

A Transcriptome Array-Based Approach Links Proteinuria and Distinct Molecular Signatures to Intrarenal Expression of Type I Interferon *IFNA5* in Lupus Nephritis

Supplementary Material

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Table S1. Clinical and laboratory parameters of included samples extracted from the Nephroseq database.

Sample	Sex	Serum creatinine level (mg/dL)	eGFR (MDRD)	Delta eGFR
LN301_Tub	Female	0,9	75	2,324202117
LN302_Tub	Female	0,7	101	4,958448515
LN304_Tub	Male	0,9	94	49,96546067
LN305_Tub	Male	0,9	97	-1,612261619
LN306_Tub	Female	1,1	62	4,459519742
LN307_Tub	Female	1,1	61	3,086092528
LN308_Tub	Female	3,2	17	-0,210183092
LN309_Tub	Female	1	75	37,10504736
LN310_Tub	Female	1,6	37	4,621487095
LN311_Tub	Male	1,3	58	-1,880480943
LN312_Tub	Female	1,6	38	6,955256086
LN313_Tub	Female	3,1	19	-2,377861108
LN314_Tub	Female	1,2	51	3,488368579
LN318_Tub	Female	3	20	-0,776793162
LN319_Tub	Female	2,2	31	11,07525153
LN323_Tub	Female	0,7	104	-3,141816823
LN329_Tub	Female	0,78	102	-5,001560199
LN336_Tub	Female	3,7	14	
LN338_Tub	Female	0,9	73	-4,744832513
LN340_Tub	Female	1,1	54	-11,01588705
LN342_Tub	Female	0,6		
LN343_Tub	Female	1,8	38	10,95524633
LN346_Tub	Female			
LN348_Tub	Male	1,2	72	2,127400855
LN349_Tub	Male	1	99	
LN352_Tub	Female	2,7	22	
LN357_Tub	Female	1,16	63	14,98655473
LN358_Tub	Male	1,17	83	-7,985578763
LN359_Tub	Female	0,75	97	-2,284700347
LN360_Tub	Female	1,03	68	7,789398888
LN361_Tub	Male	0,98	93	1,894894043
LN362_Tub	Female	0,84	93	-1,998540763

Table S2. Included samples and corresponding log₂ mRNA expression levels extracted from the Nephroseq database for tubulointerstitial mRNA expression levels of complement components.

Sample	IFNA1 / 209375 at	IFNA10 / 208261 x at	IFNA13 / 208344 x at	IFNA14 / 208182 x at	IFNA16 / 208448 x at	IFNA17 / 211405 x at	IFNA2 / 211338 at	IFNA21 / 211145 x at	IFNA4 / 207964 x at	IFNA5 / 214569 at	IFNA6 / 208548 at	IFNA7 / 208259 x at	IFNA8 / 207932 at	IFNB1 / 208173 at	IFNW1 / 207817 at
LN301_Tub	-2,08047	-1,65372	0,27475	-1,17219	-1,98604	-0,48206	-2,28553	-0,91387	-1,30563	-2,04937	-2,06165	-1,16509	-2,36714	-1,66683	-1,23954
LN302_Tub	-1,97323	-1,76888	0,55028	-1,31693	-1,84488	-0,24964	-2,19791	-0,89311	-1,21963	-2,18881	-1,72601	-0,97061	-2,29868	-1,31557	-1,41559
LN304_Tub	-2,05384	-1,90176	0,37865	-1,55699	-1,91631	-0,56298	-2,2115	-0,99934	-1,26676	-2,39952	-1,73944	-1,22182	-2,27097	-1,12142	-1,27352
LN305_Tub	-2,06502	-1,60073	0,35504	-1,05436	-1,7828	-0,37023	-1,90816	-0,69549	-1,09117	-2,11573	-1,85127	-0,6471	-2,12856	-1,1831	-1,45649
LN306_Tub	-1,96779	-1,50934	0,38123	-1,35917	-1,6836	-0,39711	-2,20255	-0,88988	-1,2627	-2,09268	-1,93797	-0,65541	-2,2819	-1,85533	-1,0994
LN307_Tub	-2,05293	-1,54591	0,5811	-1,12715	-1,60481	-0,26186	-2,32218	-0,85792	-1,0248	-1,91794	-1,76175	-0,87257	-2,3622	-1,37816	-1,24369
LN308_Tub	-2,0959	-1,77156	0,14102	-1,47803	-1,7542	-0,59652	-2,31233	-1,08268	-1,31884	-2,45246	-1,89239	-1,01483	-2,54103	-1,81787	-1,25897
LN309_Tub	-1,96978	-1,64407	0,3697	-1,27018	-1,80119	-0,37938	-2,24318	-0,98237	-1,10933	-2,00947	-1,81279	-1,00878	-2,4031	-1,28603	-1,14552
LN310_Tub	-2,05713	-1,78435	0,20882	-1,24005	-1,883	-0,70345	-2,1458	-1,1233	-1,34412	-2,18925	-1,83617	-1,19855	-2,4315	-1,53191	-1,39674
LN311_Tub	-2,01192	-1,4979	0,39485	-1,20485	-1,69591	-0,38055	-2,0334	-1,12039	-1,16074	-2,20852	-2,0334	-0,96848	-2,3632	-1,57608	-1,16898
LN312_Tub	-2,24018	-1,67533	0,26602	-1,43895	-1,85579	-0,27596	-2,29562	-0,86516	-1,2609	-2,2385	-1,90895	-1,15364	-2,39213	-1,57422	-1,31254
LN313_Tub	-2,15523	-1,4989	0,55586	-1,29599	-1,84568	-0,34825	-2,26979	-0,85342	-1,20595	-2,18548	-1,89356	-1,04342	-2,4103	-1,5943	-1,37023
LN314_Tub	-2,25216	-1,47094	0,61906	-0,99384	-1,76791	-0,10114	-2,31867	-0,91618	-1,1559	-2,06038	-1,7235	-1,11694	-2,26927	-1,39865	-1,16944
LN318_Tub	-2,0718	-1,5846	0,40579	-1,12511	-1,52343	-0,44873	-2,15224	-0,82657	-0,82351	-2,16599	-1,93128	-0,75365	-2,32195	-1,5753	-1,42301
LN319_Tub	-2,06198	-1,36599	0,5637	-1,11837	-1,67178	-0,14947	-2,24966	-0,85826	-1,111	-2,09772	-1,83654	-0,91337	-2,31859	-1,41361	-1,49886
LN323_Tub	-1,8347	-1,56096	0,57893	-1,09862	-1,81971	0,02787	-2,33987	-0,92505	-1,01931	-2,08949	-1,90873	-0,82507	-1,96842	-1,27674	-1,07847
LN329_Tub	-2,27407	-1,45433	0,2601	-1,25135	-1,92308	-0,44391	-2,09877	-0,90578	-1,26594	-2,10895	-1,95747	-1,23747	-2,50931	-1,56133	-1,3212
LN336_Tub	-2,20765	-1,63176	0,57234	-1,21398	-1,68664	-0,30099	-2,08658	-0,99141	-1,11728	-2,20461	-1,90793	-1,00034	-2,34365	-1,60677	-1,35997
LN338_Tub	-2,1496	-1,71705	0,07373	-1,16546	-1,8411	-0,66175	-2,18113	-1,17907	-1,30976	-2,0859	-2,02742	-1,17482	-2,22587	-1,72802	-1,45746
LN340_Tub	-2,0481	-1,74892	0,22276	-1,47866	-1,96811	-0,67498	-2,28516	-1,13035	-1,28337	-2,20582	-2,08848	-1,20573	-2,37004	-1,59998	-1,37607
LN342_Tub	-2,02493	-1,74314	0,39821	-1,4871	-1,78404	-0,58792	-2,16452	-1,20556	-1,2068	-2,30553	-2,06158	-1,08489	-2,34494	-1,57125	-1,44668
LN343_Tub	-2,19222	-1,67923	0,18536	-1,36731	-1,89108	-0,61268	-2,27154	-1,16664	-1,2932	-2,09217	-2,00635	-1,37431	-2,50055	-1,71711	-1,41548
LN346_Tub	-2,18651	-1,75543	0,19551	-1,24194	-1,95464	-0,40872	-2,16086	-0,86126	-1,10954	-2,28846	-1,63264	-1,06929	-2,31158	-1,14118	-1,42799
LN348_Tub	-2,07301	-1,57797	0,76007	-1,3739	-1,5916	-0,39316	-2,22638	-0,97279	-1,14278	-1,8191	-1,9423	-0,86296	-2,39581	-1,53814	-1,19483
LN349_Tub	-2,18834	-1,62125	0,37985	-1,16103	-1,72898	-0,2632	-2,38491	-1,06997	-1,16232	-1,98653	-1,92614	-0,93014	-2,33245	-1,33688	-1,4212
LN352_Tub	-2,13748	-1,63244	0,33697	-1,23159	-1,6904	-0,53405	-2,35958	-1,15149	-1,26872	-2,2741	-2,09915	-1,15513	-2,23846	-1,52875	-1,35104
LN357_Tub	-2,11307	-1,58782	0,40083	-1,63712	-1,74331	-0,28115	-2,18682	-0,94055	-1,29045	-1,94301	-1,84002	-1,41478	-2,32803	-1,47318	-1,09078
LN358_Tub	-1,95207	-1,54166	0,4094	-1,18161	-1,77083	-0,33416	-2,23322	-1,01292	-1,19758	-2,19681	-1,85298	-1,12585	-2,42855	-1,45475	-1,36203
LN359_Tub	-2,07771	-1,51579	0,36791	-1,11983	-1,72739	-0,36188	-2,22385	-1,10291	-1,10214	-2,1205	-1,96475	-1,01188	-2,40965	-1,68954	-1,3179
LN360_Tub	-2,19632	-1,80639	0,36226	-1,23981	-1,69272	-0,39823	-2,20746	-1,24811	-1,20249	-2,0969	-1,98046	-0,92112	-2,36354	-1,39857	-1,34374
LN361_Tub	-2,06726	-1,66582	0,22592	-1,07396	-1,85468	-0,32695	-2,27562	-0,90233	-1,08878	-2,0648	-1,5771	-1,04041	-2,31626	-1,64322	-1,1518
LN362_Tub	-2,15535	-1,6665	0,30013	-1,41174	-1,89745	-0,49387	-2,31984	-1,24954	-1,51271	-2,10991	-1,95309	-1,11137	-2,34137	-1,56522	-1,34532

Table S3. Included samples and corresponding log₂ mRNA expression levels extracted from the Nephroseq database for glomerular mRNA expression levels of complement components.

Sample	IFNA1 / 208375 at	IFNA10 / 208261 x at	IFNA13 / 208344 x at	IFNA14 / 208182 x at	IFNA16 / 208448 x at	IFNA17 / 211405 x at	IFNA2 / 211338 at	IFNA21 / 211145 x at	IFNA4 / 207964 x at	IFNA5 / 214569 at	IFNA6 / 208548 at	IFNA7 / 208259 x at	IFNA8 / 207932 at	IFNB1 / 208173 at	IFNW1 / 207817 at
LN401_Glom	-2.50451	-1.73995	-0.56132	-1.85801	-1.97893	-0.74454	-2.49545	-1.25245	-1.51307	-2.57571	-2.27257	-1.14337	-2.56138	-1.80049	-1.3134
LN402_Glom	-2.45326	-1.67562	-0.41558	-1.61672	-1.81682	-0.4403	-2.27861	-1.30735	-1.48491	-2.47016	-2.41277	-0.96116	-2.52619	-1.70005	-1.51747
LN404_Glom	-2.5055	-1.42683	-0.2322	-1.62742	-2.07116	-0.52922	-2.43053	-1.11098	-1.37703	-2.35942	-2.37637	-1.22576	-2.49287	-1.92371	-1.23857
LN405_Glom	-2.36916	-1.43245	-0.46002	-1.55626	-1.65265	-0.35678	-2.32439	-1.20443	-1.17571	-2.48789	-2.34374	-0.95766	-2.74022	-1.43551	-1.29854
LN406_Glom	-2.30793	-1.57524	-0.41309	-1.81795	-2.05704	-0.8546	-2.38654	-1.32863	-1.49821	-2.35655	-2.4698	-1.33965	-2.5592	-1.61178	-1.03867
LN407_Glom	-2.41777	-1.58516	-0.64042	-2.01108	-2.0704	-0.58068	-2.4702	-1.50986	-1.50051	-2.62936	-2.39606	-1.19576	-2.45981	-2.00039	-1.2077
LN408_Glom	-2.45235	-1.67425	-0.51328	-1.82703	-2.03033	-0.67655	-2.57346	-1.23973	-1.54614	-2.52627	-2.35953	-1.35791	-2.61289	-1.89479	-1.48244
LN409_Glom	-2.39875	-1.59463	-0.57988	-1.66655	-1.89128	-0.47193	-2.37285	-1.20118	-1.33897	-2.50848	-2.19352	-1.31101	-2.4818	-1.81485	-1.21429
LN410_Glom	-2.53403	-1.73827	-0.59291	-1.68766	-2.1693	-0.58631	-2.46085	-1.19171	-1.47804	-2.63053	-2.43066	-1.42543	-2.6809	-1.70239	-1.18473
LN411_Glom	-2.3341	-1.67354	-0.33735	-1.41875	-1.81378	-0.36272	-2.51379	-0.95995	-1.14137	-2.39757	-2.31056	-1.06675	-2.59247	-1.86096	-1.28915
LN412_Glom	-2.4675	-1.27459	-0.18412	-1.2799	-1.49329	-0.15056	-2.39153	-0.91656	-1.27769	-2.31168	-2.40074	-1.14085	-2.61922	-1.68494	-1.23574
LN413_Glom	-2.40138	-2.0145	-0.50958	-1.86994	-2.09091	-0.7303	-2.53878	-1.27192	-1.71916	-2.61383	-2.48315	-1.29426	-2.7545	-1.66745	-1.18077
LN414_Glom	-2.36377	-1.56422	-0.72221	-1.77985	-1.92653	-0.67527	-2.42455	-1.28844	-1.4596	-2.66563	-2.35586	-1.06162	-2.38	-1.88537	-1.09708
LN418_Glom	-2.5507	-1.54791	-0.39187	-1.57864	-1.75823	-0.4064	-2.51622	-1.14095	-1.42896	-2.54435	-2.38203	-1.21604	-2.6524	-1.5651	-1.22015
LN419_Glom	-2.40057	-1.59762	-0.3911	-1.77668	-2.02803	-0.48868	-2.4632	-1.36559	-1.55719	-2.54906	-2.3618	-1.25008	-2.58565	-1.82632	-1.20783
LN423_Glom	-2.26479	-1.47177	-0.52829	-1.80501	-1.9125	-0.78547	-2.41977	-1.02906	-1.51102	-2.65295	-2.23239	-1.21659	-2.45066	-1.65204	-0.89501
LN430_Glom	-2.15875	-1.23968	0.09943	-1.23216	-1.35322	-0.25189	-2.34525	-0.81748	-1.08603	-2.2802	-2.23384	-0.78841	-2.55047	-1.41568	-1.28592
LN438_Glom	-2.30384	-1.72988	-0.33367	-1.94481	-2.11377	-0.80284	-2.60642	-1.21895	-1.43515	-2.47365	-2.33592	-1.4053	-2.67249	-1.85786	-1.34993
LN440_Glom	-2.37176	-1.36946	-0.07553	-1.59178	-1.79532	-0.45097	-2.49182	-0.98879	-1.29988	-2.40883	-2.2873	-0.92404	-2.45276	-1.20429	-1.09183
LN442_Glom	-2.35647	-1.47896	-0.39856	-1.59366	-1.70781	-0.56839	-2.42524	-1.10735	-1.29348	-2.22103	-2.38107	-1.10189	-2.5422	-1.48621	-1.2385
LN444_Glom	-2.31597	-1.55373	-0.58804	-1.81064	-2.13859	-0.6715	-2.41693	-1.15732	-1.08946	-2.52994	-2.4005	-1.07769	-2.56087	-1.71096	-1.295
LN445_Glom	-2.4103	-1.61631	-0.36329	-2.04907	-1.8717	-0.74407	-2.44911	-1.21694	-1.59253	-2.58225	-2.37407	-1.35068	-2.46387	-1.56336	-1.17368
LN448_Glom	-2.42439	-1.53189	-0.36731	-1.67289	-2.05836	-0.72717	-2.61405	-1.12189	-1.39382	-2.36635	-2.204	-1.36951	-2.55806	-1.69798	-1.01675
LN450_Glom	-2.35296	-1.8507	-0.59033	-1.83289	-2.15588	-0.75272	-2.30968	-1.08172	-1.37242	-2.46157	-2.26913	-1.39638	-2.67857	-2.03796	-1.10112
LN451_Glom	-2.29781	-1.57875	-0.08399	-1.95421	-2.00188	-0.6017	-2.31989	-1.19695	-1.37446	-2.56956	-2.33428	-0.96226	-2.53558	-1.58948	-1.02521
LN454_Glom	-2.30391	-1.66011	-0.58012	-1.90976	-1.94629	-0.5283	-2.52659	-1.40355	-1.34868	-2.51105	-2.32021	-1.10077	-2.44932	-1.60553	-1.2863
LN462_Glom	-2.42907	-1.58342	-0.57325	-1.89571	-2.12417	-0.8109	-2.56835	-1.32777	-1.51948	-2.62439	-2.48698	-1.54229	-2.66474	-1.86598	-1.28766
LN463_Glom	-2.46748	-1.57268	-0.45767	-1.76169	-1.9451	-0.67057	-2.61254	-1.3734	-1.43734	-2.54416	-2.38071	-1.33043	-2.62745	-1.64422	-1.29502
LN464_Glom	-2.37709	-1.68571	-0.24545	-1.84287	-1.96599	-0.81272	-2.67896	-1.25596	-1.48426	-2.56445	-2.40378	-1.20896	-2.60125	-1.67527	-1.3577
LN465_Glom	-2.4985	-1.54055	-0.42717	-1.75672	-1.93003	-0.66184	-2.44352	-1.30127	-1.34706	-2.42245	-2.28944	-1.1568	-2.58315	-1.88545	-1.15167
LN466_Glom	-2.56579	-1.75499	-0.44952	-1.91813	-2.02014	-0.70028	-2.56645	-1.14991	-1.33426	-2.52798	-2.37005	-1.15532	-2.68272	-1.61685	-1.29934
LN467_Glom	-2.48847	-1.52716	-0.50498	-1.83176	-2.07684	-0.62341	-2.49818	-1.29549	-1.34892	-2.6501	-2.49699	-1.19678	-2.68417	-1.86751	-1.4434

Table S4. Gene set enrichment in association with intrarenal <i>IFNA5</i> expression.			
Pathway name	reactome identifier	<i>p</i> value	Species
Rhesus blood group biosynthesis	R-HSA-9037628	1,00E-5	Homo sapiens
Reversible hydration of carbon dioxide	R-HSA-1475029	2.22E-5	Homo sapiens
GLI proteins bind promoters of Hh responsive genes to promote transcription	R-HSA-5635851	2.31E-3	Homo sapiens
Peptide ligand-binding receptors	R-HSA-375276	2.76E-3	Homo sapiens
BMAL1: CLOCK, NPAS2 activates circadian gene expression	R-HSA-1368108	2.9E-3	Homo sapiens
Signaling by BMP	R-HSA-201451	3.05E-3	Homo sapiens
TRAF6-mediated IRF7 activation	R-HSA-933541	3.25E-3	Homo sapiens
HSF1-dependent transactivation	R-HSA-3371571	3.27E-3	Homo sapiens
Activation of PUMA and translocation to mitochondria	R-HSA-139915	4.3E-3	Homo sapiens
Glycoprotein hormones	R-HSA-209822	4.3E-3	Homo sapiens
Defective AVP does not bind AVPR1A,B and causes neurohypophyseal diabetes insipidus (NDI)	R-HSA-5619099	4.32E-3	Homo sapiens
Class A/1 (rhodopsin-like receptors)	R-HSA-373076	4.45E-3	Homo sapiens
Attenuation phase	R-HSA-3371568	4.46E-3	Homo sapiens
Mineralocorticoid biosynthesis	R-HSA-193993	5.84E-3	Homo sapiens
GPCR ligand binding	R-HSA-500792	8.51E-3	Homo sapiens
Peptide hormone biosynthesis	R-HSA-209952	8.8E-3	Homo sapiens
Metabolism of steroid hormones	R-HSA-196071	9.31E-3	Homo sapiens