

Figure S1 Flowchart of the study. ESRD, end stage renal disease.

Table S1 The clinical characteristics and laboratory parameters of all enrolled individuals

Sample ID	Group	Age	Gender	Height (cm)	Weight (kg)	BMI (kg/m ²)	Alb (g/l)	Cr (μmol/l)	BUN (mmol/l)	UA (μmol/l)
P1	aMPA	56	male	170	73	25.26	30	513	30.55	433
P2	aMPA	68	female	158	55	22.03	26	220	12.09	214
P3	aMPA	67	male	170	79	27.34	31	716	24.11	414
P4	aMPA	54	male	165	55	20.20	40	626	52.73	463
P5	aMPA	59	male	160	50	19.53	29	671	33.51	425
P6	aMPA	41	female	165	74	27.18	33	258	21.49	184
P7	aMPA	70	female	160	42	16.41	30	61	5.67	234
P8	aMPA	57	female	157	60	24.34	31	295	15.34	314
P9	aMPA	67	female	150	62	27.55	32	279	18.87	505
P10	aMPA	66	male	167	61	21.87	37	438	29.49	481
P11	aMPA	60	female	147	29	13.42	35	483	15.68	228
P12	aMPA	68	male	168	61	21.61	34	176	11.91	410
P13	aMPA	54	male	168	66	23.38	36	151	9.89	422
P14	aMPA	54	male	164	61	22.68	37	336	30.21	359
P15	aMPA	68	male	163	50	18.82	33	599	20.5	399
P16	aMPA	73	female	163	52	19.57	32	191	11.98	289
P17	aMPA	61	male	168	60	21.26	33	409	17.61	476
P18	aMPA	73	female	150	43	19.11	33	671	17.72	300
P19	aMPA	63	female	155	50	20.81	29	230	8.2	240
P20	aMPA	64	female	160	55	21.48	31	462	16.71	466
P21	aMPA	62	male	173	63	21.05	36	295	14.03	493
P22	aMPA	40	male	173	81	27.06	34	356	22.76	412
P23	aMPA	60	male	169	66	23.11	37	974	38.81	600
P24	aMPA	35	female	165	47	17.26	38	202	9.56	529
P25	aMPA	68	male	168	74	26.22	39	330	27.28	580
P26	aMPA	71	female	150	49	21.78	27	552	19.33	505
P27	aMPA	58	female	159	43	17.01	25	699	29.3	492
P28	aMPA	64	male	167	57	20.44	37	131	7.6	393
P29	aMPA	54	female	165	63	23.14	32	130	10.5	256
P30	aMPA	55	male	155	45	18.73	34	321	16.4	369
P31	aMPA	26	female	158	46	18.43	40	84	8.45	270
P32	aMPA	67	male	165	63	23.14	32	491	26.11	453
P33	aMPA	49	male	171	59	20.18	29	209	10.85	440
P34	aMPA	56	male	168	79	27.99	36	118	6.44	291
P35	aMPA	74	female	150	45	20.00	32	580	22.52	574
R1	inMPA	60	male	171	59	20.18	30	160	10.28	326
R2	inMPA	38	male	172	75	25.35	38	94	6.65	419
R3	inMPA	68	male	168	78	27.64	40	330	23.62	693
R4	inMPA	58	male	165	46	16.90	43	137	13.6	469
R5	inMPA	61	male	175	60	19.59	36	198	16.94	380
R6	inMPA	73	male	160	56	21.88	42	196	10.86	259
R7	inMPA	63	female	160	43	16.80	40	69	3.77	185
R8	inMPA	57	male	173	81	27.06	42	104	6.29	394
R9	inMPA	66	male	167	50	17.93	41	101	5.64	364
R10	inMPA	57	female	172	57	19.27	43	110	6.84	452
R11	inMPA	53	female	150	55	24.44	29	178	15.12	391
R12	inMPA	28	female	166	54	19.60	50	57	4.34	265
R13	inMPA	26	female	157	43	17.44	41	95	8.95	366
R14	inMPA	65	female	158	53	21.23	42	101	6.72	363
R15	inMPA	63	male	173	63	21.05	43	174	11.14	334
R16	inMPA	48	male	174	68	22.46	34	173	14.62	443
R17	inMPA	46	female	158	51	20.43	45	159	16.13	380
R18	inMPA	61	male	168	55	19.49	43	81	6.11	294
R19	inMPA	51	male	175	80	26.12	41	111	3.98	337
R20	inMPA	63	male	167	50	17.93	41	120	11.23	381
R21	inMPA	61	female	160	70	27.34	46	127	10.57	391
R22	inMPA	40	female	168	74	26.22	44	89	7.7	356
R23	inMPA	71	female	156	60	24.65	42	67	6.54	283
R24	inMPA	45	male	160	65	25.39	41	193	11.55	324
R25	inMPA	55	female	154	70	29.51	43	166	9.6	324
R26	inMPA	58	female	164	68	25.28	44	83	5.12	351
R27	inMPA	64	male	164	64	23.80	40	146	7.1	365
R28	inMPA	67	female	158	67	26.84	35	148	8.9	303
R29	inMPA	71	female	152	64	27.70	41	144	12.51	179
R30	inMPA	62	female	150	58	25.78	44	76	7.44	149
R31	inMPA	66	male	172	53	17.92	42	185	11.95	301
R32	inMPA	64	male	175	75	24.49	40	112	6.51	411
R33	inMPA	72	male	162	58	22.10	35	98	8.45	393
R34	inMPA	65	female	159	44	17.40	33	169	14.09	372
R35	inMPA	67	male	157	60	24.34	37	131	10.4	503
R36	inMPA	57	male	170	79	27.34	37	148	12.6	323
C1	HC	47	female	161	55	21.22	52	64	4.03	276
C2	HC	62	female	161	54	20.83	51	49	4.34	223
C3	HC	56	female	164	57	21.19	44	49	4.4	221
C4	HC	54	female	165	54	19.83	45	54	4.88	221
C5	HC	41	female	160	44	17.19	45	48	5.46	263
C6	HC	62	male	168	57	20.08	44	78	3.95	334
C7	HC	44	female	166	54	19.60	46	47	5.5	231
C8	HC	52	female	159	51	20.17	43	51	6.01	292
C9	HC	63	male	162	59	22.48	46	60	4.39	229
C10	HC	62	female	152	45	19.48	45	62	5.53	322
C11	HC	61	male	166	72	26.13	45	64	4.92	296
C12	HC	50	male	177	64	20.43	46	56	6.31	296
C13	HC	46	female	167	59	21.16	41	60	4.89	259
C14	HC	45	male	172	75	25.35	46	68	5.41	265
C15	HC	52	female	161	48	18.71	43	49	4.19	287
C16	HC	72	female	150	50	22.22	48	43	4.9	199
C17	HC	69	male	179	68	21.22	44	76	4.06	243
C18	HC	64	male	178	75	23.67	52	53	5.7	342
C19	HC	62	female	161	56	21.60	48	62	3.1	242
C20	HC	59	male	170	70	24.22	40	66	5.21	224
C21	HC	66	female	160	56	21.88	44	69	6.91	417
C22	HC	55	female	155	52	21.64	42	66	5.24	273
C23	HC	58	female	164	58	21.56	42	49	4.45	362
C24	HC	55	female	160	52	20.31	44	66	4.5	449
C25	HC	55	male	168	70	24.80	47	54	4.5	305
C26	HC	61	female	172	68	22.99	47	54	4.5	305
C27	HC	70	male	169	69	24.16	45	77	4.54	367
C28	HC	67	female	165	50	18.37	48	87	4.6	351
C29	HC	41	male	170	70	24.22	49	76	5	389
C30	HC	66	male	170	62	21.45	49	70	8.81	273
C31	HC	58	female	162	52	19.81	43	58	4.26	234
C32	HC	68	female	170	55	19.03	43	56	4.03	116
C33	HC	56	female	160	50	19.53	48	55	3.6	238
C34	HC	55	female	162	53	20.20	46	51	4.76	262

Sample ID	TG (mmol/l)	Cho (mmol/l)	HDL (mmol/l)	LDL (mmol/l)	Glu (mmol/l)	WBC ($\times 10^9/l$)	Neu ($\times 10^9/l$)	Hb (g/l)	Plt ($\times 10^9/l$)
P1	1.64	4.46	1.03	2.45	3.89	8.7	6.3	71	166
P2	1.88	3.32	0.73	1.98	3.81	7.6	6.3	65	154
P3	0.84	2.61	0.86	1.35	4.56	12.7	11.4	76	107
P4	0.39	2.93	1.07	1.74	8.64	7	6.3	59	104
P5	1.06	2.7	0.68	1.52	5.95	5.4	4.6	60	77
P6	1.62	3.44	1.75	1.16	4.58	8.7	8	87	169
P7	0.66	3.28	1.01	1.98	4.26	6.9	5.8	70	308
P8	1.36	2.91	1.03	1.4	4.8	4.8	3.8	72	172
P9	1.17	4.87	1.62	2.89	4.21	14.4	12.9	78	395
P10	1.69	4.98	1.02	3.1	4.04	3	1.4	79	148
P11	2.97	4.55	0.96	2.34	3.99	6.1	4.3	81	137
P12	0.68	3.57	0.96	2.22	4.46	3.8	2.3	91	151
P13	0.95	4	0.99	2.54	3.73	8.4	5.7	91	356
P14	1.44	5.43	2.2	2.36	4.99	7.4	6.1	98	125
P15	0.52	3.06	1.29	1.51	3.43	6.9	5.6	76	88
P16	1.77	4.51	1.88	1.99	3.68	4.8	4	86	116
P17	0.78	2.42	1.02	1.04	4.31	8.7	6.6	92	107
P18	1.31	3.09	0.77	1.65	4.32	8.2	7.1	49	192
P19	1.39	3.53	0.67	2.12	5.15	11.1	9.1	78	232
P20	0.79	5.88	1.45	4.01	8.63	9.6	8.9	83	239
P21	2.29	4.13	0.79	2.51	4.44	9	6.3	85	307
P22	2.46	5.47	0.92	4.44	4.53	8.3	5.8	104	258
P23	1.88	3.1	0.76	1.69	4.49	5.3	4.3	70	98
P24	1.41	4.46	1.31	2.38	4.61	9.2	6	107	220
P25	1.67	6.15	1.29	4.01	5.47	9.2	7.9	82	246
P26	1.58	3.79	0.74	1.93	3.92	11.2	8	83	406
P27	1.2	2.82	0.67	1.83	6.71	3.8	2.5	57	81
P28	1.68	4.31	1	2.64	4.26	6.2	3.8	99	190
P29	1.18	3.44	0.99	1.97	7.18	5.5	4.1	81	211
P30	1.34	4.12	1.57	2.06	3.57	10	6.8	88	209
P31	1.78	6.03	2.6	2.96	4.86	11.2	6.1	138	166
P32	0.65	4.55	1.34	2.81	5.41	5.9	5.5	77	210
P33	0.81	3.42	1.03	1.83	3.56	3.7	2.3	92	125
P34	1.45	4.26	0.59	2.72	6.39	9.3	6.6	134	288
P35	1.54	4.22	1.69	1.63	3.58	3.7	3.4	82	47
R1	0.52	3.96	1.9	1.87	3.85	7.6	4.5	96	177
R2	1.95	5.2	1.12	3.38	4.24	7.7	4.7	154	246
R3	4.86	5.67	1.27	2.84	4.85	6.6	4.5	113	77
R4	1.53	5.37	1.88	2.83	6	6	3.8	133	201
R5	0.86	5.46	2.12	3.13	4.77	4.6	2.5	143	168
R6	1.94	4.75	1.5	2.78	5	10.1	6.7	144	256
R7	0.66	4.15	2.81	1.1	5.18	3.4	1.7	115	181
R8	1.35	2.86	0.71	1.73	5.48	6.7	3.5	140	173
R9	1.87	5.41	1.34	1.86	4.98	5.1	3.4	143	182
R10	1.14	4.27	1.73	2.07	4.98	4	2.4	123	192
R11	2.28	8.35	2.46	4.88	3.47	5.2	3.4	82	257
R12	1.18	3.14	1.23	1.48	4.23	5.8	3.6	134	224
R13	3.26	6.62	1.62	3.61	4.45	6.6	4.3	118	241
R14	0.76	4.33	2.62	1.49	4.49	4.3	2.5	120	120
R15	1.39	6.31	1.65	4.09	4.6	8.1	4.8	121	256
R16	0.7	3.46	1.42	1.83	4.07	7.1	6.6	88	171
R17	2.06	4.25	1.61	1.82	4.44	5.1	3.3	113	226
R18	1.79	4.3	1.17	2.29	4.66	6.9	5	136	201
R19	1.81	5.23	1.08	3.57	6.27	6.1	4.1	164	191
R20	0.86	3.53	1.05	2.26	5.23	11.8	9.4	106	184
R21	1.98	7.51	1.7	5.23	4.6	11.6	7.7	114	334
R22	2.44	5.4	1.93	2.6	5.39	8.2	5.6	106	227
R23	2.3	5.62	1.56	3.17	5.02	10.5	4.8	132	265
R24	2.64	5.64	1.1	3.49	4.58	5.8	2.5	144	210
R25	1.96	6.17	1.43	3.72	4.7	7.5	6.9	99	221
R26	2.09	4.61	1.03	2.86	7.14	5.5	3.1	123	172
R27	1.43	5.51	1.27	3.9	4.63	7.4	5.2	156	230
R28	1.36	4.68	1.89	2.41	4.81	5.6	3.5	118	95
R29	2.25	4.81	1.58	2.69	4.26	7.3	5.4	121	214
R30	1.32	3.74	1.25	2	5.62	7.3	4.6	123	317
R31	1.46	4.55	1.57	2.53	5.06	6.1	3.9	145	129
R32	1.46	4.84	1.11	3.08	4.73	4.7	2.6	127	162
R33	0.81	5.15	1.72	2.92	4.16	5.2	3.5	96	240
R34	1.61	4.3	1.24	2.32	3.8	2.1	1	108	146
R35	1.47	5.66	2.81	2.42	3.64	9	7.9	107	203
R36	2.57	4.28	0.9	2.29	3.71	10.7	9.3	88	226
C1	1.17	4.31	1.42	2.63	4.77	4.7	2.5	136	284
C2	1.66	4.98	1.75	2.53	5.54	4.4	2.3	149	129
C3	1.41	5.12	1.33	3.15	4.51	5.3	2.8	123	217
C4	0.72	4.64	1.6	2.64	5.01	5.5	3.8	127	217
C5	1.14	3.63	1.35	1.89	4.89	5.3	3.2	138	227
C6	1.69	4.22	1.23	2.67	4.19	7.4	4	157	175
C7	1.4	4.28	1.05	2.59	4.86	4.5	2.6	129	283
C8	1.64	5.17	1.23	3.36	5.02	5.5	3.39	129	233
C9	1.49	4.43	0.95	2.73	5.22	6.8	4.06	160	255
C10	0.68	4.87	1.98	2.76	5.61	4	2.49	121	152
C11	0.63	5.22	1.28	2.42	3.99	5	2.6	159	286
C12	0.87	4.52	1.68	3.1	5.27	4.4	1.8	146	247
C13	0.89	4.7	1.54	2.96	5.07	3.9	2.3	125	176
C14	1.01	4.46	1.38	2.58	4.42	4.5	2.8	150	230
C15	1.28	5.2	2.18	3.25	4.83	5.2	2.7	120	210
C16	0.8	5.47	1.45	2.65	4.72	5.8	3.27	130	180
C17	0.78	4.75	1.73	2.85	4.88	4.3	2.1	138	170
C18	0.35	4.52	2.36	1.95	5.59	3.9	1.93	136	215
C19	0.9	3.8	1.52	2.05	5.28	3.9	1.5	138	147
C20	0.87	5.1	1.33	3.37	3.97	5.6	3.8	133	233
C21	1.53	5.75	1.37	3.48	5.76	5.3	3.16	143	179
C22	0.97	5.25	1.62	3.14	3.81	5	56	146	189
C23	1.7	5.05	1.54	3.1	3.9	9.5	55.3	139	232
C24	0.92	4.47	1.09	2.16	3.43	6.1	3.3	155	236
C25	0.98	4.4	1.42	3.11	4.86	4.9	1.7	126	230
C26	0.98	4.4	1.42	3.11	4.86	4.9	1.7	126	230
C27	1.71	4.84	1.38	2.6	5.2	6.2	3.83	150	215
C28	1.9	4.46	1.05	2.54	4.41	5.4	3.6	155	178
C29	0.97	5.08	1.61	2.88	4.66	5.3	3	161	210
C30	1.32	6.02	1.97	3.29	4.96	5	2.9	112	234
C31	0.66	3.25	1.43	1.49	5.39	6.1	2.8	143	293
C32	0.72	2.99	1.35	1.42	4.65	6.6	3.4	141	273
C33	2.05	4.67	2.31	4.54	5.8	5.1	2.6	123	185
C34	2.29	5.01	2.37	4.31	4.1	6.6	3.9	133	180

Sample ID	Kidney biopsy	GC (%)	GS (%)	MPO-ANCA	UP (g/d)	URBC (/μl)	ESR (mm/h)	CRP (mg/l)	Course (Mo)	Dialysis	BVAS	ESRD after induction treatment	Immunosuppressive drug at sampling
P1	yes	66.67	0.00	46.1	2.35	663.5	79	8.6	Incipient	no	20	no	Steroid
P2	yes	30.77	15.38	34.3	0.26	36	45	7.05	Incipient	yes	24	no	Steroid
P3	no	/	/	70.6	0.33	2761	36	18.4	Incipient	yes	24	no	Steroid/CTX
P4	no	/	/	30.5	2.16	792.4	62	22.55	Incipient	no	16	yes	Steroid
P5	no	/	/	42.6	2.44	863.1	140	137.11	Incipient	yes	14	yes	Steroid
P6	yes	50.00	25.00	100	1.94	21.5	40	3.2	Incipient	no	12	no	Steroid
P7	yes	28.95	5.26	11	0.55	338.8	140	77.3	Incipient	no	16	no	no
P8	yes	60.53	23.68	71.3	2.02	743.2	120	4.5	Incipient	no	17	no	no
P9	no	/	/	21.9	1.38	114	24	10	Incipient	no	17	no	Steroid
P10	yes	22.58	67.74	167.1	4.6	568.3	95	0.76	Incipient	no	12	yes	Steroid
P11	no	/	/	11.2	/	/	99	12	Incipient	yes	20	yes	Steroid
P12	yes	12.50	12.50	165.8	3.26	596.3	24	2.8	Incipient	no	16	no	Steroid/MMF
P13	yes	15.15	6.06	44.2	1.06	354.8	34	4.2	Incipient	no	21	no	MMF
P14	no	/	/	17.6	1.76	12.9	12	5	Incipient	no	14	yes	Steroid/CTX
P15	no	/	/	512.9	1.62	2426.7	66	8.5	Incipient	no	12	die	Steroid
P16	yes	15.79	52.63	477.1	1.98	558.7	100	53	Incipient	no	16	yes	Steroid/CTX
P17	no	/	/	70.3	1.45	890.9	40	7.9	Incipient	yes	18	yes	no
P18	no	/	/	354.6	0.32	507.9	140	102	Incipient	yes	17	yes	Steroid/AZA
P19	yes	33.33	12.50	57.6	2.14	574.5	115	160	Incipient	no	18	yes	Steroid
P20	no	/	/	93.3	3.96	1243.6	117	3.9	Incipient	no	12	yes	Steroid
P21	yes	7.41	66.67	38.7	1.43	162.8	92	8.2	Incipient	no	16	no	Steroid/AZA
P22	yes	30.00	10.00	81.2	5.21	810.6	54	4.8	Incipient	no	21	yes	Steroid
P23	no	/	/	56.2	1.92	137.4	30	0.4	Incipient	yes	12	yes	Steroid
P24	yes	5.00	55.00	30.8	3.26	312	58	3.8	Incipient	no	16	no	RTX
P25	yes	3.33	56.67	69.1	1.76	246	72	4.8	Incipient	no	12	yes	Steroid
P26	yes	80.95	19.05	41.1	1.83	915.6	71	24.3	Incipient	yes	24	yes	no
P27	no	/	/	152.4	3.03	1180.4	66	2.3	Incipient	yes	12	yes	Steroid
P28	yes	36.42	27.78	1099.7	1.17	688.8	20	4.36	Incipient	no	15	no	MMF
P29	yes	18.92	8.11	12.3	1.15	134.9	88	9.8	Incipient	no	13	no	Steroid
P30	yes	15.38	69.23	100	3.1	113.2	49	2	Incipient	no	17	yes	Steroid
P31	yes	3.45	34.48	48.98	0.58	119.4	7	3.1	Incipient	no	10	no	no
P32	yes	45.83	37.50	63.08	2.45	804.5	46	4.12	Incipient	no	16	yes	no
P33	yes	14.29	25.00	62.9	0.73	603.3	38	7.6	Incipient	no	12	no	no
P34	yes	52.63	5.26	23.8	3.92	3045.5	78	66.6	Incipient	no	14	no	RTX
P35	no	/	/	62.3	1.8	1021.3	101	11.6	Incipient	yes	20	yes	Steroid
R1	yes	23.08	30.77	31.23	0.55	17.8	21	1.28	7	no	0	/	Steroid/MMF
R2	no	/	/	59.34	1.07	41.3	2	4.2	24	no	0	/	Steroid/MMF
R3	no	/	/	15.17	1.2	23.9	13	0.47	8	yes	0	/	Steroid/AZA
R4	yes	16.13	3.23	55.23	0.86	113.1	51	2.18	41	no	0	/	Steroid
R5	yes	0.00	71.43	67.39	0.25	13.2	2	0.33	36	no	0	/	MMF
R6	yes	48.00	36.00	3.61	0.9	3.2	4	1.3	45	no	0	/	MMF
R7	yes	57.89	21.05	47.68	0.08	28.8	5	3.3	48	no	0	/	Steroid
R8	yes	52.63	5.26	10.97	0.54	21.8	32	4.76	13	no	0	/	no
R9	no	/	/	61.11	0.05	35.6	3	2.4	53	no	0	/	Steroid
R10	yes	17.39	56.52	31.49	0.03	12.6	9	1.59	56	no	0	/	Steroid
R11	yes	75.00	18.75	8.54	0.89	100	33	1.46	6	yes	0	/	Steroid/AZA
R12	no	/	/	19.12	0.03	2.2	14	0.5	28	no	0	/	Steroid/MMF
R13	yes	32.00	12.00	44.5	0.49	12.3	24	0.46	39	no	0	/	Steroid/MMF
R14	no	/	60.00	55.69	0.08	10	17	0.56	81	no	0	/	Steroid/MMF
R15	yes	7.41	66.67	16.02	1.18	22.1	37	1.1	15	no	0	/	Steroid/MMF
R16	no	/	/	34.8	0.64	99.7	14	2	6	no	0	/	MMF
R17	yes	61.54	30.77	48.18	1.14	15	27	0.21	117	yes	0	/	MMF
R18	no	/	/	96.59	0.15	36	9	2.69	26	no	0	/	Steroid
R19	yes	10.53	52.63	75.51	0.48	1.1	10	3.59	98	no	0	/	MMF
R20	no	/	/	15.34	1.47	23.5	36	7.63	99	no	0	/	MMF
R21	no	/	/	75.17	0.13	3.9	40	2.67	41	no	0	/	Steroid/AZA
R22	yes	60.53	23.68	28.61	1.38	137.2	31	3.23	14	no	0	/	Steroid/MMF
R23	yes	76.67	3.33	54.06	0.15	26.3	24	2.21	31	yes	0	/	MMF
R24	yes	31.25	37.50	49	1	1.6	14	0.83	48	no	0	/	MMF
R25	yes	75.76	15.15	13.07	1.06	83.9	16	4.2	8	no	0	/	Steroid/MMF
R26	yes	14.29	10.71	8.45	0.06	1.5	10	4.1	19	no	0	/	Steroid/AZA
R27	yes	25.00	25.00	80.91	0.08	37.4	4	0.99	63	no	0	/	MMF
R28	yes	56.25	9.38	36.01	0.78	1.8	30	0.42	29	no	0	/	Steroid/MMF
R29	yes	7.69	53.85	83.38	0.76	47	16	3.91	79	no	0	/	Steroid/MMF
R30	no	/	/	41.04	0.23	2.9	16	8.63	22	no	0	/	MMF
R31	yes	6.25	50.00	67.67	0.63	4.7	5	1.78	74	no	0	/	Steroid/MMF
R32	yes	33.33	5.56	17.51	0.13	86	23	12	15	no	0	/	Steroid
R33	yes	30.00	10.00	10.41	0.14	19.9	52	10.82	7	no	0	/	Steroid
R34	yes	22.22	55.56	7.4	1.36	42	20	2.8	16	no	0	/	Steroid
R35	yes	3.33	56.67	9.7	1.53	32.7	8	2.7	8	no	0	/	Steroid/MMF
R36	yes	30.00	10.00	48.3	0.81	65.1	36	3.02	9	no	0	/	Steroid/MMF

AZA, acetazolamide; BVAS, Birmingham Vasculitis Activity Score; CTX, cyclophosphamide; ESRD, end-stage renal disease; GC, Glomerular crescents; GS, Global sclerosis; MMF, mycophenolate

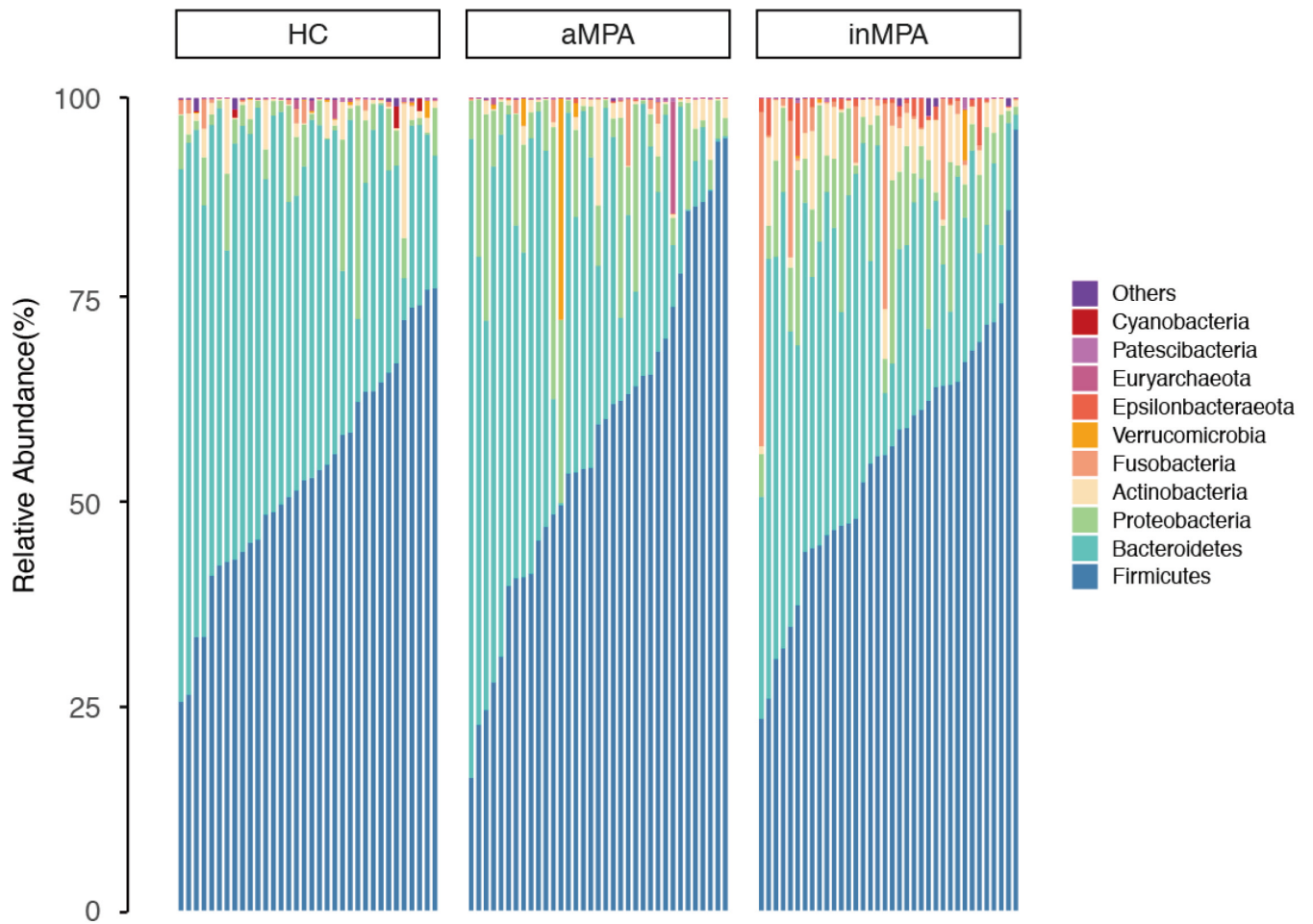


Figure S2 The bacterial composition at phylum level in all samples.

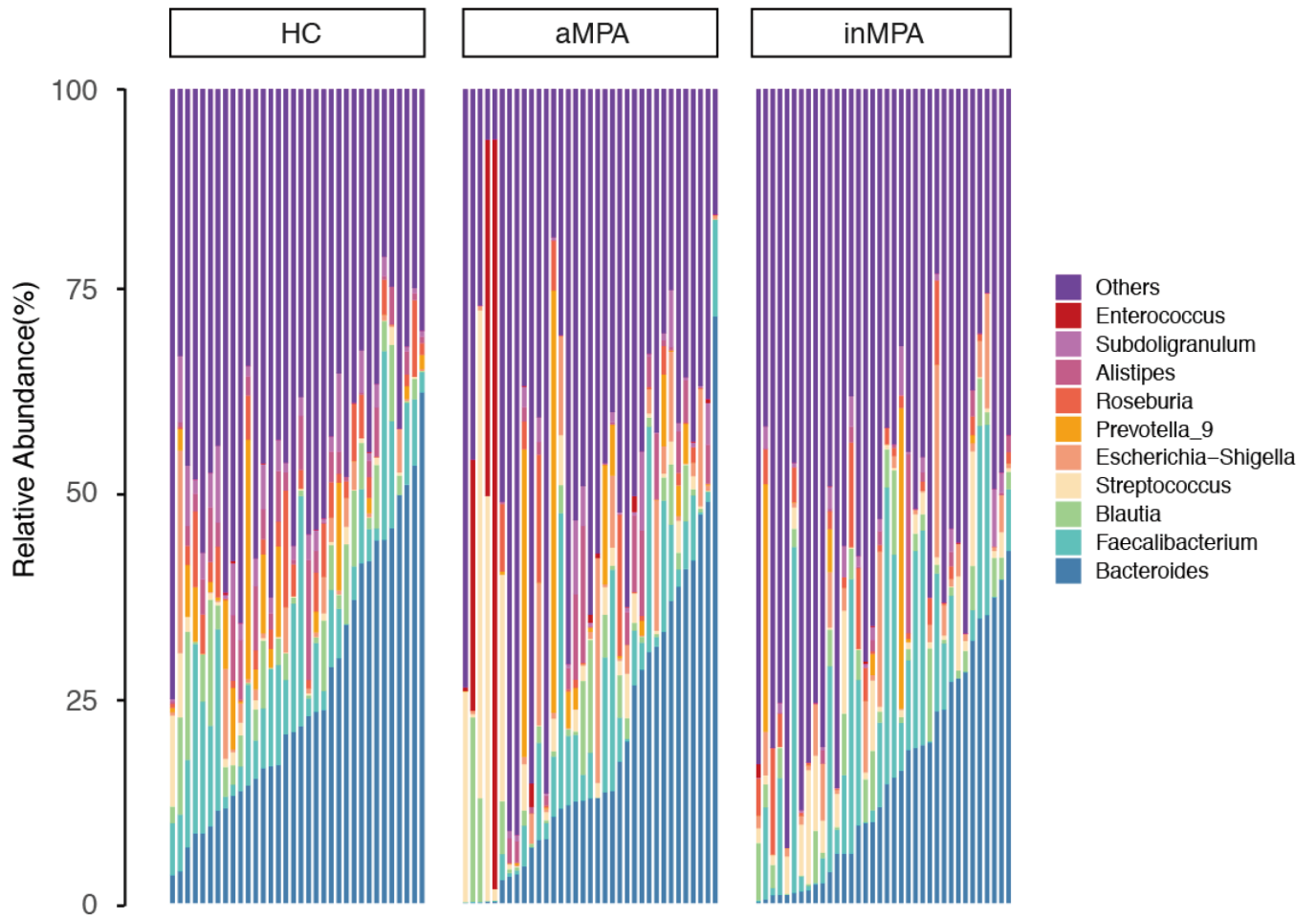


Figure S3 The bacterial composition at genus level in all samples.

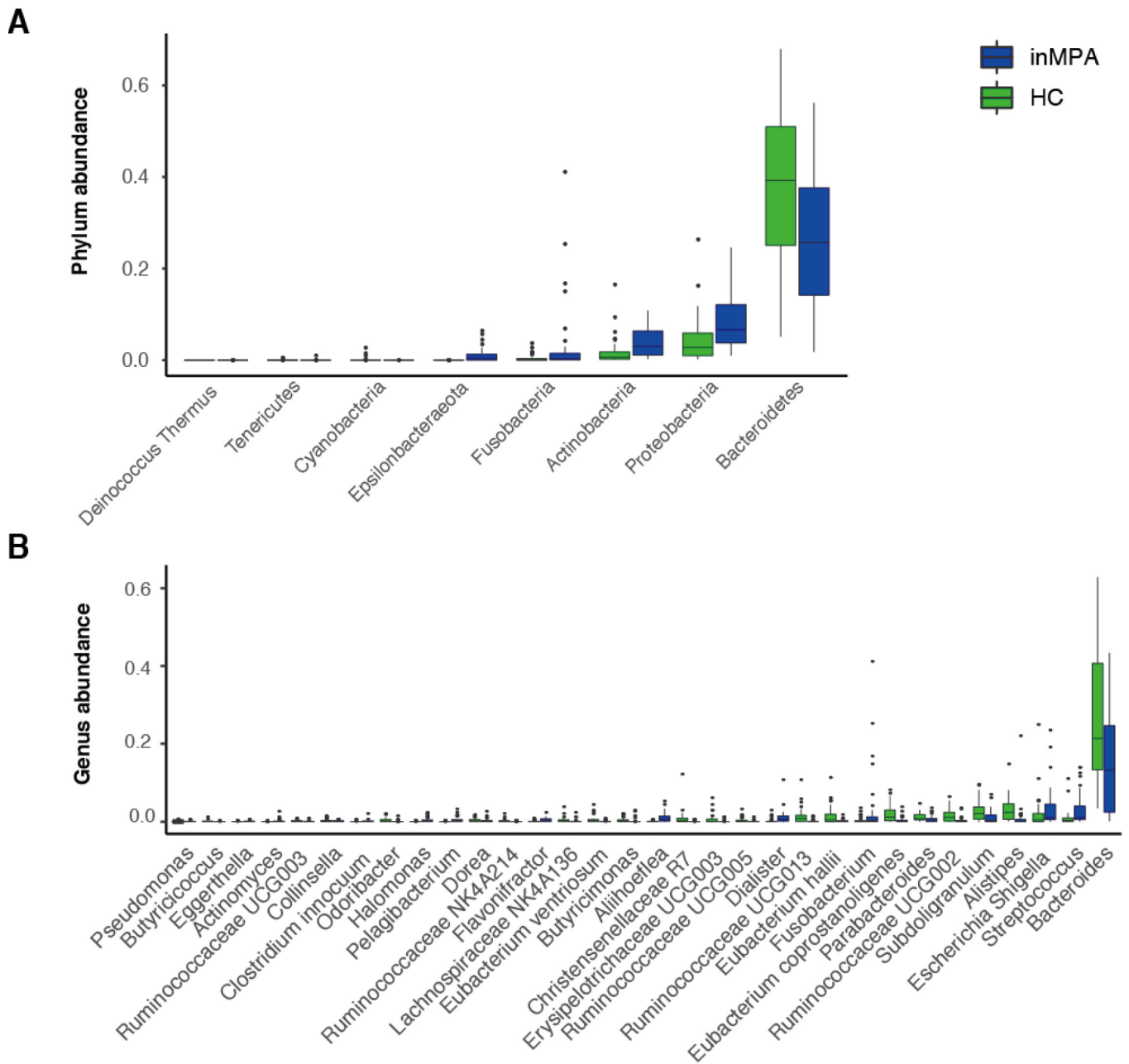


Figure S4 Differential bacterial abundance at phylum(A) and genus(B) level between inMPA and HC cohort. All taxon with significant inter-group difference (Wilcoxon rank sum test, P values adjusted by “Benjamini-Hochberg” < 0.05) are presented.

Table S2 The phyla with differential abundance among aMPA, inMPA and HC cohorts

Comparison	Differential phyla	Enriched group	FDR
aMPA vs. inMPA	Actinobacteria	inMPA	<0.001
	Fusobacteria	inMPA	0.003
	Epsilonbacteraeota	inMPA	<0.001
HC vs. inMPA	Bacteroidetes	HC	0.02
	Proteobacteria	inMPA	0.003
	Actinobacteria	inMPA	0.003
	Fusobacteria	inMPA	0.02
	Epsilonbacteraeota	inMPA	<0.001
	Cyanobacteria	inMPA	0.007
	Tenericutes	HC	0.003
	Deinococcus Thermus	inMPA	0.04

Wilcoxon rank sum test with “Benjamini-Hochberg” adjusted P values

Table S3 The genera with differential abundance among aMPA, inMPA and HC cohorts

Comparison	Differential genera	Enriched group	FDR	
aMPA vs. HC	Streptococcus	aMPA	0.04	
	Roseburia	HC	0.002	
	Subdoligranulum	HC	0.01	
	Eubacterium hallii	HC	0.02	
	Ruminococcaceae UCG013	HC	0.01	
	Eubacterium eligens	HC	0.02	
	Anaerostipes	HC	0.01	
	Fusicatenibacter	HC	0.03	
	Eubacterium ventriosum	HC	0.02	
	Dorea	HC	0.007	
	Collinsella	HC	0.03	
	Lachnospira	HC	0.004	
	Lachnospiraceae UCG004	HC	0.02	
	Actinomyces	aMPA	0.001	
	Butyricoccus	HC	0.004	
	aMPA vs. inMPA	Parabacteroides	aMPA	0.04
		Fusobacterium	inMPA	0.008
		Dialister	inMPA	<0.001
		Christensenellaceae R7	aMPA	0.01
Parasutterella		inMPA	0.04	
Aliihoeflea		inMPA	<0.001	
Pelagibacterium		inMPA	<0.001	
Halomonas		inMPA	<0.001	
HC vs. inMPA		Bacteroides	HC	0.02
		Streptococcus	inMPA	0.002
	Escherichia Shigella	inMPA	0.04	
	Alistipes	HC	<0.001	
	Subdoligranulum	HC	0.002	
	Ruminococcaceae UCG002	HC	0.001	
	Parabacteroides	HC	0.003	
	Eubacterium coprostanoligenes	HC	<0.001	
	Fusobacterium	inMPA	0.01	
	Eubacterium hallii	HC	0.001	
	Ruminococcaceae UCG013	HC	<0.001	
	Dialister	inMPA	<0.001	
	Ruminococcaceae UCG005	HC	0.003	
	Erysipelotrichaceae UCG003	HC	0.002	
	Christensenellaceae R7	HC	0.001	
	Aliihoeflea	inMPA	<0.001	
	Butyricimonas	HC	0.001	
	Eubacterium ventriosum	HC	<0.001	
	Lachnospiraceae NK4A136	HC	0.007	
	Flavonifractor	inMPA	<0.001	
	Ruminococcaceae NK4A214	HC	0.001	
	Dorea	HC	0.008	
	Pelagibacterium	inMPA	<0.001	
	Halomonas	inMPA	<0.001	
	Odoribacter	HC	<0.001	
	Clostridium innocuum	inMPA	0.03	
	Collinsella	HC	0.03	
	Ruminococcaceae UCG003	HC	0.005	
	Actinomyces	inMPA	<0.001	
Eggerthella	inMPA	0.02		
Butyricoccus	HC	0.001		
Pseudomonas	inMPA	0.02		

Wilcoxon rank sum test with “Benjamini-Hochberg” adjusted P values.

Table S4 The correlation coefficient matrix between differential genera and clinical indices

R value	Clinical parameter								
	Alb	Cr	BUN	UA	WBC	Hb	ESR	CRP	BVAS
Genus									
<i>Streptococcus</i>	0.28	-0.31	-0.35	-0.22	-0.25	0.30	-0.18	-0.15	-0.27
<i>Alistipes</i>	-0.38	0.41	0.38	0.14	0.17	-0.28	0.17	0.11	0.17
<i>Parabacteroides</i>	-0.16	0.34	0.33	0.21	0.11	-0.19	0.03	-0.23	-0.18
<i>Eubacterium coprostanoligenes</i>	-0.30	0.42	0.35	0.21	0.24	-0.27	0.18	0.06	0.26
<i>Dialister</i>	0.44	-0.47	-0.46	-0.22	-0.16	0.36	0.07	-0.03	-0.05
<i>Aliihoeflea</i>	0.49	-0.63	-0.58	-0.34	-0.20	0.48	-0.24	-0.08	-0.37
<i>Flavonifractor</i>	0.39	-0.36	-0.30	-0.21	-0.35	0.23	0.03	-0.02	-0.10
<i>RuminococcaceaeNK4A214</i>	-0.35	0.41	0.33	0.21	0.22	-0.21	0.12	0.03	0.15
<i>Pelagibacterium</i>	0.47	-0.59	-0.51	-0.31	-0.17	0.39	-0.13	0.01	-0.29
<i>Halomonas</i>	0.42	-0.57	-0.50	-0.32	-0.15	0.37	-0.12	0.04	-0.29
<i>Odoribacter</i>	-0.33	0.37	0.34	0.10	0.36	-0.28	0.06	0.09	0.24
<i>Lachnospira</i>	-0.13	0.08	0.06	-0.07	0.21	-0.15	0.36	0.36	0.48
<i>Actinomyces</i>	0.37	-0.43	-0.38	-0.23	-0.24	0.38	-0.28	-0.28	-0.50
<i>Butyricoccus</i>	-0.34	0.31	0.26	0.07	0.21	-0.36	0.50	0.40	0.37

Spearman correlations were calculated. Alb, albumin; BUN, Blood Urea Nitrogen; BVAS, Birmingham Vasculitis Activity Score; Cr, creatinine; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; Hb, hemoglobin; UA, uric acid; WBC, white blood cell.

Table S5 The OTU markers for initial dialysis and renal prognosis after induction treatment in active MPA

OTU ID	Phylum	Class	Order	Family	Genus	Enriched group
OTU-1026	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	Non-dialysis
OTU-27	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	Non-dialysis
OTU-60	Bacteroidetes	Bacteroidia	Bacteroidales	Bacteroidaceae	Bacteroides	Non-dialysis
OTU-5	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Blautia	Non-dialysis
OTU-367	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Blautia	Non-dialysis
OTU-71	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Fusicatenibacter	Non-dialysis
OTU-13	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Roseburia	Non-dialysis
OTU-19	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Roseburia	Non-dialysis
OTU-42	Firmicutes	Bacilli	Lactobacillales	Enterococcaceae	Enterococcus	Dialysis
OTU-182	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus	ESRD
OTU-150	Actinobacteria	Coriobacteriia	Coriobacteriales	Eggerthellaceae	Eggerthella	ESRD

ESRD, end stage renal disease