Supplementary

Table S1 Characteristics of the 3 enrolled GSE datasets

GSE name	Platform	Kidney tubule and interstitium sample		Pathological classification
		Control	Lupus nephritis	
GSE32591	GPL14663	15	32	NS
GSE69438	GPL11670	0	16	NS
GSE127797	GPL24299	0	47	included

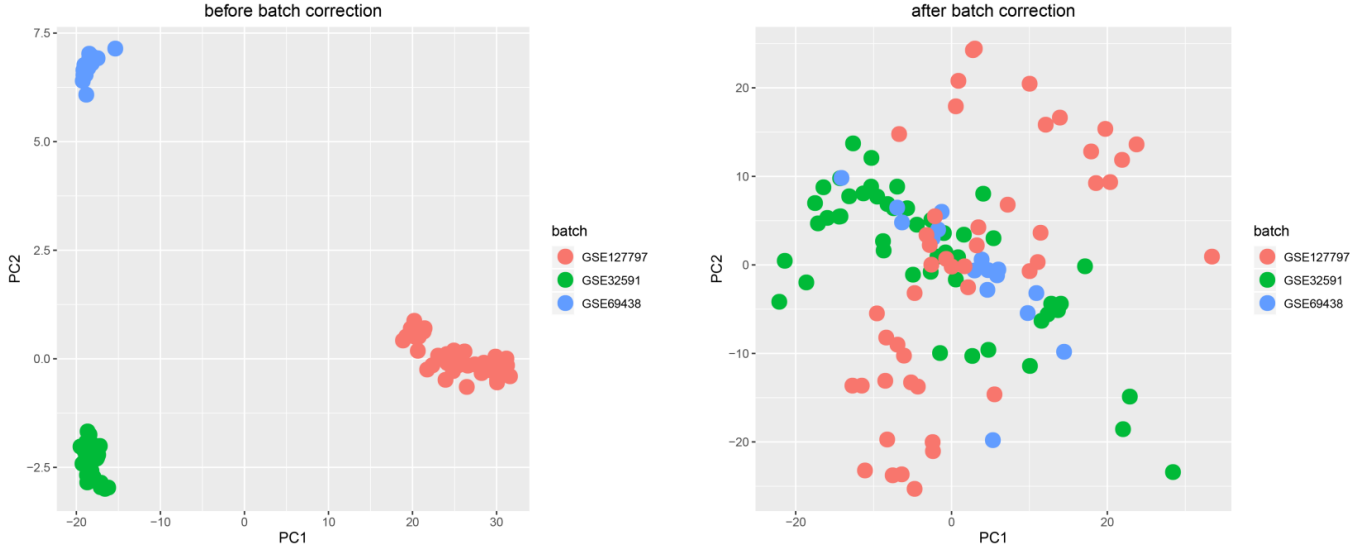

Figure S1 The PCA of all datasets enrolled. PCA, principal component analysis.

Table S2 Differentially infiltrating immune cells

Cell Type	P value	Up/down regulated in LN
T.cells.CD8	0.0191*	Down
T.cells.regulatory.Tregs.	0.0225*	Down
Plasma.cells	0.0102*	Up
B.cells.naive	0.0281*	Down
Macrophages.M1	0.0005***	Up
Macrophages.M2	0.0006***	Up
Dendritic.cells.resting	0.0020*	Down
Mast.cells.resting	0.0014*	Up
Mast.cells.activated	2.53e-05*	Down
Eosinophils	0.0020*	Up

Different Infiltrated Immune cell in Kidney Interstitium between tubulointerstitium lupus nephritis and control *<0.05, ***<0.001, lupus nephritis kidney with controls, the listed sequence referred the infiltration fraction.

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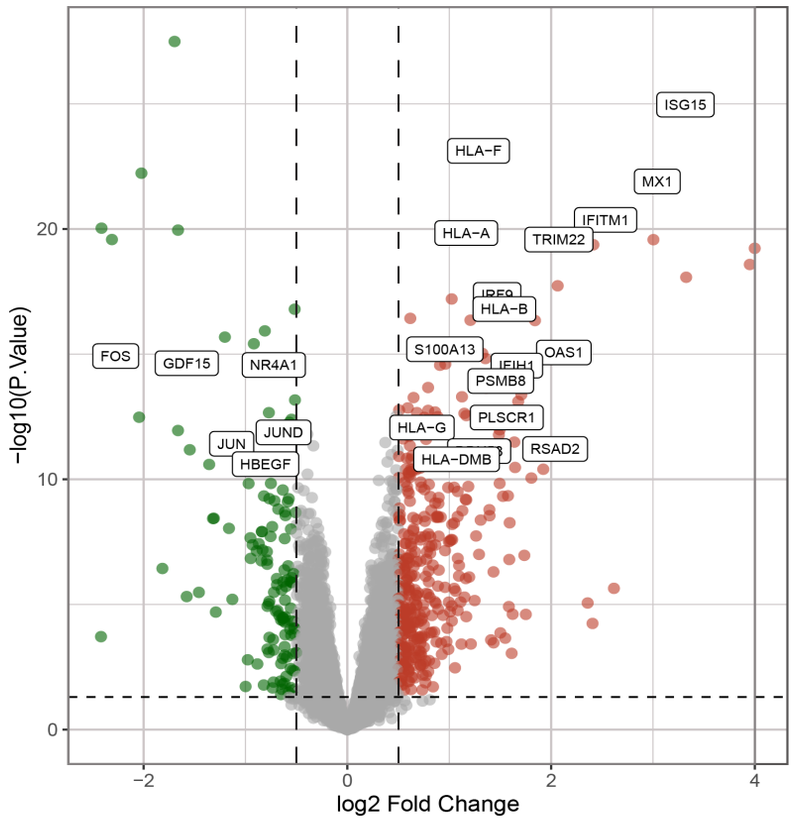

Figure S2 Volcano plot of immune related DEGs. DEG, differentially expressed gene.

Table S3 Correlation parameters of immune cells in individual modules

Cell Type	MEbrown	MEblue	MEturquoise	MEgrey
B.cells.naive	−0.22	−0.36	−0.33	−0.30
Dendritic.cells.resting	−0.32	−0.35	−0.18	−0.37
Eosinophils	−0.02	0.13	0.16	0.12
Macrophages.M1	0.37	0.31	0.33	0.04
Macrophages.M2	0.33	0.33	0.19	0.37
Mast.cells.activated	−0.01	−0.17	−0.11	−0.26
Mast.cells.resting	0.02	−0.07	−0.04	−0.02
Plasma.cells	0.27	0.36	0.47	0.18
T.cells.CD8	−0.36	−0.24	−0.21	−0.12
T.cells.regulatory.Tregs.	−0.44	−0.62	−0.73	−0.49

Table S4 ANOVA test among PLN, MLN, and mixed group by immune marker

Immune marker	anova_p
TYROBP	0.03884632
C1QB	0.03993785
LAPTM5	0.15520783
CTSS	0.31979006
PTPRC	0.40416087

PLN, proliferative LN; MLN, membranous LN.

Table S5 ANOVA test among 5 immune clusters by infiltrating cell type

Cell type	P value (<0.05)
T.cells.regulatory.Tregs.	0.001130836
Macrophages.M1	0.00641353
B.cells.naive	0.00853414
Plasma.cells	0.021063626
NK.cells.resting	0.047943259
Dendritic.cells.resting	0.048833816

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