Supplemental Material: Section 1: Detailed ORF Coordinates Data for Individual EEHV PCR Loci:

Table S1: Details of PCR Sequenced EEHV1A, EEHV1B and EEHV2 Gene Coding Regions:

Virus No. Gene/ORF	HCMV ORF	HSV Ori-ORF ent	Protein Name	Position No	Gene Size	Protein Size	Genbank Acc #	Status	Kimba Cordinates	Diff %
1.EEHV1A [#NAP18, Kala]: Sixteen segments, ORF-C to A (5x), oriLyt, MDBP, gB-POL, U33, TEG-L, TRI1 to U58, TERex1,2, TERex3, OBP, POR-HEL, HEL to ORF-L.										
				Total = 65,737-bp			Differences = 1,125-bp		= 1.7%	
ORF-CNterm	Nil	Nil	F	00001-00925	(925)	(308)	HM568517	Novel	051273-052229	6.5
ORF-CCterm	Nil	Nil	F	00001-00934	(934)	(311)	HM568516	-	053368-054301	0.2
U4	Nil	Nil	F	00001-00811	(811)	(270)	HM568518	β	055563-056373	0.25
U5/ORF-B	Nil	Nil	F	00001-01088	(1088)	(383)	HM568519	β	057008-058095	0.6
ORF-A	Nil	Nil	F	00001-00966	(966)	(322)	HM568520	Novel	059339-060304	0.2
U42	UL69	UL54	F MTA	00001-00069	(69)	(22)	HM568521	Core	067831-068471	0.3
Intergenic	Nil	Ori-Lyt	Ori-Lyt	00155-00346	192	NC				
U41	UL57	UL29	F MDB	00618-00641	(24)	(8)		-		
U41	UL57	UL29	F MDB	00001-01953	(1953)	(750)	HM568522	Core	069421-071373	0.25
-	-			00001-00024	(24)	NC	HM568523	-	073935-079679	1.5
U39	UL55	UL27	F gB	00025-02577	2553	850		Core		
U38	UL54	UL30	F POL	02610-05753	3144	1047		Core		
-	-			05754-05947	(197)	NC		-		
U33	UL49	Nil	F Cys-rich	00001-00907	(907)	(269	JN983079	β/γ	083537-084444	1.0
U31	UL48	UL36	R TEG-L	00944-00001	(944)	(315)	JN983080	Core	086587-087530	3.8
U29	UL46	UL38	F TRI1	00001-00664	(664)	(221)	HM568525	Core	096648-120177	0.9
U28	UL45	UL39	F RRA	00711-03113	2402	801		Core		
U27.5/ORF-H	Nil	UL40	F RRB	03157-04062	905	302		α/γ		
U27/ORF-I	UL44	UL42	F PPF	04313-05539	1226	409		Core		
U45.7/ORF-J	Nil	Nil	F	05622-06128	507	168		Novel		
U46	UL73	UL49A	F gN	06112-06402	291	96		Core		
U47/ORF-D	UL74	Nil	R gO	07066-06428	639	212		β		
U48	UL75	UL22	R gH	09264-07045	2220	739		Core		
U48.5/ORF-E	Nil	UL23	R TK	10261-09188	1074	357		α/γ		
U49	UL76	UL24	F	10263-10961	699	232		Core		
U50	UL77	UL25	F PAC2	10780-12516	1736	578		Core		
U51	UL78	Nil	F vGPCR1	12523-13653	1131	376		β		
U52	UL79	Nil	R	14606-13770	837	278		β/γ		
U53	UL80	UL26	F SCA/PRO	14407-16104	1698	565		Core		
U54.5/ORF-F1	UL82-84	Nil	R	17652-16210	1443	480		Novel		
U56	UL85	UL18	R TRI2	18721-17843	879	292		Core		
U57	UL86	UL19	R MCP	22809-18760	4050	1349		Core		
U58	UL87	(UL20)	F	22971-23530	(560)	(187)		β/γ		
U60ex3	UL89ex2	UL15ex2	R TERex3	00571-00001	(571)	(190)	HM568526	Core	123613-125266	0.24
U62	UL91	Nil		00598-00864	267	88		β/γ		
U63	UL92	Nil	F	00812-01405	594	197		β/γ		
U64	UL93	UL17	F PAC1	01386-01653	(272)	(90)		Core		
-	-	-		00001-00024	NC	NC	HM568527	-	127324-127707	0.26

U66ex2	Nil	Nil	R	TERex2	00144-00013	132	48		-		
U66ex1	UL89ex1	UL15ex1	R	TERex1	00384-00229	(155)	(52)		-		
U70	UL98	UL12	F	EXO	00001-00043	(43)	(12)	HM568528	Core	132976-135414	0.8
U71	UL99	UL11	F	myrTeg	00001-00267	(267)	(89)		Core		
U72	UL100	UL10	R	gM	01421-00339	1182	394		Core		
U73/ORF-G	Nil	UL09	F	OBP	01420-02431	(1011	(337)		A/B2		
U75	UL103	UL07	R	tegument	00251-00001	(251)	(83)	HM568529	Core	139331-142081	0.36
U76	UL104	UL06	R	POR	01965-00160	1806	601		Core		
U77	UL105	UL05	F	HEL	01916-02751	(836)	(278)		Core		
U77	UL105	UL05	F	HEL	00001-00042	(42)	(14)	JX011080	Core	143625-158993	??
U77.5/ORF-M	Nil	Nil	F	Nuclear	00363-01874	1512	503		Novel		
U80.5/ORF-N	Nil	Nil	R	vCXCL1	02336-02016	321	106		Novel		
U81	UL114	UL02	R	UDG	03358-02405	954	317		Core		
U82	UL115	UL01	R	gL	04238-03324	915	304		Core		
U82.5/ORF-Oex3	Nil	Nil	R	S/TGlyP	04623-04078	(546)	(181)		Novel		
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyP	04956-04709	(248)	(83)		Novel		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyP	05384-05042	(342)	(114)		Novel		
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyP	06732-05381	(1351)	(447)		Novel		
U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyP	07061-06809	(252)	(83)		Novel		
U84.5/ORF-Qex2	Nil	Nil	R	S/TGlyP	07943-07163	(780)	(259)		Novel		
U84.5/ORF-Qex1	Nil	Nil	R	S/TGlyP	08240-08027	(213)	(71)		Novel		
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	10546-08385	(2163)	(720)		Novel		
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	10665-10627	(39)	(13)		Novel		
U85.5/ORF-Kex1A	Nil	Nil	R	SplGlyP	10713-10736	(24)	(8)		Novel		
U86.5/ORF-L	Nil	Nil	R	IE-like	15341-11475	3936	1311		Novel		
-	-	-	-	-	15342-15418	(8)	-				

2. EEHV1A [#NAP11,Kumari]: Ten segments, ORF-C(2x), MDBP, gB-POL, U33, TEG-L, TRI1 to vGPCR, MCP, U58-HEL, HEL to ORF-L. Total = 70,563-bp Differences = 874-bp =1.2%

ORF-CNterm	Nil	Nil	F		00001-00927	(927)	(309)	HM568508	Novel	051279-052232	2.7
ORF-CCterm	Nil	Nil	F		00001-00926	(926)	(309)	HM568507	-	053370-054297	2.6
U41	UL57	UL29	F	MDBP	00001-01948	(1948)	(749)	HM568509	Core	069422-071369	0.2
-	-				00001-00024	(24)	NC	HM568510	-	073935-079875	1.2
U39	UL55	UL27	F	gB	00025-02568	2544	847		Core		
U38	UL54	UL30	F	POL	02598-05741	3144	1047		Core		
-	-				05742-05933	(199)	NC		-		
U33	UL49	Nil	F	Cys-rich	00001-00901	(901)	(300)	JN983082	β/γ	083528-084428	1.2
U31	UL48	UL36	R	TEG-L	00001-00948	(948)	(316)	JN983083	Core	086641-087528	3.8
U29	UL46	UL38	F	TRI1	00001-00663	(663)	(221)	HM568513	Core	096649-110246	0.9
U28	UL45	UL39	F	RRA	00710-03112	2402	801		Core		
U27.5/ORF-H	Nil	UL40	F	RRB	03156-04061	906	301		α/γ		
U27/ORF-I	UL44	UL42	F	PPF	04312-05538	1227	409		Core		
U45.7/ORF-J	Nil	Nil	F		05621-06127	507	168		Novel		
U46	UL73	UL49A	F	gN	06111-06401	247	82		Core		
U47	UL74	Nil	R	gO	07065-06427	639	213		β		
U48	UL75	UL22	R	gH	09263-07044	2220	739		Core		
U48.5/ORF-E	Nil	UL23	R	TK	10260-09187	1073	358		A/G		
U49	UL76	UL24	F		10262-10960	699	232		Core		
U50	UL77	UL25	F	PAC2	10779-12515	1735	578		Core		
U51	UL78	Nil	F	vGPCR1	12522-13607	(10860)	(362)		β		
U57	UL86	UL19	R	MCP	03855-00001	(3855)	(1285)	HM568514	Core	115602-119686	0.5
U58	UL87	Nil	F	capsid	04019-04087	(68)	(23)		β/γ		
U58	UL87	Nil	F		00001-02152	(2152)	(716)	HM568515	-	119857-142107	0.7

U59	UL88	Nil	F		02127-03167	1042	346		β/γ		
U60ex3	UL89ex2	UL15ex2	R	TERex3	04330-03203	(1128)	(375)		Core		
U62	UL91	Nil	F		04357-04623	267	88		β/γ		
U63	UL92	Nil	F		04571-05164	594	197		β/γ		
U64	UL93	UL17	F	PAC1	05145-06527	1383	460		Core		
U65	UL94	UL16	F		06475-07485	1011	336		Core		
U66ex2	Nil	Nil	R	TERex2	07613-07494	(120)	(40)		-		
U66ex1	UL89ex1	UL15ex1	R	TERex1	08432-07698	(735)	(245)		-		
U67	UL95	Nil	F		08537-09640	1104	367		β/γ		
U68	UL96	UL14	F	tegument	09637-10005	369	122		Core		
U69	UL97	UL13	F	CPK	10112-11650	1539	512		Core		
U70	UL98	UL12	F	EXO	11709-13163	1455	484		Core		
U71	UL99	UL11	F	myrteg	13100-13390	291	96		Core		
U72	UL100	UL10	R	gM	14544-13462	1083	360		Core		
U73/ORF-G	Nil	UL09	F	OBP	14543-17026	2484	827		α/β2		
U74	UL102	UL08	F	PAF	17049-19046	2004	667		Core		
U75	UL103	UL07	R	tegument	19721-19029	693	230		Core		
U76	UL104	UL06	R	POR	21435-19630	1806	601		Core		
U77	UL105	UL05	F	HEL	21386-22247	(862)	(287)		Core		
U77	UL105	UL05	F	HEL	00001-00045	(45)	(14)	JX011081	Core	143621-159063	3.0
U77.5/ORF-M	Nil	Nil	F	Nuclear	00366-01880	1515	504		Novel		
U80.5/ORF-N	Nil	Nil	R	vCXCL1?	02022-02339	318	105		Novel		
U81	UL114	UL02	R	UDG	02407-03360	954	317		Core		
U82	UL115	UL01	R	gL	03326-04240	915	304		Core		
U82.5/ORF-Oex3	Nil	Nil	R	S/TGlyP	04080-04625	(545)	(181)		Novel		
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyP	04712-04953	(242)	(81)		Novel		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyP	05382-05040	(342)	(114)		Novel		
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyP	06685-05379	(1306)	(428)		Novel		
U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyP	07011-06762	(273)	(91)		Novel		
U84.5/ORF-Qex2	Nil	Nil	R	GlyP	07905-07133	(772)	(257)		Novel		
U84.5/ORF-Qex1	Nil	Nil	R	GlyP	08204-07991	(213)	(71)		Novel		
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	10521-08350	(2172)	(724)		Novel		
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	10638-10600	(39)	(13)		Novel		
U85.5/ORF-Kex1A	Nil	Nil	R	SplGlyP	10709-10686	(24)	(8)		Novel		
U86.5/ORF-L	Nil	Nil	R	IE-like	15371-11445	3927	1308		Novel		
-	-	-	-	-	15372-15449	(77)	-		-		

3. EEHV1A (#NAP20, KSB): Eleven segments ORF-C, gB-POL, PPF-U49, PAC2-vGPCR1, TERex3-PAC1, EXO-gM, OBP, POR-HEL, ORF-M, UDG-gL & ORF-K to ORF-L. Total = 25,066-bp Differences = 565-bp = 2.2%

ORF-CCterm	Nil	Nil	F		00001-00935	(935)	(309)	KM087785	Novel	053368-054302	0.1
U39	UL55	UL27	F	gB	00001-02553	2544	847	JF692751	Core	073959-079865	0.7
U38	UL54	UL30	F	POL	02583-05726	3144	1047		Core		
-	-	-	-	-	05727-05908	(181)	NC		-		
U27/ORF-I	UL44	UL42	F	PPF	00001-00039	(39)	(13)	KM087786	Core	102148-107059	8.1
U45.7/ORF-J	Nil	Nil	F		00122-00628	507	168		Novel		
U46	UL73	UL49A	F	gN	00612-00902	291	96		Core		
U47	UL74	Nil	R	gO	01566-00928	639	212		β		
U48	UL75	UL22	R	gH	03767-01545	2223	740		Core		
U48.5/ORF-E	Nil	UL23	R	TK	04764-03691	1074	357		α/γ		
U49	UL76	UL24	F		04766-04915	(150)	(50)		Core		
U50	UL77	UL25	F	PAC2	00001-00089	(89)	(30)	KM087787	Core	109075-110068	1.4
U51	UL78	Nil	F	vGPCR1	00096-00994	(898)	(266)		β		
U60ex3	UL89ex2	UL15ex2	R	TERex3	00575-00001	(575)	(192)	KM087788	Core	123163-125302	1.0
U62	UL91	Nil	F		00600-00866	267	88		β/γ		
U63	UL92	Nil	F		00814-01407	594	197		β/γ		
U64	UL93	UL17	F	PAC1	01388-01691	(304	(101)		Core		
U71	UL99	UL11	F	myrTeg	00001-00273	(273)	(90)	KM087789	Core	132969-133618	0.3
U72	UL100	UL10	R	gM	00348-00650	(303)	(100)		Core		

U73/ORF-G	Nil	UL09	F	OBP	00001-00486	(486)	(162)	KM087790	α/β2	134586-135071	0.6
U76	UL104	UL06	R	POR	00381-00001	(381)	(127)	KM087791	Core	140915-141865	0.1
U77	UL105	UL05	F	HEL	00332-00951	(620)	(207)		Core		
U77.5/ORF-M	Nil	Nil	F		00001-00701	(939)	(312)	KM087792	Novel	144805-145740	1.3
-	-	-	-	-	00702-00939	(238)	NC		-		
U81	UL114	UL02	R	UDG	00452-00001	(452)	(151)	KM087793	Core	146526-147085	2.7
U82	UL115	UL01	R	gL	00557-00418	(140)	(46)		Core		
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	02094-00001	(2094)	(698)	KC854711	Novel	152047-159070	1.0
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	02212-02173	(39)	(13)		Novel		
U85.5/ORF-Kex1	Nil	Nil	R	SplGlyP	02282-02259	(23)	(8)		Novel		
U86.5/ORF-L	Nil	Nil	R	IE-like	06946-03024	3923	1307		Novel		
-	-	-	-	-	06947-07040	(94)	NC		-		

4. EEHV1B [#NAP14,Kiba-B]: Sixteen segments ORF-C to -A (5x), MDBP, gB-POL, U33, TEG-L, TRI1 to vGPCR, MCP, TERex3, TERex1,2, EXO-OBP, POR-HEL, HEL to ORF-L.

Total = 54,729-bp Differences = 5,819 = 10.6%

ORF-CNterm	Nil	Nil	F		00001-00927	(927)	(309)	HM568531	Novel	051276-052228	5.8
ORF-CCterm	Nil	Nil	F		00001-00936	(936)	(312)	HM568530	-	053368-054300	2.7
U4	Nil	Nil	F		00001-00815	(815)	(235)	HM568532	β	055558-056372	0.4
U5/ORF-B	Nil	Nil	F		00001-00971	(971)	(324)	HM568533	β	057008-058094	0.9
ORF-A	Nil	Nil	F		00001-01087	(1087)	(329)	HM568534	Novel	059339-060309	0.46
U41	UL57	UL29	F	MDBP	00001-01952	(1952)	(750)	HM568535	Core	069422-071373	0.36
U39	UL55	UL27	F	gB	00001-02511	(2511)	(836)	HM568536	Core	073986-078862	14
U38	UL54	UL30	F	POL	02544-04847	(2304)	(768)		Core		
U33	UL49	Nil	F	Cys-rich	00001-00905	(905)	(302)	JN983085	β/γ	083522-084426	0.55
U31	UL48	UL36	R	TEG-L	00943-00001	(943)	(314)	JN983086	Core	086587-087529	4.1
U29	UL46	UL38	F	TRI1	00001-00667	(667)	(222)	HM568538	Core	096645-110024	11
U28	UL45	UL39	F	RRA	00714-03116	2402	801		Core		
U27.5/ORF-H	Nil	UL40	F	RRB	03160-04065	906	302		α/γ		
U27/ORF-I	UL44	Ul4	F	PPF	04311-05537	1224	408		Core		
U45.7/ORF-J	Nil	Nil	F		05621-06076	455	152		Novel		
U46	U73	UL49A	F	gN	06063-06344	282	83		Core		
U47/ORF-D	U74	Nil	R	gO	07034-06393	642	213		β		
U48	U75	UL22	R	gH	09226-07013	2213	737		Core		
U48.5/ORF-E	Nil	UL23	R	TK	10232-09162	1069	356		α/γ		
U49	UL76	UL24	F		10231-10929	697	232		Core		
U50	UL77	UL25	F	PAC2	10748-12487	1739	579		Core		
U51	UL78	Nil	F	vGPCR1	12494-13576	(1083	(361)		β		
U57	UL86	UL19	R	MCP	03855-00001	(3855)	(1285)	HM568539	Core	115602-119689	2.9
U58	UL87	Nil	F		04012-04083	(72)	(24)		β/γ		
U60ex3	UL89	UL15	R	TERex3	00560-00001	(560)	(187)	JN983088	Core	123624-125299	1.9
U62	UL91	Nil	F		00587-00853	266	89		β/γ		
U63	UL92	Nil	F		00801-01394	594	197		β/γ		
U64	UL93	UL17	F	PAC1	01375-01676	(302)	(101)		Core		
-	-	-		-	00001-00016	(16)	-	HM568540	-	127332-128180	3.8
U66ex2	Nil	Nil	R	TERex2	00136-00017	(119)	(40)		-		
U66ex1	Ul89ex1	UL15ex1	R	TERex1	00843-00215	(628)	(209)		-		

U70	UL98	UL12	F	EXO	00001-00240	(240)	(78)	HM568541	Core	132780-135409	4.3
U71	UL99	UL11	F	myrTeg.	00177-00464	287	95		Core		
U72	UL100	UL10	R	gM	01617-00535	1083	359		Core		
U73/ORF-G	Nil	UL09	F	OBP	01616-02625	(1010)	(337)		α/γ		
U76	UL104	UL06	R	POR	01286-00001	(1286	(428)	HM568542	Core	140010-141923	2.2
U77	UL105	UL05	F	HEL	01237-01914	(677)	(225)		Core		
U77	UL105	UL05	F	HEL	00001-00265	(265)	(88)	JX011082	Novel	143402-159076	20.7
U77.5/ORF-M	Nil	Nil	F	Nuclear	00587-02059	1473	490		Novel		
U80.5/ORF-N	Nil	Nil	(absent)								
U81	UL114	UL02	R	UDG	03337-02390	948	314		Core		
U82	UL115	UL01	R	gL	04202-03303	900	299		Core		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyP	04608-04054	(554)	(183)		Novel		
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyp	04908-04700	(208)	(63)		Novel		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyp	05330-04988	(343)	(114)		Novel		
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyp	06644-05419	(1225)	(407)		Novel		
U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyp	06962-06716	(246)	(82)		Novel		
U84.5/ORF-Qex2	Nil	Nil	R	Glyp	07701-07064	(635)	(210)		Novel		
U84.5/ORF-Qex1	Nil	Nil	R	Glyp	08024-07778	(246)	(82)		Novel		
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	10302-08137	(2178)	(725)		Novel		
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	10419-10381	(39)	(13)		Novel		
U85.5/ORF-Kex1A	Nil	Nil	R	SplGlyP	10490-10467	(24)	(8)		Novel		
U86.5/ORF-L	Nil	Nil	R	IE-like	15157-11234	3924	1307		Novel		
-	-	-	-	-	15158-15247	(80)	-		-		

5. EEHV1B [#NAP19,Haji]: Seventeen segments, ORF-C to ORF-A(5x), Ori-Lyt, MDBP, gB-POL, U33, TEG-L, TRI1-vGPCR, MCP, TERex3-PAC, TERex1,2, EXO-OBP, POR-HEL, HEL to ORF-L.

Total = 53,752-bp Differences = 5,677-bp = 10.6%

ORF-CNterm	Nil	Nil	F		00001-00927	(927)	(309)	HM568544	Novel	051276-052229	5.6
ORF-CCterm	Nil	Nil	F		00001-00930	(930)	(310)	HM568543	-	053368-054300	3.0
U4	Nil	Nil	F		00001-00809	(809)	(270)	HM568545	β	055561-056364	0.5
U5/ORF-B	Nil	Nil	F		00001-01094	(1094)	(365)	HM568546	β	057008-058101	0.6
ORF-A	Nil	Nil	F		00001-00971	(971)	(324)	HM568547	Novel	059339-060309	0.1
U42	UL69	UL54	F	MTA	00001-00069	(69)	(23)	HM568548	Core	067831-068471	0.9
Intergenic	Nil	Ori-Lyt	Ori-Lyt		00155-00346	192	NC		-		
U41	UL57	UL29	F	MDB	00618-00643	(26)	(9)		-		
U41	UL57	UL29	F	MDBP	00001-01946	(1946)	(748)	HM568549	Core	069428-071373	0.36
-					00001-00036	(36)	NC	HM568550	-	073959-079875	12
U39	UL55	UL27	F	gB	00037-02538	2538	845		Core		
U38	UL54	UL30	F	POL	02571-05696	3126	1031		Core		
-					05697-05889	(198)	NC		-		
U33	UL49	Nil	F	Cys-rich	00001-00909	(909)	(303)	JN983089	β/γ	083537-084444	0.7
U31	UL48	UL36	R	TEG-L	00925-00001	(925)	(308)	JN983090	Core	086587-087509	3.9
U29	UL46	UL38	F	TRI1	00001-00666	(666)	(222)	HM568552	Core	096646-110232	10.9
U28	UL45	UL39	F	RRA	00713-03115	2402	801		Core		
U27.5/ORF-H	Nil	UL40	F	RRB	03159-04064	915	305		α/γ		
U27/ORF-I	UL44	UL42	F	PPF	04310-05536	1226	409		Core		
U45.7/ORF-J	Nil	Nil	F		05620-06075	455	152		Novel		
U46	UL73	UL49A	F	gN	06062-06343	282	93		Core		
U47/ORF-D	UL74	Nil	R	gO	07033-06392	642	214		β		
U48	UL75	UL22	R	gH	09225-07012	2213	738		Core		

U48.5/ORF-E	Nil	UL23	R	TK	10231-09161	1071	357		α/γ		
U49	UL76	UL24	F		10230-10928	698	233		Core		
U50	UL77	UL25	F	PAC2	10747-12486	1738	579		Core		
U51	UL78	Nil	F	vGPCR1	12493-13567	(1074)	(358)		β		
U57	UL86	UL19	R	MCP	03845-00001	(3845)	(1282)	HM568553	Core	115612-119687	3.0
U58	UL87	Nil	F		04002-04071	(70)	(23)		β/γ		
U60ex3	UL89ex2	UL15ex2	R	TERex3	00571-00001	(571)	(190)	HM568554	Core	123613-125293	0.9
U62	UL91	Nil	F		00598-00864	267	88		β/γ		
U63	UL92	Nil	F		00812-01405	594	197		β/γ		
U64	UL93	UL17	F	PAC1	01386-01686	(301)	(100)		Core		
-	-	-			00001-00024	(24)	NC	HM568555	-	127324-127707	0.26
U66ex2	Nil	Nil	R	TERex2	00144-00025	(121)	(40)		-		
U66ex1	UL89ex1	UL15ex1	R	TERex1	00384-00229	(155)	(52)		-		
U70	UL98	UL12	F	EXO	00001-00254	(254)	(83)	HM568556	Core	132764-135411	0.19
U71	UL99	UL11	F	myrTeg	00191-00478	288	95		Core		
U72	UL100	UL10	R	gM	01641-00553	1088	362		Core		
U73/ORF-G	Nil	UL09	F	OBP	01640-02648	1011	(336)		α/β2		
U76	UL104	UL06	R	POR	01286-00001	(1286)	(395)	HM568557	Core	140010-141849	0.65
U77	UL105	UL05	F	HEL	01237-01840	(603)	(201)		Core		
U77	UL105	UL05	F	HEL	00001-00265	(265)	(88)	JX011083	Novel	143402-159076	20.9
U77.5/ORF-M	Nil	Nil	F	Nuclear	00587-02059	1473	490		Novel		
U80.5/ORF-N	Nil	Nil		(absent)							
U81	UL114	UL02	R	UDG	03337-02390	948	315		Core		
U82	UL115	UL01	R	gL	04202-03303	900	299		Core		
U82.5/ORF-Oex3	Nil	Nil	R	S/TGlyp	04608-04054	(554)	(183)		Novel		
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyp	04908-04700	(208)	(69)		Novel		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyp	05330-04988	(342)	(114)		Novel		
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyp	06647-05419	(1228)	(407)		Novel		
U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyp	06965-06719	(246)	(82)		Novel		
U84.5/ORF-Qex2	Nil	Nil	R	Glyp	07701-07067	(634)	(210)		Novel		
U84.5/ORF-Qex1	Nil	Nil	R	Glyp	08024-07778	(246)	(82)		Novel		
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	10305-08137	(2178)	(725)		Novel		
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	10422-10384	(39)	(13)		Novel		
U85.5/ORF-Kex1A	Nil	Nil	R	SplGlyP	10493-10470	(24)	(8)		Novel		
U86.5/ORF-L	Nil	Nil	R	IE-like	15166-11234	3933	1310		Novel		
-	-	-	-	-	15167-15256	(90)	NC		-		

6. EEHV1B (#NAP33, Jade1): Twelve segments MDBP, gB-POL, U33, RRA-RRB, PPF to gN, gH to U49, vGPCR1, TERex3-U64, myrTeg-gM, OBP, POR-HEL & ORF-M to ORF-K.
Total = 22,865-bp. Differences = 3,997-bp = 17.5%

U41	UL57	UL29	F	MDBP	00001-01431	(1431)	(371)	KM087794	Core	069957-071387	0.63
U39	UL55	UL27	F	gB	00001-02538	(2538)	(845)	JF692761	Core	073959-079373	12.4
U38	UL54	UL30	F	POL	02571-05385	(3126)	(1031)		Core		
U33	UL49	Nil	F	Cys-rich	00001-00683	(683)	(228)	KM087795	β/γ	083528-084210	0.5
U28	UL45	UL39	F	RRA	00001-00561	(561)	(186)	KM087796	Core	099200-100622	1.5
U27.5	Nil	UL40	F	RRB	00605-01423	(809)	(260)		α/γ		
U27/ORF-I	UL44	UL42	F	PPF	00001-00054	(54)	(17)	KM087797	Core	102133-103022	25
U45.7/ORF-J	Nil	Nil	F		00138-00593	456	151		Novel		
U46	UL73	UL49A	F	gN	00580-00834	(254)	(81)		Core		
U48	UL75	UL22	R	gH	00538-00001	(538)	(179)	KM087798	Core	105362-107059	18
U48.5	Nil	UL23	R	TK	01541-00474	1068	355		Core		
U49	UL76	UL24	F		01543-01692	(149)	(50)		Core		

U51	Nil	Nil	F	vGPCR1	00001-00897	(897)	(299)	JN633913	Novel	109375-110259	3.8
U60ex3	UL89ex2	UL15ex2	R	TERex3	00560-00001	(560)	(187)	KM087799	Core	123624-125300	1.8
U62	UL91	Nil	F		00587-00853	267	88		β/γ		
U63	UL92	Nil	F		00801-01394	594	197		β/γ		
U64	UL93	UL17	F	PAC1	01375-01676	(301)	(100)		Core		
U71	UL99		F	MyrTeg	00001-00271	(271)	(89)	JN633871	Core	132971-133618	6.5
U72	UL100		R	gM	00642-00343	(300)	(99)		Core		
U73/ORF-G	Nil	UL09	F	OBP	00001-00775	(775)	(258)	KM087800	α/β2	134644-135418	2.9
U76	UL104	UL06	R	POR	01286-00001	(1286)	(328)	JN633896	Core	140010-141870	2.1
U77	UL105	UL05	F	HEL	01237-01861	(624)	(208)		Core		
U77.5/ORF-M	Nil	Nil	F		00001-00050	(50)	(18)	KM087801	Core	145630-152165	41
U80.5/ORF-N	Nil	Nil	(absent)								
U81	UL114	UL02	R	UDG	01341-00394	948	315		Core		
U82	UL115	UL01	R	gL	02206-01307	900	299		Core		
U82.5/ORF-Oex3	Nil	Nil	R	S/TGlyP	02613-02058	(543)	(180)		Novel		
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyP	02912-02705	(210)	(70)		Novel		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyP	03334-02992	(342)	(114)		Novel		
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyP	04651-03423	(1224)	(307)		Novel		
U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyP	04969-04723	(246)	(82)		Novel		
U84.5/ORF-Qex2	Nil	Nil	R	GlyP	05705-05071	(637)	(212)		Novel		
U84.5/ORF-Qex1	Nil	Nil	R	GlyP	06028-05782	(246)	(82)		Novel		
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	06332-06141	(191)	(63)		Novel		

7. EEHV1B (#NAP45TW, Shanti2): Nine segments gB-POL, RRA-RRB, PPF to gN, gH to U49, vGPCR1, MyrTeg-gM, OBP, POR-HEL & UDG to ORF-L. Total = 26,649 Differences = 3,986-bp = 15%

U39	UL55	UL27	F	gB	00001-02538	2538	845	KM087802	Core	073959-078887	14
U38	UL54	UL30	F	POL	02571-04899	(2361)	(787)		Core		
U28	UL45	UL39	F	RRA	00001-00510	(510)	(169)	KM087803	Core	099251-100623	0.4
U27.5/ORF-H	Nil	UL40	F	RRB	00554-01373	(819)	(273)		α/γ		
U27/ORF-I	UL44	UL42	-	PPF	00001-00054	(54)	(15)	KM087804	Core	102133-103021	25
U45.7/ORF-J	Nil	Nil	F		00138-00593	456	151		Novel		
U46	UL73	UL49A	F	gN	00580-00833	(833)	(277)		Core		
U48	UL75	UL22	R	gH	00541-00001	(541)	(180)	KM087805	Core	105359-107067	18
U48.5	Nil	UL23	R	TK	01544-00477	1068	355		Core		
U49	UL76	UL24	F		01546-01703	(157)	(52)		Core		
U51	Nil	Nil	F	vGPCR1	00001-00897	(897)	(299)	JN633921	Novel	109375-110259	3.8
U57	UL86	UL19	R	MCP	02741-00001	(2741)	(914)	KM087806	Core	115602-118342	3.6
U71	UL99		F	MyrTeg	00001-00271	(271)	(89)	JN633879	Core	132971-133618	6.5
U72	UL100		R	gM	00642-00343	(300)	(99)		Core		
U73/ORF-G	Nil	UL09	F	OBP	00001-00804	(804)	(268)	KM087807	α/β2	134630-135433	3.1
U76	UL104	UL06	R	POR	00389-00001	(389)	(129)	JN633906	Core	140907-141870	2.1
U77	UL105	UL05	F	HEL	00340-00964	(625)	(207)		Core		
U81	UL114	UL02	R	UDG	00888-00001	(888)	(296)	KC854712	Core	146090-159076	19.9
U82	UL115	UL01	R	gL	01753-00854	900	299		Core		
U82.5/ORF-Oex3	Nil	Nil	R	S/TGlyP	02159-01605	(543)	(180)		Novel		
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyP	02459-02251	(210)	(70)		Novel		
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyP	02881-02539	(342)	(114)		Novel		
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyP	04195-02970	(1224)	(307)		Novel		
U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyP	04513-04267	(246)	(82)		Novel		
U84.5/ORF-Qex2	Nil	Nil	R	GlyP	05252-04615	(637)	(212)		Novel		

U84.5/ORF-Qex1	Nil	Nil	R	GlyP	05572-05329	(243)	(81)		Novel			
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	07853-05685	(2168)	(723)		Novel			
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	07970-07932	(39)	(13)		Novel			
U85.5/ORF-Kex1	Nil	Nil	R	plGlyP	08041-08018	(23)	(8)		Novel			
U86.5/ORF-L	Nil	Nil	R	IE-like	12703-08780	3924	1307		Novel			
-					12704-12793	(89)	NC		-			

8. EEHV2 [#NAP12,Kijana]: Eight segments, gB-POL, U34, U33 to TEG-L, TEG-S to PAC2, vGPCR1, U56-MCP, TERex3 to PAC1, U65 to ORF-L. Total = 59,164 = bp Differences = 18,011-bp = 30.4%

-	-	-			00001-00024	(24)	NC	HM568558	-	073935-079088	27	
U39	UL55	UL27	F	gB	00025-02571	2557	848		Core			
U38	UL54	UL30	F	POL	02597-05109	(2513)	(837)		Core			
U34	UL50	UL34	F	DOC	00001-00713	(713)	(238)	KC854740	Core	082333-083053	25	
U33	UL49	Nil	F	Cys-rich	00001-01222	(1222)	(407)	HM568559	β/γ	083509-087991	(32)	
U32	UL48A	UL35	F	SCP	01110-01373	264	88		Core			
U31	UL48	UL36	R	TEG-L	04451-01378	(2040)	(680)		Core			
U30	UL47	UL37	R	TEG-S	01635-00001	(1635)	(545)	HM568561	Core	094802-108190	31	
U29	UL46	UL38	F	TRI1	01625-02515	890	(283)		Core			
U28	UL45	UL39	F	RRA	02564-04963	2400	799		Core			
U27.5/ORF-H	Nil	UL40	F	RRB	04982-05887	906	301		α/γ			
U27/ORF-I	UL44	UL42	F	PPF	06137-07363	1227	408		Core			
U45.7/ORF-J	Nil	Nil	F		07451-07969	419	172		Novel			
U46	UL73	UL49A	F	gN	07947-08228	282	93		Core			
U47/ORF-D	UL74	Nil	R	gO	08904-08263	642	215		β			
U48	UL75	UL22	R	gH	11114-08883	2232	743		Core			
U48.5/ORF-E	Nil	UL23	R	TK	12154-11111	1044	349		α/γ			
U49	UL76	UL24	F		12156-12854	699	232		Core			
U50	UL77	UL25	F	PAC2	12673-13454	(782)	(281)		Core			
U51	UL78	Nil	F	vGPCR1	00001-01048	(1048	(350)	KC854713	β	109209-110248	(28)	
U56	UL85	UL18	R	TRI2	00283-00001	(283)	(94)	HM568562	Core	115085-118881	(23)	
U57	UL86	UL19	R	MCP	03818-00344	(3475)	(1158)		Core			
U60ex3	UL89ex2	UL15ex2	R	TERex3	00625-00001	(626)	(164)	HM568563	Core	123559-125283	(24)	
U62	UL91	Nil	F		00647-00915	270	89		β/γ			
U63	UL92	Nil	F	tegument	00863-01456	594	197		β/γ			
U64	UL93	UL17	F	PAC1	01437-01721	(288)	(95)		Core			
U65	UL94	UL16	F		00001-00171	(171)	(56)	HM568564	Core	127164-156871	31.8	
U66ex2	Nil	Nil	R	TERex2	00318-00195	(124)	(41)		-			
U66ex1	UL89ex1	UL15ex1	R	TERex1	01149-00415	(734)	(245)		-			
U67	UL95	Nil	F		01249-02337	1088	363		β/γ			
U68	UL96	UL14	F	tegument	02355-02702	347	115		Core			
U69	UL97	UL13	F	CPK	02793-04331	1538	512		Core			
U70	UL98	UL12	F	EXO	04415-05875	1460	486		Core			
U71	UL99	UL11	F	myrTeg	05812-06120	308	102		Core			
U72	UL100	UL10	R	gM	07324-06227	1095	365		Core			
U73/ORF-G	Nil	ULO9	F	OBP	07323-09749	2427	808		α/β2			
U74	UL101/2	UL08	F	PAF	09785-11830	2055	681		Core			
U75	UL103	UL07	R	tegument	12505-11813	693	230		Core			
U76	UL104	UL06	R	POR	14183-12414	1770	589		Core			
U77	UL105	UL05	F	HEL	14137-16554	2418	805		Core			
U77.5/ORF-M	Nil	Nil	F	Nuclear	16894-18327	1458	485		Novel			
U80.5/ORF-N	Nil	Nil	R	vCXCL1	18755-18432	323	107		Novel			
U81	UL114	UL02	R	UDG	19728-18778	951	316		Core			
U82	UL115	UL01	R	gL	20533-19694	840	279		Core			
U82.5/ORF-Oex3	Nil	Nil	R	S/TGlyP	21005-20457	(548)	(182)		Novel			
U82.5/ORF-Oex2	Nil	Nil	R	S/TGlyP	21294-21098	(196)	(65)		Novel			
U82.5/ORF-Oex1	Nil	Nil	R	S/TGlyP	22172-21371	(801)	(267)		Novel			
U83.5/ORF-Pex2	Nil	Nil	R	S/TGlyP	23611-22218	(1394	(464)		Novel			

U83.5/ORF-Pex1	Nil	Nil	R	S/TGlyP	23951-23693	(259)	(86)	Novel
U84.5/ORF-Q	Nil	Nil	(absent)					
U85.5/ORF-Kex3	Nil	Nil	R	SplGlyP	26185-24208	(1977)	(658)	Novel
U85.5/ORF-Kex2	Nil	Nil	R	SplGlyP	26311-26273	(39)	(13)	Novel
U85.5/ORF-Kex1	Nil	Nil	R	SplGlyP	26483-26379	(51)	(17)	Novel
U86.5/ORF-L	Nil	Nil	R	IE-like	28850-27099	(1749)	(582)	Novel

Core = common to all herpesvirus subfamilies; α/β = Alpha & Beta only; β/γ = Beta & Gamma only; β = Beta only; α/β2 = Alpha & *Roseoloviruses* only; Novel = not found in any other herpesviruses. Diff % = level of nucleotide divergence for each locus compared to EEHV1A(Kimba).

Supplemental Material: Section 2: Listings of PCR Primers Used for Amplifying and Sequencing Selected PCR Loci:

Initial sets of two-step moderately-redundant PAN-Herpesvirus DNA PCR primers for small segments of either the U38(POL) Codehops or U66(TERex3) gene loci of EEHV1 and EEHV2, as well as the PAN EEHV and EEHV1, EEHV2, EEHV3, EEHV4, EEHV5 and EEHV6-specific diagnostic POL or TER locus primers have all been described previously elsewhere (4, 9, 10). Standard basic primer sets for the EEHV1 specific 525-bp U38(POL), 679-bp U71-72(gM), 986-bp U76(POR)-U77(HEL) and 910-bp U51(vGPCR1) gene loci were listed in Stanton et al (19) and for the 1080-bp U47.5(TK)-U489(gH) locus in Zachariah et al (11). Selected additional specific or consensus primer sets that were designed for and found effective for amplification of key gene segments that are referred to in detail in the text are listed below. Detailed information about numerous other primers not listed that were used for primer PCR, cycle sequencing and phage lambda genome walking procedures can be obtained from the corresponding author.

EEHV1A,1B Consensus U39(gB) N-Terminal Locus:

R1 LGH3830 5'- CCCTGGTTTTAAAGACTGATAA-3'

R2 LGH3832 5'- GCCACGGGGGTTTAATCCTTAT -3'

L1 LGH3837 5'- CCAGAACATATACGATAAGGCCA -3'

First round PCR R1-L1 = 1.5-kb; second round PCR R1-L2 = 1.4-kb.

EEHV2-Specific U38(POL) Codehops Region Locus:

R1 LGH6525 5'-CACATCGATACGGAATCTCT-3'

R2 LGH7450 5'-CTCTACATTTACCGTACACTC-3'

L4 LGH7440 5'-GACTTCGCCAGCTTGTATACC-3'

L3 LGH7437 5'-GTATCATACAAGCTTATAACC-3'

L2 LGH7439 5'-CGTGTAATGCCGTATACGGATTC-3'

L1 LGH6524 5'-GTGTCTGGCTATAGCAGAGT-3'

First round PCR R1-L1 = 510-bp; second-round L1-R2 = 480-bp; alternative second round L2-R1 = 480-bp; third-round R2-L2 = 460-bp, third-round first alternative L1 or L2-R3 = 210-bp; third-round second alternative, R1 or R2-L4 = 180-bp.

EEHV1A,1B Specific U41(MDBP) Locus:

R1 LGH6658 5'-CTGGATTTTTACTCGTGGCC-3'

R2 LGH6657 5'-GGCAACAGAAAAAGGAACCGTG-3'

R3 LGH6660 5'-CATTTTCAGAGCGTGTACCRG-3'

L3 LGH6661 5'-CTGTACACGCTCTGAAAATG-3'

L2 LGH6662 5'-TAGTCTCTGGTCTCACGTCT-3'

L1 LGH6664 5'-CCTCATAAAGTTGTAGTCGC-3'

First round PCR LHS-1 R1-L2 = 1400-bp; first round RHS-1 R2-L1 = 1470-bp; second round LHS-2 R1-L3 = 1090-bp; second round RHS-2 R3-L1 = 940-bp; alternative second round LHS/RHS-2 R2-L2 = 1050-bp.

EEHV1A Specific Ori-Lyt Locus:

Consensus EEHV1A/1B non-redundant primers:

R1 LGH7425 5'-CGAAGCGCAACACGCGATG-3'

L1 LGH7426 5’-CGTATGATCATTCGGAGTCG-3’

First round PCR R1/L1 = 700-bp.

EEHV1A,1B,2 Redundant Short U28(RRA)-U27.5(RRB) Overlap Locus:

R1 LGH7541 5’-CARTTYAT[A/C/T]GCNCTNATGCCNAC-3’ [EEHV1A,1B,2]

R2 LGH7540 5’-CCNTTYGTNGAYCANAGNCARTC-3’ [EEHV1A,1B,2]

R3 LGH7801 5’-GCGT[A/T]TCCGAAGC[C/A]TTYTATCC-3’ [EEHV1A,1B,2]

L3 LGH7800 5’-TCATCCAATAAGACCACGTGC-3’ [EEHV1A,1B only]

L2 LGH7539 5’-ATNCTNAGRTARTACATNCCNGT-3’ [EEHV1A,1B,2]

L1 LGH7538 5’-TTNACNAGRTGYTCNGCCATNCC-3’ [EEHV1A,1B,2]

First round PCR L1-R1 = 780-bp; second round LHS L1-R2 = 480-bp; second round RHS L2-R1 = 400-bp; alternative second round LHS L1-R3 = 760-bp; alternative second round RHS L3-R1 = 760-bp; third round LHS L3-R3 = 740-bp; alternative third round LHS L3-R2 = 460-bp; alternative third round RHS L2-R3 = 380-bp.

EEHV1A,1B,2 Consensus Long U28(RRA)-U27.5(RRB) Overlap Locus:

R1 LGH8535 5’-TCCGAGGAGGAGAGYTGYCCGTCTCTC-3’

R2 LGH8536 5’-GAGATAGTRCACCACGCYAACGATTC-3’

R3 LGH8564 5’-TATCTGAGYAATATAGATTGGGAAGTG-3’

L7 LGH8537 5’-AG[A/T]CACTTCCCAATCTATATTRCTCAG-3’

L6 LGH8538 5’-GACATRGATTGGCTGTGGTCTACAA-3’

R4 LGH8565B 5’-TTGTRGACCA[C/G]AGCCAATCYATGTC-3’

R5 LGH8566 5’-ATAGGGTTYGACGG[A/T]AC[C/G]ACRGAGGC-3’

R6 LGH8567 5’-GGGATGARAGYAA[A/C]ACACCAC[G/T]GCCG-3’

L5 LGH8568 5’-CGGC[A/C]GTGGTGTG[G/T]ATRCTYTCATCCC-3’

L4 LGH8572 5’-TTTCTATGGGAGAGYGGYAA[A/T]GGACA-3’

L3 LGH8569 5’-GGTTTRAC[G/T]CGCTGYACGAT[C/G]ATAGAG-3’

L2 LGH8670 5’-TGAAACTGTAGAATCACGTC[A/T]CTCTTCAG-3’

L1 LGH8571 5’-CGTCAGC[A/C]AC[A/C]GGTAACATGCTCTCCC-3’

Selected appropriate combinations of the primers listed above in order from right to left were used for this 2.4-kb locus across the overlap of the C-terminus of RRA with the intact RRB ORF encompassing EEHV1A(Kimba) coordinates 98,267 to 101,706 (24).

EEHV1A,1B.2 Consensus Minimally Redundant U45.7(ORF-J)-U46(gN) Overlap Locus:

R1 LGH7530B 5’-CAGA[G/T]GAYGACGATGACTACTGG-3’ [EEHV1A,1B,2]

R2 LGH7536A 5’-CATGCGATTATATGACAAAGG-3’ [EEHV2 only]

R2’ LGH7536B 5’-CATGTGAYTACATGRCAAAAG-3’ [EEHV1A,1B only]

R3 LGH7562 5’-GGGCTTCCATCATTGGACTCTAC-3’ [EEHV1,1B only]

L2 LGH7879 5’-CTATCTATAGATTCCGG[A/T]GGA-3’ [EEHV1,6 only]

L1 LGH6756B 5’-CAGTTTC[A/C]GTTGTRATGCTYTG-3’ [EEHV1A,1B,2]

First round PCR R1-L1 = 880-bp, second round A R1-L2 = 350-bp, second round B1, B2 R2-L1 OR R2’-L1 = 680-bp; alternative second round C R3-L1 = 650-bp

EEHV1A,1B,2 Consensus U48.5(TK) C-terminal Locus.

R1 LGH6764 5’-GCACG[A/G]TACCACGTACTC-3’

R2 LGH4944B 5’- CAGCGTTTCCTCAGAACATCCCTGTAA-3’

R3 LGH6737 5’- CATGCCTATC[G/T]GCTATGG-3’

L1 LGH4962 5’- CAGATTAGCCTCGAAATATGTAGCGAA-3’

First round PCR R1-L1 = 910-bp; second round R2-L1 = 730-bp; third round R3-L1 = 550-bp.

.

EEHV2 Specific U51(vGPCR1) Locus:

R1 LGH9323 5'-GTG CTA AAC CTT TTC AAC GAG ACT TC-3'

R2 LGH9351 5'-GCG TTT AAC GC[A/C] AC[A/G] CAG TTG GT-3'

L2 LGH9353 5'-CGT AAC AGG TTA GCA TGA GTA TCC TCT TCC-3'

L1 LGH9325 5'-GAG AAC GCG TTC TGA CTT TCT TCA TCA-3'

First round PCR R1-L1 = 1,100-bp; second round 2A R1-L2 = 990-bp; second round 2B R2-L1 = 1070-bp; third round PCR R2-L2 = 960-bp.

EEHV1 Specific Internal U57(MCP) Locus:

R1 LGH4960 5'-GGGTGACACAATGTTCTGAGACAATCT-3'

R2 LGH4966 5'-GGCTCTTCCAGGTACTTGAGTAT-3'

L1 LGH4968 5'-GGTAAGATCTATACTGTCCACGCAT-3'

First round PCR R1-L1 = 1,570-bp; second round R2-L1 = 750-bp.

EEHV1,2 Common U60(TERex3) Extended Locus:

R1 LGH6640 5'-ARTGTTC[A/T]AT[A/T]CCGTATAC-3'

R2 LGH6671 5'-GTTYGT[A/T]GTAAANGCCGGATC'-3

L2 LGH6780 5'-GTAACAC[C/G]AGCACRCAGAG-3'

L1 LGH6672 5'-TGTTGTGCA[G/T]RCACTCTTC-3'

First round PCR R1-L1 = 850-bp; second round A R1-L2 = 450-bp; second round B R2-L1 = 760-bp, third round R2-L2 = 390-bp.

EEHV1A,1B,6,2 Specific and Consensus U85.5(ORF-K)-U86.5(ORF-L, MIE-like) Overlap Locus:

The successful primers listed below were designed based on combinations of either common EEHV1 plus EEHV2 data or unique EEHV1A data only (as indicated).

R1 LGH9257 5’-CTCACAGACAACGTGTTTCAGAGACAGGC-3’ [EEHV1 only]

R2 LGH9084 5’-CC[A/C]TCGCYRCCCARRACCATGGGG-3’ [Common]

R3 LGH9085 5’-T[C/G]ACGGTGC[C/G]AGGTCYAYGGGCTC-3’ [Common]

L10 LGH9087 5’-GAACRTRAGAGRCTCCTGARACC[G/T]GACC-3’ [Common]

R4 LGH9060 5’-ACTCACCTCAGATAGTTT[G/T]GAAAC-3’ [Common]

L9 LGH9256 5’-GGGTTCCAATGCTGGCCCAACTTCAAG-3’ [EEHV1 only]

L8 LGH9061 5’-GGCTAYCACCATCTTYTGTACCACATGAC-3’ [Common]

R5 LGH9039 5’-GTCATGTGGTACARAAGATGGTGRTAGCC-3’ [Common]

L7 LGH9258 5’-GTTGGACCACCTAAGGAGATAGAGGAG-3’ [EEHV1/6 only]

R6 LGH9041 5’-GAGTCAGAGTCAGAGTCYGAGTC[A/C]GAGGAGC-3’ [Common]

L6 LGH9044 5’-GGAGGCACAGYAGCTCCTC[G/T]TCTTCGAGC-3’ [Common]

R7 LGH9065 5’-CTGATGATGTGTTGTCATTAAGAC-3’ [EEHV1 only]

L5 LGH9042 5’-GAAGTTCCC[A/C]CTYAAGTGACA[G/T]AATGACA-3’ [Common]

R8 LGH9261 5’-CATGTGGACCCCTGGCCCAACCAGACCC-3’ [EEHV1 only]

L4 LGH9067 5’-CATAGAGGAGAGGTTTCTGACATTCACCC-3’ [EEHV1 only]

R9 LGH9094 5’-CCTCTCTGGATCATGGCCCAAGAGTG-3’ [EEHV1 only]

L3 LGH9260 5’-GGACAGACAGGGTGCACAAGTCAGG-3’ [EEHV1 only]

L2 LGH9068 5’-CACATGTTTGTAAACACAGGCCATGCAC-3’ [EEHV1 only

L1 LGH9069 5’-CATGCTAAGGGGCACACTAGATCACATG-3’ [EEHV1 only]

Multiple appropriate combinations were chosen from the list given above arranged in order from right to left across a contiguous 5.8-kb segment at EEHV1A(Kimba) coordinates 153,277 to 159,112. The intact EEHV1A(Kimba) ORF-L protein maps between coordinates 155,062 to 158,985.

Supplemental Material: Section 3: GenBank Accession Numbers for Reference Non-EEHV Files Used in the Figures.

Genbank accession numbers used to derive the DNA or protein data for reference non-EEHV genes in the phylogenetic tree dendrograms in **Figs 7, 8 and 9** were as follows: African green monkey cytomegalovirus (AGMCMV) FJ483968; baboon cytomegalovirus (BabCMV) AC090446; alcelaphine (wildebeest) gammaherpesvirus 1 (AlHV1) AF005370; chimpanzee cytomegalovirus or panHV2 (ChCMV) AF480884; equine alphaherpesvirus 1 (EHV1) AY665713; equine alphaherpes 4 (EHV4) AF030027; equine gammaherpesvirus 2 (EqHV2) U20824; guinea-pig cytomegalovirus or CaviidHV2 (GPCMV) KC503762; human cytomegalovirus (HCMV) AY446894; human Epstein-Barr lymphocryptovirus (EBV) AJ507799; human roseolovirus (HHV6A) X83413; human roseolovirus (HHV6B) AF157706; human roseolovirus (HHV7) AF037218; human alphaherpes simplex virus 1 (HSV1) X14112; human alphaherpes simplex virus 2 (HSV2) Z86099; human Kaposi's sarcoma rhadinovirus (KSHV or HHV8) U75698; Marek's disease alphaherpesvirus or GallidHV2 (MDV) AF243438; mouse cytomegalovirus or MuHV1 (MCMV) U68229; mouse gammaherpesvirus 4 or MHV68 (MuHV4) U97553.2; aotine (owl monkey) cytomegalovirus (OMCMV) FJ483970; porcine cytomegalovirus (PigCMV) [POL/gB AF268039; MCP HQ025802 only ones available]; porcine pseudorabies alphaherpesvirus (PRV) BK001744; rat cytomegalovirus or MuHV2 (RCMV) AF2328689; rhesus (macaquine) alphaherpesvirus 1 or B-virus (RhBHV1) AF533768; rhesus (macacine) cytomegalovirus (RhCMV) AY186194; rhesus lymphocryptovirus (RhEBV) AY037858; squirrel monkey rhadinovirus, *H. saimiri*, saimiriineHV2 (HVS) X64346; saimiriine (squirrel monkey) cytomegalovirus (SMCMV) FJ483967; tree shrew cytomegalovirus, *H. tupaia*, tupaiid HV1 (TupCMV) AF281817; green turtle alphaherpesvirus (TurtleHV) AF035003; human varicella zoster alphaherpesvirus (VZV) X04370.

Supplemental Material: Section 4: GenBank Accession Numbers for Individual EEHV DNA Loci and Proteins Used in the SimPlots and Phylogenetic Trees:

Figure 2: Panel (a) U39(gB) Proteins: EEHV1A(#NAP11, Kumari) ADK70785; EEHV1A(#NAP18, Kala) ADK70824; EEHV1(#NAP20, KSB) AEM72533; EEHV1A(#NAP23, Kimba); EEHV1A(#EP22, Raman) AGE10030; EEHV1B(#NAP14, Kiba) ADK70861; EEHV1A(NAP23, Kimba) AEM62537; EEHV1B(#NAP19, Haji) ADK70891; EEHV1B(#NAP33, Jade1) AEM72553; EEHV1B(#NAP45, Shanti2) AIH00838; EEHV1B(#EP18, Emelia) AEM72571; EEHV2(#NAP12, Kijana) ADK70917. The other unnamed NAP# and EP# samples are all listed in Genbank under accession numbers between AEM72525 to AEM72575.

(b) U38(POL) DNA: EEHV1A(#NAP11, Kumari) HM568508; EEHV1A(#NAP18, Kala) HM568517; EEHV1(#NAP20, KSB) JF692751; EEHV1A(#NAP23, Kimba) JF692753; EEHV1A(#EP22, Raman) KC462165; EEHV1B(#NAP14, Kiba-B) HM568536; EEHV1B(#NAP19, Haji) HM568548; EEHV1B(#NAP33, Jade1) JF692761; EEHV1B(#NAP45, Shanti2) AIH00839; EEHV1B(#EP18, Emelia) KC462164; EEHV2(#NAP35) JF682762. The other unnamed NAP# and EP# samples U39(gB)-U38(POL) loci are all listed in Genbank under accession numbers between JF692747 to JF692773.

(c) U45-7(ORF-J)-U46(gN) DNA: EEHV1A(#NAP11, Kumari) HM568513; EEHV1A(#NAP18, Kala) HM568525; EEHV1(#NAP20, KSB) KM087786; EEHV1A(#NAP23, Kimba) KC618527; EEHV1A(#EP22, Raman) KC462165; EEHV1B(#NAP14, Kiba) HM568538; EEHV1B(#NAP19, Haji) HM568552; EEHV1B(#NAP33, Jade1) AIH00821; EEHV1B(#NAP45, Shanti2) AIH00843; EEHV1B(#EP18, Emelia) AIH00859; EEHV2(#NAP12, Kijana) HM568561. **(d) U81(gL) Proteins:** EEHV1A(#NAP11, Kumari) JX011081; EEHV1A(#NAP18, Kala) ADK70839; EEHV1A(#NAP23, Kimba) AGG16117; EEHV1A(#EP22, Raman) AGE1072; EEHV1B(#NAP14, Kiba) AIC84223; EEHV1B(#NAP19, Haji) AIC84232; EEHV1B(#NAP33, Jade1) AIH00833; EEHV1B(#NAP45, Shanti2) AIH00854; EEHV1B(#EP18, Emelia) AIH00864; EEHV2(#NAP12, Kijana) AGL61575.

Figure 7: (Proteins): **Panel (a)**: **U38(POL),** DNA polymerase, EEHV1A(#NAP18) ADK70825, EEHV1B(#NAP19) ADK70892, EEHV2(#NAP12) ADK70918, EEHV5(#NAP28) AEW50109, EEHV6(#NAP35) AEM72555; **(b) U39(gB),** glycoprotein-B, EEHV1A(#NAP18) ADK70824, EEHV1B(#NAP19) ADK70891, EEHV2(#NAP12) ADK70917, EEHV5A(#NAP50) AGK82348, EEHV5B(#NAP58) AFO11059.2, EEHV6(#NAP35) AEM72556.2; **(c) U48(gH),** glycoprotein-H, EEHV1A(#NAP18) ADK70823, EEHV1A(#NAP11) AET11415, EEHV1B(#NAP19) ADK70899, EEHV1B(#NAP14) ADK70873, EEHV2(#NAP12) ADK70927, 497 aa; **(d) U72(gM),** glycoprotein-M, EEHV1A(#NAP18) ADK70850, EEHV1B(#NAP19) ADK70913, EEHV2(#NAP12) ADK70943; **(e) U57(MCP),** major capsid protein, EEHV1A(#NAP18) ADK70841, EEHV1B(#NAP19) ADK70904, EEHV2(#NAP12) ADK70931, EEHV5(#NAP28) AEW50116, EEHV6(#NAP35) AEW50147; **(f) U69(CPK)**, conserved protein kinase, EEHV1A(#NAP11) ADK70807 , EEHV1B(#NAP14, Ehlers) ABG36589, EEHV2(#NAP12) ADK70940.

Figure 8 (Proteins): Panel (a) U48.5(TK), thymidine kinase, EEHV1A(#NAP18) ADK70833, EEHV1B(#NAP19) ADK70900, EEHV2(#NAP12) ADK70928, EEHV5A(#NAP50) AEW50127, EEHV6(#NAP35) AEW50144; **(b) U73(OBP),** origin binding protein, EEHV1A(#NAP18) ADK70849, EEHV1B(#NAP19) ADK70914, EEHV2(#NAP12) ADK70944, EEHV5(#NAP50) AEW50133, EEHV6(#NAP35) AEW50156; **(c) U27.5(RRB),** ribonucleotide kinase B-subunit, EEHV1A(#NAP18) ADK70827.2, EEHV1B(#NAP19) ADK70894.2, EEHV2(#NAP12) ADK70922 , EEHV5A(#NAP28), EEHV6(#NAP35); **(d) U28(RRA)**, ribonucleotide reductase, A sub-unit, EEHV1A(#NAP18) ADK70826.3, EEHV1B(#NAP19) ADK70893.3 , EEHV2(#NAP12) ADK70921; **(e) U27(PPF)**, polymerase processivity factor, ORF-I; EEHV1A(#NAP18) ADK70828.2, EEHV1B(#NAP19) ADK70895.3, EEHV2(#NAP12) ADK70923; **(f) U51(vGPCR1)**, G-protein coupled receptor-1, EEHV1A(#NAP18) ADK70836, EEHV1B(#NAP19) ADK70903, EEHV2(#NAP12) AGZ17118, EEHV5B(#NAP58) AGZ17136, EEHV6(#NAP35) AEW50146.

Figure 9: DNA Loci: **Panel: (a) U38(POL) locus**, DNA polymerase, DPOL, EEHV1A(#NAP18) HM568523, EEHV1B(#NAP19) HM568550, EEHV2(#NAP12) HM568558, EEHV5(#NAP28) JN983100, EEHV6(#NAP35) JF692762; **(b) U39(gB) locus,** glycoprotein B, EEHV1A(#NAP18) HM568523, EEHV1B(#NAP19) HM568550 , EEHV2(#NAP12) HM568558, EEHV5A(#NAP50) JN983108, EEHV5B(#NAP58) JX011013, EEHV6(#NAP35) JF692762**; (c) U76(POR)-U77(HEL) locus**, portal plus helicase subunit, EEHV1A(#NAP18) HM568529, EEHV1B(#NAP19) HM568542, EEHV2(#NAP12) HM568564, EEHV5(#NAP50), JN983115 EEHV6(#NAP35) JN983126; **(d) U48(gH) locus**, glycoprotein H, EEHV1A(#NAP18) HM568525, EEHV1B(#NAP19) HN568552, EEHV2(#NAP12) HM568561; **(e) U69(CPK) locus**, conserved protein kinase, EEHV1A(#NAP11) HM568515, EEHV1B(#NAP14, Ehlers), AF322977.2, EEHV2(#NAP12) HM568564, and **(f) U28/RRA locus**, EEHV1A(#NAP18) HM568525, EEHV1B(#NAP19) HM568552, EEHV2(#NAP12) HM568561.