

**S12 Table: Significance of functional enrichment in gene regulatory modules<sup>1</sup>**

Function	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Env/Cap subcluster
Envelope/ Membrane	P=0.1178	P=0.6855	P=0.6873	P=1	P=0.0113 (OR 5.0) <sup>2</sup>	P=0.01667 (OR 6.9)
Capsid	P=0.3432	P=1	P=0.595	P=1	P=0.0937 (OR 5.0)	P=0.0011 (OR 21.2)
Tegument	P=0.2002	P=1	P=0.6652	P=0.3523	P=0.0318 (OR 4.9)	P=1
Virion assembly/egress	P=1	P=0.597	P=0.3464	P=0.6042	P=0.1295 (OR 3.3)	P=1
Transcription Regulation	P=0.2248	P=0.2056	P=0.1042	P=0.6856	P=0.5293	P=0.5954
Replication	P=0.2907	P=0.6953	P=0.2898	P=0.0003 (OR 10.3)	P=0.0005	P=0.3477
			P=0.0001 (OR 9.6)			
Immune modulation	P=0.0140 (OR 4.4)	P=0.0145 (OR 4.9)	P=0.0663	P=0.4574	P=0.1024	P=0.352
	P<0.0001 (OR 10.3)					
Mitogenesis/ Cell cycle	P=1	P=0.632	P=0.2071	P=0.3523	P=1	P=0.5915

<sup>1</sup> Fisher's exact test for correlation between functional attributes of genes and gene regulatory modules identified in Figure 17.

<sup>2</sup>OR = Odds Ratio greater than 2.0 are shown