

Supplementary Table S1. Definition of renal response criteria and flares.

Renal responses and flares	Definition
Partial renal response	A reduction in UPCR to <3 g/gCr for patients with UPCR of >3 g/gCr at baseline and a 50% reduction of UPCR to final UPCR of < 1g/gCr for patients with UPCR ≤3 g/gCr at baseline with stabilization in serum Cr
No renal response	Other than CR or PR
Nephritic flare	Increase or recurrence of active urinary sediment (RBC ≥10/HPF with or without the reappearance of cellular casts) with or without an increase in proteinuria and associated with an increase ≥25% in serum creatinine
Proteinuric flare	A persistent increase in proteinuria (>0.5 g per day) after achieving CR or doubling to >1 g per day after achieving PR or in NR requiring a change of or increase in therapy

Cr, creatinine; CR, complete renal response; NR, no renal response; PR, partial renal response; UPCR, urine protein creatinine ratio.

ROVIN BH, FURIE R, LATINIS K *et al.*: Efficacy and safety of rituximab in patients with active proliferative lupus nephritis: the lupus nephritis assessment with rituximab study. *Arthritis Rheum* 2012; 64: 1215-26. <https://doi.org/10.1002/art.34359>.

WOFSY D, HILLSON JL, DIAMOND B: Comparison of alternative primary outcome measures for use in lupus nephritis clinical trials. *Arthritis Rheum* 2013; 65: 1586-91. <https://doi.org/10.1002/art.37940>.

MOK CC, YING KY, YIM CW *et al.*: Tacrolimus versus mycophenolate mofetil for induction therapy of lupus nephritis: a randomised controlled trial and long-term follow-up. *Ann Rheum Dis* 2016; 75: 30-6. <https://doi.org/10.1136/annrheumdis-2014-206456>.

DAVIDSON JE, FU Q, JI B *et al.*: Renal remission status and longterm renal survival in patients with lupus nephritis: A retrospective cohort analysis. *J Rheumatol* 2018; 45: 671-7. <https://doi.org/10.3899/jrheum.161554>.

GORDON C, JAYNE D, PUSEY C *et al.*: European consensus statement on the terminology used in the management of lupus glomerulonephritis. *Lupus* 2009; 18: 257-63. <https://doi.org/10.1177/0961203308100481>.

Supplementary Table S2. Statistical analyses used.

Types of data	Analysis
Continuous data	Presented as median and interquartile ranges (IQR) or as the number with percentage value as appropriate. Wilcoxon's and Kruskal-Wallis' tests examined differences in continuous variables between groups. The correlation of two continuous variables was analysed using the Spearman rank correlation coefficient. The odds ratio and the confidence intervals were analysed by the Wald method. A log-rank test was used to analyse the comparison of flare-free rates.
Categorical data	Pearson's tests examined differences in categorical variables between groups.

A p-value of <0.05 was considered statistically significant. All statistical analyses were performed with JMP 16 (SAS Institute Inc., Cary, NC, USA).

Supplementary Table S3. Items of SLICC damage index which increased from baseline to final visit.

Items increased from baseline to final visit	All, n=59	DR within 12 months, n=33 CR within 12 months, n=16	Non-DR within 12 months,	CR after 12 months, n=6	Non-CR during observational period, n=4
Ocular					
Any cataract ever	1	0	1	0	0
	1		1		
Musculoskeletal	4	1	2	1	0
Avascular necrosis	3	1	1	1	
Osteoporosis with fracture	1	0	1	0	
Renal	3	0	0	0	3
Estimated GFR <50%	3				3
Neuropsychiatric	4	1	3	0	0
Cerebral vascular accident	2	0	2		
Cognitive dysfunction	1	0	1		
Cranial or peripheral neuropathy	1	1	0		
Pulmonary	1	1	0	0	0
Pulmonary fibrosis	1	1			
Cardiovascular	1	0	1	0	0
Myocardial infarction ever	1		1		
Premature gonadal failure	1	0	0	1	0
Total number of items	15	3	7	2	3
Number of patients with ΔSDI ≥1	13	3	6	1	3

CR, complete renal response; DR, deep remission; GFR, glomerular filtration rate; SDI, SLICC damage index; SLICC, the Systemic Lupus International Collaborating Clinics.

Supplementary Table S4. Clinical outcomes in patients with or without complete renal response within 12 months and during period.

	Non-CR, n=4		CR-ever, n=55		p-value, Non-CR vs. CR-ever		
			CR >12, n=6	CR ≤12, n=49			
					p-value, Non-CR vs. CR >12	p-value, Non-CR vs. CR ≤12	p-value, CR >12 vs CR ≤12
Renal flares during observational periods, n (%)	1 (25.0)	13 (23.6)	2 (33.3)	11 (22.5)	0.951	0.778	0.554
eGFR at final visit, ml/min/1.73m ²	43 (23.5–55.8)	82 (64–98)	73.5 (49.8–80.3)	88.0 (64.5–101.0)	0.003	0.055	0.002 0.099
Δ eGFR from baseline to final visit, ml/min/1.73m ²	-23 (-39–3.5)	2 (-11–17)	14 (0.5–42.4)	0 (-12.5–15.5)	0.066	0.042	0.083 0.057
30% decline in eGFR from baseline to final visit, n (%)	3 (75.0)	1 (1.8)	0 (0.0)	1 (2.0)	<0.001	0.011	<0.001 0.724
40% decline in eGFR from baseline to final visit, n (%)	1 (25.0)	0 (0.0)	0 (0.0)	0 (0.0)	<0.001	0.197	<0.001 –
UPCR at final visit, g/gCr	0.6 (0.26–1.18)	0.1 (0–0.16)	0.28 (0.10–0.56)	0.08 (0.00–0.15)	0.008	0.200	0.006 0.030
Δ SLICC/ACR damage index from baseline to final visit	1 (0.3–1)	0 (0–0)	0 (0–0.5)	0 (0–0)	0.013	0.180	0.012 0.952
Δ SLICC/ACR damage index from baseline to final visit ≥1, %	3 (75.0)	10 (18.2)	1 (16.7)	9 (18.4)	0.008	0.065	0.009 0.919
Dose of PSL at final visit, mg/day	3.5 (0.8–4.8)	4 (1–6)	2.5 (0.0–5.3)	4 (1.5–6.5)	0.504	0.828	0.435 0.253
Cumulative dose of PSL until final visits, mg	12142 (6468–16383)	11370 (7780–15591)	13943 (7924–16103)	10600 (7735–15521)	0.952	1.000	0.946 0.571

ACR; American College of Rheumatology; CR, complete renal response; eGFR, estimated glomerular filtration rate; PSL, prednisolone; SLICC, the Systemic Lupus International Collaborating Clinics

Supplementary Table S5. Clinical outcomes in patients with or without deep remission within 12 months and during period.

	Non-DR, n=15		DR-ever, n=44		p-value, Non-DR vs. DR-ever		
			DR >12, n=11	DR ≤12, n=33			
					p-value, Non-DR vs. DR >12	p-value, Non-DR vs. DR ≤12	p-value, DR >12 vs. DR ≤12
Renal flares during observational periods, n (%)	8 (53.3)	6 (13.6)	4 (36.4)	2 (6.1)	0.002	0.391	<0.001 0.011
eGFR at final visit, ml/min/1.73m ²	60.0 (46.0–90.0)	83.0 (65.3–97.0)	79.0 (72.0–94.0)	86.0 (63.5–99.5)	0.057	0.139	0.072 0.828
Δ eGFR from baseline to final visit, ml/min/1.73m ²	-10.0 (-22.0–14.0)	2.0 (-10.8–18.9)	2.0 (-8.0–32.0)	1.0 (-11.0–18.3)	0.204	0.203	0.281 0.408
30% decline in eGFR from baseline to final visit, n (%)	4 (26.7)	0 (0.0)	0 (0.0)	0 (0.0)	<0.001	0.063	0.002 –
40% decline in eGFR from baseline to final visit, n (%)	1 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)	0.084	0.383	0.134 –
UPCR at final visit, g/gCr	0.5 (0.1–0.8)	0.1 (0.0–0.1)	0.1 (0.1–0.4)	0.1 (0.0–0.1)	<0.001	0.043	<0.001 0.011
Δ SLICC/ACR damage index from baseline to final visit	0.0 (0.0–1.0)	0.0 (0.0–1.0)	0.0 (0.0–1.0)	0.0 (0.0–0.0)	0.777	0.564	0.034 0.006
Δ SLICC/ACR damage index from baseline to final visit ≥1, %	5 (33.3)	8 (18.2)	5 (45.5)	3 (9.1)	0.214	0.530	0.037 0.007
Dose of PSL at final visit, mg/day	5.0 (3.0–6.0)	3.5 (1.0–6.0)	3.0 (1.0–4.0)	5.0 (0.5–6.5)	0.366	0.075	0.694 0.268
Cumulative dose of PSL until final visits, mg	9030 (6815–15254)	11700 (8165–15710)	13560 (10455–15450)	10600 (7826–16065)	0.281	0.421	0.301 0.597

ACR; American College of Rheumatology; DR: deep remission; eGFR: estimated glomerular filtration rate; PSL: prednisolone; SLICC: the Systemic Lupus International Collaborating Clinics.

Supplementary Table S6. Any infections in the patients with or without deep remission within 12 months and during period.

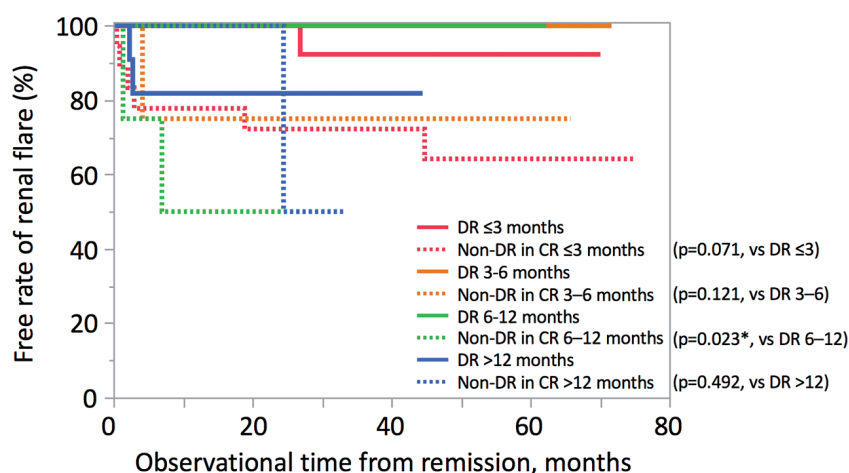
Any infections	All, n=59	Non-DR, n=15	DR-ever, n=44	p-value Non-DR vs. DR	DR >12, n=11	DR ≤12, n=33	p-value DR ≤12 vs. DR >12
Upper respiratory infection, n (%)	33 (55.9)	7 (46.7)	26 (59.1)	0.403	8 (72.7)	18 (54.5)	0.288
Herpes zoster, n (%)	14 (23.7)	6 (40)	8 (18.2)	0.086	1 (9.1)	7 (21.2)	0.367
Cytomegalovirus infection, n (%)	11 (18.6)	2 (13.3)	9 (20.5)	0.541	3 (27.3)	6 (18.2)	0.517
Bacterial pneumonia, n (%)	7 (11.9)	2 (13.3)	5 (11.4)	0.839	1 (9.1)	4 (12.1)	0.784
Paranasal sinusitis, n (%)	7 (11.9)	2 (13.3)	5 (11.4)	0.839	1 (9.1)	4 (12.1)	0.784
Influenza virus infection, n (%)	6 (10.2)	0 (0)	6 (13.6)	0.131	4 (36.4)	2 (6.1)	0.012
Gastroenteritis, n (%)	5 (8.5)	1 (6.7)	4 (9.1)	0.771	0 (0)	4 (12.1)	0.226
Otitis media, n (%)	4 (6.8)	0 (0)	4 (9.1)	0.227	2 (18.2)	2 (6.1)	0.226
Urinary tract infection, n (%)	3 (5.1)	1 (6.7)	2 (4.5)	0.747	1 (9.1)	1 (3)	0.403
Cellulitis, n (%)	3 (5.1)	0 (0)	3 (6.8)	0.299	2 (18.2)	1 (3)	0.084
Esophageal candidiasis, n (%)	1 (1.7)	0 (0)	1 (2.3)	0.556	0 (0)	1 (3)	0.559
Genital candidiasis, n (%)	1 (1.7)	1 (6.7)	0 (0)	0.084	0 (0)	0 (0)	–
Oral herpes infection, n (%)	1 (1.7)	0 (0)	1 (2.3)	0.556	0 (0)	1 (3)	0.559
Genital herpes infection, n (%)	1 (1.7)	1 (6.7)	0 (0)	0.084	0 (0)	0 (0)	–
Epidemic keratoconjunctivitis, n (%)	1 (1.7)	0 (0)	1 (2.3)	0.556	0 (0)	1 (3)	0.559
Coronavirus disease 2019, n (%)	1 (1.7)	0 (0)	1 (2.3)	0.556	1 (9.1)	0 (0)	0.080
Unknown virus infection, n (%)	1 (1.7)	0 (0)	1 (2.3)	0.556	0 (0)	1 (3)	0.559

DR: deep remission

		Duration of achievement of CR				
	Months	≤3	3–6	6–12	>12	Total
Duration of achievement of DR	≤3	15				15
	3–6	6	3			9
	6–12	4	4	1		9
	>12	4	1	2	4	11
	Never	4	3	2	2	11
	Total	33	11	5	6	55

Supplementary Fig. S1. The numbers of the patients by the time to achieve complete renal response (CR) and deep remission (DR) after induction therapy initiation.

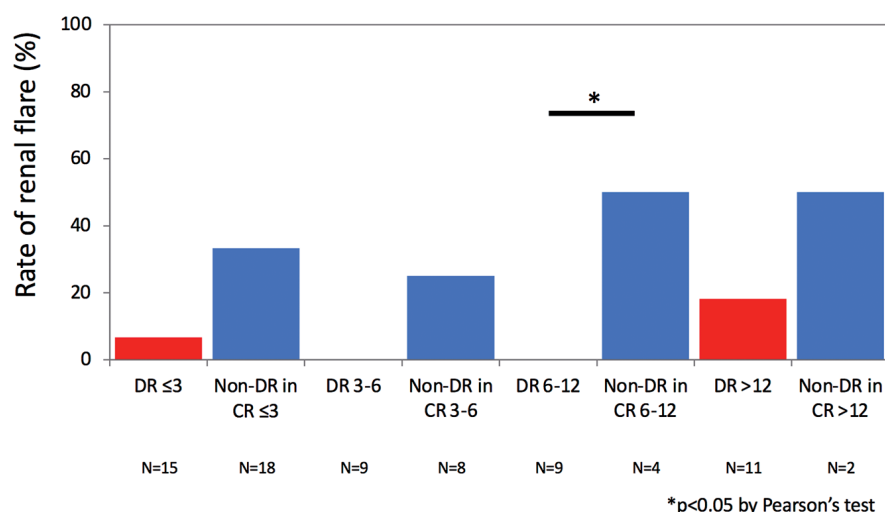
Total numbers of the patients who achieved CR within 3, 3–6, 6–12 months, and after 12 months, and the breakdown and total number of the patients within each timepoint who achieved or did not achieve DR in the same time period.



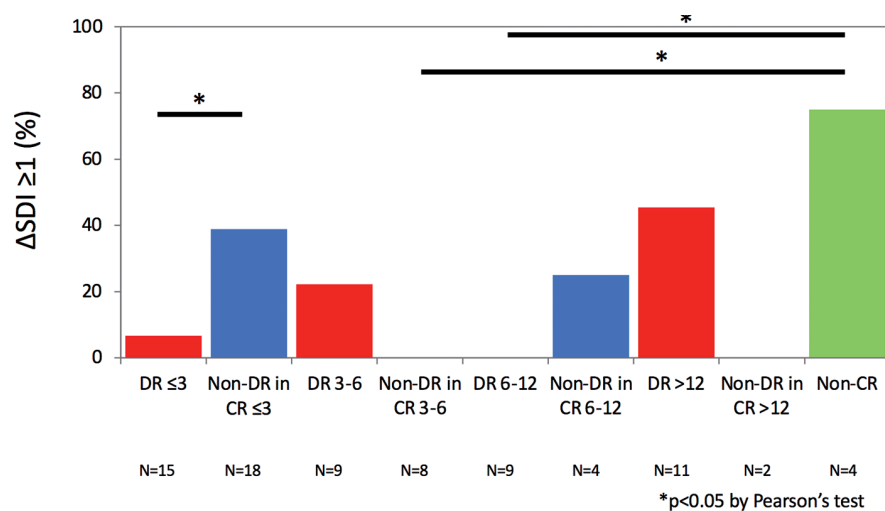
Supplementary Fig. S2. Cumulative renal flare-free rate after the achievement of complete renal response (CR) and deep remission (DR) in patients with CR and DR ≤3, 3–6, 6–12, and >12 months.

Comparison of flare-free rate between the patients achieved CR within 3, 3–6, 6–12 months and after 12 months but did not achieve DR in respective periods (non-DR in CR) and those who achieved DR in respective periods. Log-rank test was used for the analysis. * $p < 0.05$.

Patients at risk												
N (DR ≤3)	15	15	15	14	14	13	10	10	7	6	4	4
N (non-DR ≤3)	18	15	15	15	14	13	12	11	9	8	6	4
N (DR 3-6)	9	9	9	9	9	8	6	6	6	6	4	3
N (non-DR 3-6)	8	8	8	8	8	8	5	5	4	2	2	0
N (DR 6-12)	9	9	9	9	8	7	7	5	4	3	3	0
N (non-DR 6-12)	4	4	3	3	3	3	0	0	0	0	0	0
N (DR >12)	11	10	9	8	8	6	6	4	0	0	0	0
N (non-DR >12)	2	2	2	2	2	2	0	0	0	0	0	0



Supplementary Fig. S3. Renal flare rate after the achievement of complete renal response (CR) and deep remission (DR) in patients with CR and DR ≤3, 3–6, 6–12, and >12 months. Comparison of renal flare rate between the patients who achieved CR within 3, 3–6, 6–12, and after 12 months but did not achieve DR in respective periods (non-DR in CR) and those who achieved DR in respective periods. Pearson's test was used for the analysis. * $p < 0.05$.



Supplementary Fig. S4. Proportions in damage accrual ($\Delta\text{SDI} \geq 1$) in patients with CR and DR ≤ 3 , 3–6, 6–12, and >12 months and non-CR.

Comparison of the proportions in $\Delta\text{SDI} \geq 1$ between the patients who achieved CR within 3, 3–6, 6–12, and after 12 months but did not achieve DR in respective periods (non-DR in CR) and those who achieved DR in respective periods. Pearson's test was used for the analysis. * $p < 0.05$.