-05	P35445, G3N126, E1BB91, G3N3E4, F2X2F2, F2X2F3, F2X2F0, F2X2F1, F1N169, A1XEA1, F1N789, P07589, Q2TA49, F1MDH3, G5E5A9, Q0II79, B8Y9T0, B8Y9S9, Q0VCE6	8.101495726
ECM-receptor interaction	5	6.45E-04	P35445, A1XEA1, G3N126, P07589, E1BB91, O18738, G3N3E4, G5E5A9, F1MER7, F1N7D7, B8Y9T0, B8Y9S9	12.10568327
Leukocyte transendothelial migration	4	0.017118848	A7MBB0, F1N789, Q9GKR2, Q9GKR3, Q2TA49, Q0VCE6	7.080298786

Table S2B The signal pathways showed enriched in proteins that increased or unique to NDRD

Term	Count	*P* Value	Genes	Fold Enrichment
Complement and coagulation cascades	4	9.03E-04	F1MJ12, Q0VCX1, F1N4M7, G3X7A5, A0A0F6QNP7, Q32PI4, P34955, Q2UVX4	19.51866152
Hypertrophic cardiomyopathy (HCM)	4	0.001132629	P18341, Q5KR47, P63258, A6QR15, Q0VBX6, E1BNK3	18.0547619
Dilated cardiomyopathy	4	0.001396655	P18341, Q5KR47, P63258, A6QR15, Q0VBX6, E1BNK3	16.79512735