

**Table S3. Self-clusters of Marseillevirus proteins**

Cluster #	Cluster annotation	Number of proteins in cluster	E-value*	Bit score*	ORFs included
cluster1	MORN repeat-containing protein (a protein conserved in bacteria)	20	2.0E-22/2.5E+00	100/27.3	ORF103, ORF124, ORF132, ORF133, ORF134, ORF137, ORF142, ORF143, ORF144, ORF159, ORF169, ORF188, ORF254, ORF355, ORF361, ORF366, ORF434, ORF50, ORF49, ORF246
cluster2	Serine/threonine protein kinase	11	2.5E-26/2.4E+00	115/28.5	ORF122, ORF160, ORF191, ORF195, ORF199, ORF264, ORF424, ORF427, ORF432, ORF446, ORF84
cluster3	F-box containing protein	9	1.0E-66/2.5E+00	248/26.9	ORF106, ORF146, ORF151, ORF19, ORF28, ORF385, ORF39, ORF42, ORF68
cluster4	Restriction endonuclease, contains N-terminal multiple Zn-ribbon domain	8	1.0E-161/1.7E+00	565/28.1	ORF154, ORF156, ORF245, ORF327, ORF347, ORF349, ORF40, ORF409
cluster5	distinct repeats/low complexity HA-like repeats	8	1.5E-154/6.3E-01	541/27.7	ORF25, ORF257, ORF26, ORF43, ORF44, ORF45, ORF66, ORF67
cluster6	unnamed protein product	6	7.5E-35/3.0E-01	142/31.2	ORF1, ORF105, ORF3, ORF457, ORF87, ORF93
cluster7	unnamed protein product	5	1.3E-77/2.3E+00	286/25.8	ORF139, ORF180, ORF183, ORF325, ORF34
cluster8	unnamed protein product	5	5.0E-17/1.0E-04	81.3/40	ORF138, ORF185, ORF35, ORF38, ORF458
cluster9	HNH-family endonuclease	5	2.0E-27/3.0E+01	28.9/6.9	ORF248, ORF295, ORF318, ORF387a, ORF387b
cluster10	MutH/archaeal HJR-like endonuclease	4	1.3E-69/5.0E-09	259/58.9	ORF249, ORF301, ORF371, ORF428
cluster11	divergent serine/threonine protein kinase	3	2.5E-45/7.5E-27	177/115	ORF352, ORF353, ORF360
cluster12	unnamed protein product	3	5.0E-19/2.5E-08	89/52.8	ORF374, ORF375, ORF376
cluster13	unnamed protein product	3	2.3E-07/2.3E-03	48.9/36.6	ORF117, ORF164, ORF280
cluster14	Highly derived D5-like helicase-primase	2	0,0E+00	978	ORF36, ORF459
cluster15	Histone 2A-domain-containing protein	2	5,0E-15	77	ORF166, ORF414
cluster16	low complexity, invasin-like repeats	2	1,0E-36	149	ORF149, ORF73
cluster17	membrane protein	2	7,5E-27	118	ORF273, ORF274
cluster18	papain-like cysteine peptidase (Cathepsin B group ) unique among NCLDV	2	2,0E-33	139	ORF276, ORF285
cluster19	putative nucleases linked to bacterial restriction-modification	2	1,3E-11	66,2	ORF181, ORF367
cluster20	small membrane protein	2	4,3E-01	28,1	ORF120, ORF121
cluster21	Thioredoxin	3	1,5E-04	40	ORF231, ORF332, ORF313
cluster22	unnamed protein product	2	1,8E-10	60,8	ORF2, ORF90
cluster23	unnamed protein product	2	2,5E-11	63,2	ORF158, ORF287
cluster24	unnamed protein product	2	1,1E+00	26,9	ORF348, ORF405
cluster25	unnamed protein product	2	2,5E-12	66,2	ORF336, ORF337
cluster26	unnamed protein product	2	1,8E-07	49,7	ORF20, ORF8
cluster27	unnamed protein product	2	2,0E-19	91,7	ORF167, ORF171
cluster28	zinc finger protein	2	1,0E-49	248	ORF321, ORF70

\* Best/worst values for clusters of 3 and more proteins.