

## **Supplemental Material**

### **Levels of Donor-Derived Cell-free DNA and Chemokines in BK Polyomavirus-Associated Nephropathy**

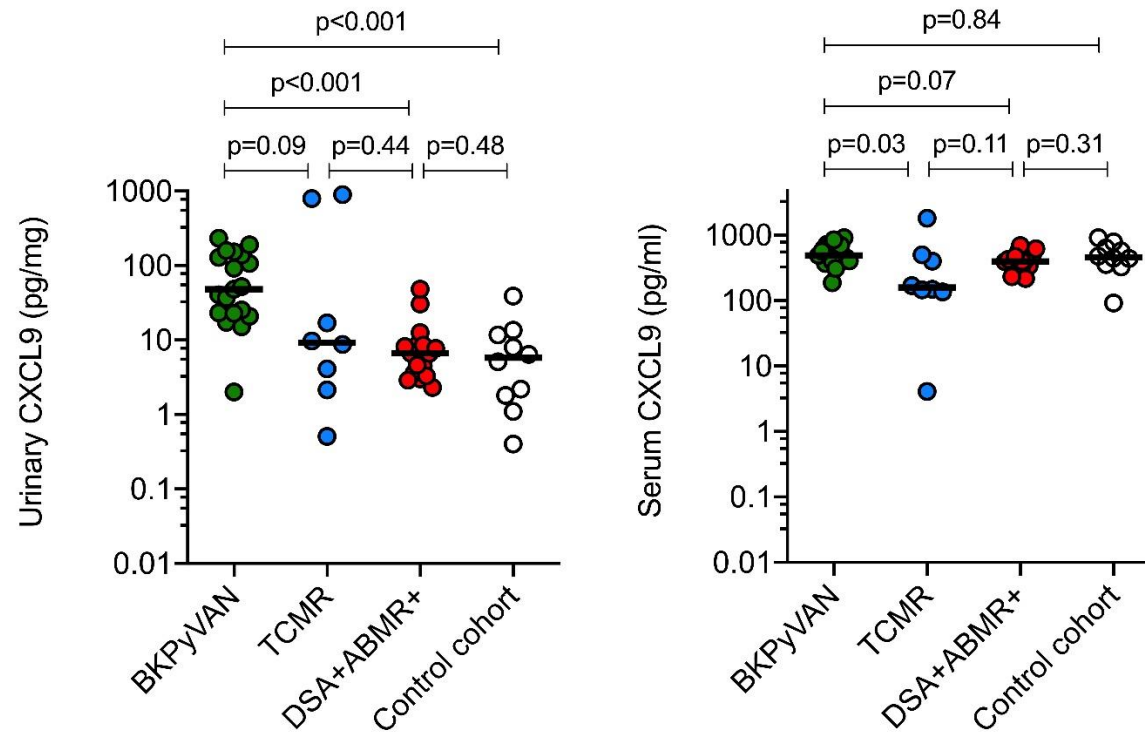
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**Supplemental Table 1. Baseline characteristics of renal allograft recipients with BKPyVAN**

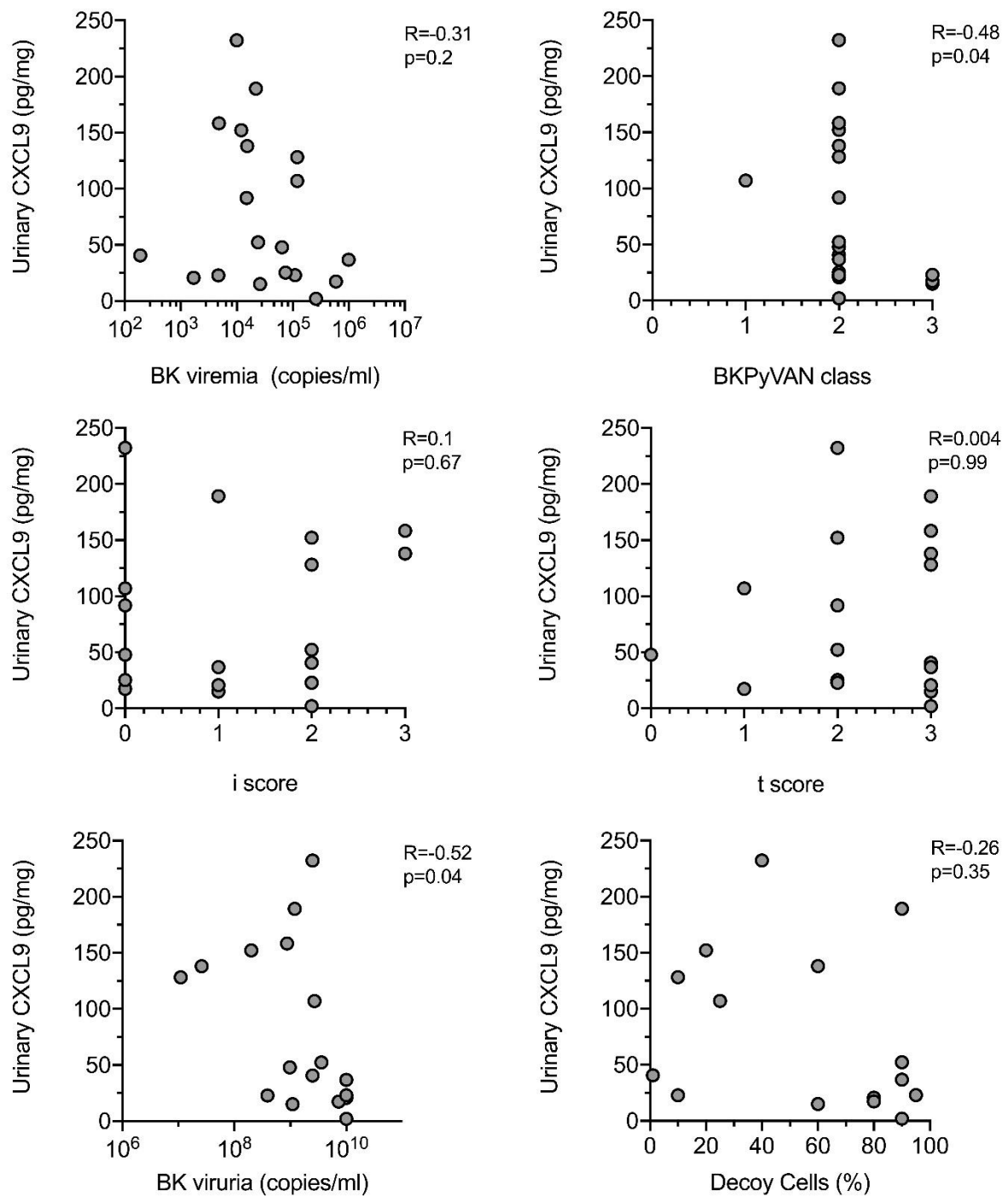
Variables	Patients with BKPyVAN		P-value
	Study inclusion N=19	No study inclusion n=16	
<b>Variables recorded at transplantation</b>			
Female sex, n (%)	4 (21.1)	6 (37.5)	0.45
Recipient age (years), median (IQR)	62 (48-75)	53 (48-59)	0.08
Deceased donor, n (%)	18 (94.7)	9 (56.3)	0.013
Prior kidney transplant, n (%)	1 (5.3)	2 (12.5)	0.58
Prefomed anti-HLA DSA, n (%) <sup>a</sup>	2 (10.5)	2 (12.5)	>0.99
Donor age (years), median (IQR)	57 (48-70)	61 (54-69)	0.52
HLA mismatch (A, B, DR), median (IQR)	4 (2-4)	3 (1-3)	0.16
Initial immunosuppression			
IL-2 receptor antibody induction, n (%)	17 (89.5)	13 (81.3)	0.64
Tacrolimus-based therapy, n (%)	19 (100)	15 (93.8)	0.46
Peri-transplant immunoadsorption, n (%)	2 (10.5)	5 (31.3)	0.21
<b>Variables recorded at index biopsy</b>			
Years after transplantation, median (IQR)	0.4 (0.3-0.5)	0.4 (0.3-1.1)	0.78
Renal parameters, median (IQR)			
eGFR (ml/min/1.73m <sup>2</sup> )	35.6 (24.2-44.9)	37.3 (31.2-45.0)	0.66
Urinary protein/creatinine ratio (mg/g)	330 (192-487)	175 (130-245)	0.015
Maintenance immunosuppression			
Triple immunosuppression, n (%)	16 (94.1) <sup>b</sup>	16 (100)	>0.99
Tacrolimus, n (%)	18 (100) <sup>b</sup>	15 (93.8)	0.47
MPA, n (%)	16 (88.9) <sup>b</sup>	15 (93.8)	0.62
Steroids, n (%)	18 (100) <sup>b</sup>	16 (100)	>0.99
Biopsy results			
Single lesion scores			
i, median (IQR)	1 (0-2)	1 (0-2)	0.39
t, median (IQR)	2 (2-3)	2 (0-2)	0.044
ti, median (IQR)	2 (1-3)	2 (1-2)	0.18
ci, median (IQR)	2 (1-3)	2 (0-3)	0.39
ct, median (IQR)	1 (0-2)	1 (0-2)	>0.99
SV 40 positivity, n (%)	19 (100)	16 (100)	>0.99
BKPyV DNAemia (copies/ml), median (IQR)	2.4x10 <sup>4</sup> (1x10 <sup>4</sup> -1.2x10 <sup>5</sup> )	3.6x10 <sup>4</sup> (1.8x10 <sup>3</sup> -1.1x10 <sup>5</sup> )	0.49

BKPy, BK polyoma virus; BKPyVAN, BK polyomavirus-associated nephropathy; DSA, donor-specific antibody; eGFR, estimated glomerular filtration rate; HLA, human leukocyte antigen; IQR, interquartile range; MPA, mycophenolic acid.

<sup>b</sup>For one subject, no data on maintenance immunosuppression were available.



**Supplemental Figure 1.** Levels of urinary and serum CXCL9 at the time of the index biopsy. Horizontal lines indicate median values. For group comparisons, the Mann-Whitney U test was applied. ABMR, antibody-mediated rejection; BKPyVAN, BK polyomavirus-associated nephropathy; CXCL9, C-X-C motif chemokine ligand 9; DSA, donor-specific antibodies; TCMR, T cell-mediated rejection



**Supplemental Figure 2.** Correlation between urinary CXCL9 levels and allograft histologic analysis or BKPy-specific biomarkers. Bivariate correlations were calculated using the Spearman coefficient. CXCL9, C-X-C motif chemokine ligand 9; dd-cfDNA, donor-derived cell-free DNA; BKPyVAN, BK polyomavirus-associated nephropathy.