ORF	Function	Size (AA) Bscy	DNA Seq Identity	AA Identity	AA Similarity	BVcy vs. BVrh: 176/E90	25/E90	A189164 18/E90	BVpt	BVlt	X3/E90	X313: OU1-76 OU176/E2490	OU25/E2490	X313/E2490	A189164 A18/E2490	OU1-76/OU2-5 A18/25	X3/176	A189164 A18/176	X313/25	A189164 A18/X	SA8/E2490	SA8/E90	SA8/OU1-76 SA8/25	SA8/X3	SA8/A18	HSV-1/E2490	HSV-1: -1/E90	-1/176	-1/25	-1/X3	-1/A18	HSV-2/E2490	HSV-2: -2/E90	-2/176	-2/25	-2/X3	HSV-1/2	ChHV/E2490	ChHV: Ch/E90	Ch/176	Ch/25	Ch/X3	Ch/A18	Ch/SA8	3/9/2009: Ch/-1	Ch/-2	HVS1
UL1	Glycoprotein gL	243	84.6	82.3	84.8	64	70	65	71	-	65	70	64	72(233)	65	74(232)	65	71(233)		94	96	99	99	95	96	64	73(232)	65	73	84	85	85	86	85	86	46	53(224)	45	54	49	59	49	58	49	58	46	53(224)	45	53	46	56	48	58	46	56	65	74														
UL2	Uracil-DNA glycosylase	317	75.8	76.7	77.6	82	82	81	82	-	70	71	81	86(318)	81	87(318)	69	73(253)		95	95	79	79	77	78	68	73(251)	69	70	73	75	73	75	91	94	62	72(334)	63	73	64	73	62	72	57	63	56	65(255)	58	60	58	64	57	62	72	78	65	68														
UL3	Nuclear protein	227	94.6	93.4	94.7	76	81	75	80	-	75	81	76	80(227)	75	79(231)	75	80(226)		94	94	94	96	93	94	75	79(227)	74	78	84	86	85	87	84	87	48	56(235)	50	56	50	58	51	58	51	59	51	57(233)	51	57	50	57	50	58	51	59	75	79														
UL4	Nuclear protein	241	79.2	80.9	81.7	89	92	90	92	-	88	92	89	91(202)	89	91(202)	88	91(202)		96	97	98	99	97	98	84	86(204)	86	87	88	89	89	89	88	90	52	63(199)	53	64	55	64	54	62	55	65	54	65(201)	55	66	55	66	54	66	55	65	75	80														
UL5	DNA helicase/primase subunit	882	97.7	97.8	98.2	91	93	92	94	-	92	94	91	93(861)	92	95(881)	93	95(879)		96	97	97	97	99	99	92	94(875)	92	94	95	96	96	98	96	97	81	87(882)	80	87	80	86	80	86	81	87	81	87(881)	81	87	81	86	81	87	82	88	89	93														
UL6	Capsid portal protein	683	96.4	96.8	97.5	90	93	91	94	-	91	94	91	93(675)	91	94(674)	91	94(675)		99	99	99	99	99	99	89	92(678)	89	92	94	95	94	95	95	95	68	76(676)	68	76	65	75	65	74	65	75	69	77(678)	70	78	69	77	68	76	69	77	85	89														
UL7	Tegument protein	296	94.9	95.9	98.0	86	91	86	92	-	86	91	87	91(296)	88	92(296)	87	91(296)		98	99	99	99	98	99	85	90(296)	86	91	93	95	93	95	94	96	63	74(296)	62	73	64	75	63	75	63	75	64	74(296)	63	73	64	73	64	72	79	85	79	85														
UL8	DNA helicase/primase subunit	760	94.7	94.4	95.7	78	84	78	84	-	78	85	78	84(756)	77	84(756)	78	84(756)		98	99	99	99	99	99	77	83(758)	77	83	91	93	92	94	93	94	56	66(750)	55	65	55	66	56	67	56	66	57	67(761)	57	67	58	67	58	67	58	67	80	85														
UL9	Origin-binding helicase	873	97.4	97.6	98.5	89	91	89	92	-	89	92	89	91(892)	90	92(892)	90	92(892)		98	99	98	98	98	98	90	93(879)	89	93	94	95	94	95	94	96	75	83(851)	75	82	73	81	73	81	73	81	78	85(867)	77	84	77	84	77	84	77	84	87	90														
UL10	Glycoprotein gM	472	96.8	96.8	97.7	84	87	84	87	-	84	87	85	88(455)	85	88(455)	85	89(455)		97	98	99	99	98	99	83	88(450)	83	87	93	95	94	95	94	95	64	74(473)	63	73	63	72	63	72	63	72	64	73(467)	64	73	63	73	62	72	63	72	81	88														
UL11	Myristylated tegument protein	98	93.3	89.8	91.8	72	77	77	81	-	74	78	66	71(95)	70	76(95)	69	74(96)		91	92	95	95	92	93	69	76(87)	74	79	79	82	83	87	80	83	40	54(96)	42	54	42	53	42	52	45	56	48	58(96)	53	62	46	54	47	55	47	55	76	82														
UL12	Deoxyribonuclease	623	95.8	95.4	96.2	80	85	80	85	-	79	84	79	83(607)	79	83(621)	79	83(617)		94	95	95	96	96	97	77	81(615)	78	82	89	91	90	91	90	91	59	68(626)	60	70	61	69	61	68	60	68	61	70(620)	61	69	61	70	62	70	61	69	78	81														
UL13	Serine/threonine protein kinase	506	95.5	96.9	97.7	91	92	92	93	-	92	93	91	94(512)	92	95(514)	92	95(514)		98	99	99	99	99	99	91	94(514)	90	92	95	97	96	97	96	97	66	75(518)	65	74	64	74	65	74	64	74	68	76(518)	68	75	66	75	67	76	67	76	86	91	68 75(518)	67 75	66 75	67 75	66 75		66 74	88 92	95 97				
UL14	Tegument protein	206	94.9	94.9	94.9	88	88	86	88	-	88	90	89	91(215)	89	92(215)	91	94(215)		96	98	100	100	98	98	91	91(214)	88	91	96	96	94	94	96	96	66	73(219)	66	72	64	71	64	72	65	71	65	71(214)	64	70	67	72	66	72	66	72	86	90	61 67(218)	61 67	62 67	62 68	62 67		63 68	82 86	92 92				
UL15	DNA packaging terminase subunit	738	97.9	98.9	99.7	96	97	96	97	-	96	97	96	97(735)	96	97(735)	96	97(735)		99	99	99	99	99	100	96	97(735)	96	97	97	98	97	98	97	98	87	91(735)	87	91	87	92	87	92	87	92	87	91(734)	87	91	88	92	87	92	87	92	95	97														
UL16	Tegument protein	361	94.8	95.7	96.5	89	92	90	93	-	89	92	87	90(362)	88	91(362)	87	91(362)		99	99	99	99	99	99	86	89(362)	88	91	95	97	96	97	96	97	62	73(373)	63	72	63	73	63	73	63	73	62	71(372)	64	73	64	72	64	72	64	72	75	80														
UL17	DNA packaging protein	698	97.8	97.4	98.0	87	91	87	91	-	88	91	87	91(704)	87	91(704)	88	91(704)		97	98	98	99	99	99	86	90(703)	86	90	92	93	91	93	92	93	67	76(703)	67	76	66	75	67	75	66	75	68	77(702)	68	77	68	76	69	78	69	77	81	87														
UL18	Capsid triplex subunit	318	97.7	98.4	99.1	94	96	95	97	96 /98(318)	98 /98 (318)	94	97	94 97(318)	95	97(318)	95	97(318)		98	99	99	99	99	99	94	97(317)	93	96	97	98	98	98	98	99	82	90(318)	82	90	81	89	82	89	81	89	82	89(318)	82	88	81	88	82	89	81	88	92	95												73 /83 (317)	
UL19	Major capsid protein	1,377	98.4	98.8	99.1	97	98	96	97	98 /98(1377)	98 /98 (1377)	96	97	98 98(1377)	96	97(1377)	96	97(1377)		98	99	98	99	99	100	95	97(1377)	96	97	96	98	98	99	98	99	86	91(1374)	86	91	87	92	87	92	87	92	86	91(1374)	86	91	86	91	86	91	86	91	94	97												75 /84 (1386)	
UL20	Envelope protein	223	96.6	96.4	98.2	91	95	91	95	95 /97(223)	96 /98 (223)	91	95	92 95(225)	91	95(225)	92	95(225)		99	99	100	100	99	100	88	93(225)	88	93	95	96	94	96	95	96	64	77(222)	64	78	65	78	65	77	65	78	66	78(222)	65	77	67	78	67	77	67	78	83	91												40 /53 (222)	
UL21	Tegument protein	526	94.4	96.2	97.3	88	89	88	92	-	88	91	87	88(527)	87	91(527)	86	91(528)		98	99	99	99	98	98	86	90(526)	87	91	94	95	95	96	94	95	64	74(535)	64	74	63	74	63	73	63	73	66	74(532)	66	74	65	74	64	74	64	73	85	90														
UL22	Glycoprotein gH	858	94.7	95.6	96.9	83	87	83	87	-	83	87	83	87(857)	83	87(856)	83	87(857)		98	99	99	99	98	98	80	85(863)	80	85	89	92	89	92	90	92	57	67(838)	57	66	57	67	57	67	56	66	59	68(838)	58	68	59	69	59	69	59	69	79	84														
UL23	Thymidine kinase	370	97.1	95.9	96.5	85	87	85	87	-	84	86	87	89(370)	86	88(370)	85	87(370)		96	97	97	98	96	97	79	82(378)	78	81	84	88	84	88	85	88	55	65(376)	54	64	54	65	53	63	53	63	56	65(376)	56	66	55	65	56	65	55	65	74	80	56 65(376)	55 65	54 63	54 63	54 63		55 65	76 81	92 94				
UL24	Nuclear protein	266	95.5	95.9	96.6	81	85	82	87	-	81	85	80	85(261)	81	86(259)	79	84(261)		98	98	99	99	97	98	82	87(260)	82	87	85	88	87	89	85	88	61	72(269)	62	72	62	73	62	73	62	73	59	69(281)	59	68	58	68	58	68	57	67	73	79	62 73(270)	63 72	61 72	61 72	61 72		60 72	77 84	89 92				
UL25	DNA packaging protein	575	96.9	98.6	99.0	92	95	92	95	-	92	95	91	94(577)	91	94(577)	91	94(577)		99	100	100	100	99	100	91	94(577)	92	95	96	97	96	97	96	97	79	87(580)	80	87	79	86	79	86	79	86	79	86(585)	79	86	80	86	80	86	80	86	86	91														
UL26	Capsid maturation protease	614	94.7	94.1	95.6	80	84	79	82	-	81	84	78	82(615)	78	82(610)	78	83(618)		96	97	98	99	96	97	75	80(594)	77	80	84	86	86	88	88	89	58	62(635)	57	62	57	64	58	64	57	64	58	64(637)	58	64	55	62	56	62	56	62	75	78														
UL26.5	Capsid scaffold protein	315	91.1	89.2	91.7	73	78	70	75	-	72	77	69	75(316)	68	75(311)	67	75(316)		93	95	98	99	93	95	65	71(292)	67	71	76	78	77	80	80	82	47	52(329)	45	51	45	52	46	54	45	53	46	52(329)	45	52	41	48	42	48	42	49	67	72														
UL27	Glycoprotein gB	891	97.9	97.3	98.1	91	95	91	93	-	91	94	91	94(891)	91	94(898)	91	94(893)		98	98	99	99	98	98	88	91(885)	89	91	93	95	93	94	93	95	78	84(904)	77	84	77	83	77	84	77	83	78	84(904)	78	85	77	84	77	84	76	83	86	90	78 84(903)	78 84	76 83	76 83	76 83		76 83	87 91	94 95				
UL28	DNA packaging terminase subunit	785	98.0	98.3	98.6	92	94	93	94	-	89	91	92	95(789)	93	95(784)	89	91(755)		97	98	95	95	93	94	92	94(784)	92	94	92	95	94	96	90	92	80	86(785)	81	86	80	85	80	86	79	85	81	86(785)	81	86	81	86	81	86	90	85	88	91	81 86(784)	81 86	81 86	80 85	79 85		81 86	88 91	97 98				
UL29	ssDNA binding protein	1,196	97.7	98.8	99.3	95	97	94	97	-	95	97	95	98(1199)	94	97(1199)	95	98(1199)		99	99	99	99	99	99	94	97(1196)	94	96	97	98	97	98	97	98	81	88(1196)	82	89	82	90	82	90	82	90	82	90(1196)	82	90	82	90	82	90	82	90	92	96														
UL30	DNA polymerase catalytic subunit	1,249	96.0	95.0	96.5	90	93	90	93	-	90	93	89	92(1240)	89	92(1240)	89	93(1242)		99	99	99	99	99	99	89	91(1226)	89	92	92	93	92	94	89	93	77	84(1235)	77	83	76	83	73	83	76	83	77	83(1240)	77	83	76	83	77	83	76	83	91	93														
UL31	Nuclear egress lamina protein	301	98.0	98.3	99.0	92	92	92	92	-	92	92	92	93(305)	92	94(305)	92	93(305)		99	99	99	99	99	99	89	91(304)	89	90	94	95	95	95	95	96	77	84(306)	77	84	76	82	77	82	77	83	79	84(305)	78	83	76	81	76	80	76	81	90	90														
UL32	DNA packaging protein	590	96.9	96.1	97.1	88	91	88	91	-	88	91	89	93(588)	88	92(594)	89	93(588)		98	98	99	99	97	98	87	91(590)	88	90	90	92	91	93	91	94	73	79(596)	73	79	74	80	73	80	74	80	73	81(598)	72	81	73	82	72	81	73	81	88	91														
UL33	DNA packaging protein	132	99.2	99.2	99.2	83	84	84	87	-	84	86	82	84(135)	83	87(135)	84	85(135)		96	96	99	99	97	98	87	89(135)	87	90	90	90	91	93	91	92	68	73(130)	68	72	68	75	69	74	69	75	69	75(130)	69	75	67	77	68	75	68	77	92	93														
UL34	Nmuclear egress membrane protein	271	95.5	95.6	96.3	88	91	88	90	-	89	91	89	92(269)	88	91(268)	89	92(269)		96	96	98	98	98	98	86	88(266)	86	89	88	89	88	90	89	90	63	74(275)	64	75	64	74	65	74	65	75	68	76(276)	68	76	70	78	69	77	69	77	75	81														
UL35	Small capsid protein	114	98.0	98.2	99.1	82	90	83	90	-	83	90	81	89(114)	82	90(114)	82	90(114)		98	98	99	99	99	99	80	88(114)	81	89	90	95	96	97	97	98	50	63(112)	51	64	57	66	56	66	57	67	46	61(112)	47	62	51	64	52	66	51	65	84	90														
UL36	Large tegument protein	3,232	93.8	91.9	93.0	80	84	80	84	-	80	84	79	83(3217)	78	81(3168)	79	83(3201)		93	94	98	98	94	94	74	78(3070)	77	81	79	82	81	84	81	84	54	62(3164)	56	63	56	64	57	64	56	64	54	62(3122)	56	64	57	65	58	66	57	65	76	81														
UL37	Tegument protein	1,189	94.2	93.9	94.9	85	88	85	88	-	85	89	84	87(1207)	84	88(1207)	86	89(1186)		98	99	97	97	96	96	82	85(1217)	83	86	89	91	90	92	89	91	64	72(1123)	63	71	63	70	63	70	64	71	63	72(1114)	63	71	62	70	62	70	63	71	84	89														
UL38	Capsid triplex subunit	458	97.2	97.8	97.8	90	93	90	93	-	90	92	90	93(457)	90	93(457)	90	93(457)		98	98	99	99	98	98	90	93(459)	89	92	94	97	94	97	94	97	69	78(465)	68	76	68	76	68	76	68	76	66	75(466)	65	74	66	74	66	74	66	74	81	87														
UL39	Ribonucleotide reductase subunit	1,003	96.6	96.1	97.0	83	86	83	87	-	83	86	83	87(987)	83	87(985)	83	87(986)		95	97	99	99	95	97	83	87(975)	82	86	89	91	90	92	90	93	57	64(1137)	57	64	58	67	58	66	58	66	57	63(1142)	56	63	58	66	56	65	58	66	79	83														
UL40	Ribonucleotide reductase subunit	337	97.1	96.2	97.3	89	92	88	92	-	89	92	88	91(339)	88	92(341)	87	92(339)		96	97	97	98	97	97	88	91(325)	88	91	90	91	90	92	92	93	79	84(340)	79	83	79	84	80	85	79	84	79	86(337)	80	85	79	86	79	85	80	86	89	91														
UL41	Host Cell Shut-Off	487	95.9	95.7	96.3	90	93	90	93	-	90	93	92	95(481)	92	95(481)	92	95(481)		99	99	99	99	99	99	90	93(484)	89	92	93	96	93	96	94	96	69	79(489)	69	79	69	77	69	78	69	77	70	78(492)	70	79	70	77	70	77	70	77	85	88														
UL42	DNA polymerase processivity subunit	475	93.7	91.2	93.1	70	76	70	76	-	70	76	69	76(459)	70	76(471)	70	76(471)		95	95	96	96	97	97	66	73(438)	64	72	66	72	68	74	66	72	45	54(488)	44	55	42	52	43	52	44	52	44	56(470)	43	55	46	56	46	55	45	55	70	76														
UL43	Envelope protein	378	93.8	92.4	92.6	78	82	77	81	-	89	82	79	83(388)	78	82(397)	80	83(386)		92	92	99	99	91	91	72	77(381)	72	78	72	76	72	76	72	76	38	46(434)	38	47	41	50	42	51	41	50	42	51(414)	43	52	42	51	43	53	42	51	62	70														
UL44	Glycoprotein gC	467	95.4	94.2	94.9	80	84	79	85	-	79	83	79	83(476)	80	85(466)	78	83(467)		91	93	95	96	94	96	76	81(464)	76	81	76	81	79	84	78	83	42	51(511)	42	51	42	51	42	50	42	50	45	54(480)	45	54	47	56	44	53	46	54	65	71	45 55(480)	45 55	46 57	44 54	45 55		47 56	66 72	92 93				
UL45	Membrane protein	174	95.8	95.4	97.1	84	89	84	90	-	84	89	85	90(174)	84	90(174)	85	90(174)		92	95	99	99	91	95	83	89(174)	83	89	86	91	89	94	85	90	62	73(172)	62	74	62	74	60	71	62	74	59	72(172)	59	72	58	71	56	68	58	71	75	84														
UL46	Tegument protein	720	95.5	94.9	96.1	78	83	79	84	-	78	84	79	85(699)	80	86(705)	79	85(703)		96	97	99	99	97	97	79	84(680)	79	83	89	91	88	90	89	90	50	58(718)	50	58	51	60	51	60	50	60	51	60(722)	50	60	52	61	51	60	52	60	74	78														
UL47	Tegument protein	687	96.4	95.9	96.5	82	87	83	87	-	82	87	83	87(680)	84	87(680)	83	87(680)		99	99	100	100	99	99	81	85(674)	81	84	90	92	90	92	90	93	55	67(693)	56	67	57	68	57	68	57	68	54	66(696)	54	65	55	67	55	67	55	67	80	84	54 65(697)	53 65	55 67	55 67	55 67		54 66	80 84	95 96				
UL48	Transactivating tegument protein αTIF	487	97.6	99.6	99.8	92	93	92	94	-	99	99	92	94(490)	92	94(490)	92	94(491)		99	99	99	99	99	99	91	94(488)	91	94	92	95	93	95	93	95	67	77(490)	67	77	68	78	68	78	68	79	68	78(487)	67	78	67	78	68	78	67	78	85	91	67 77(489)	67 77	68 78	68 78	77 68		67 78	86 91	95 97				
UL49	Tegument protein	283	92.3	89.3	93.1	77	83	76	83	-	77	84	79	84(285)	77	83(280)	79	84(285)		93	93	99	99	93	94	75	81(275)	76	82	88	89	84	87	88	89	40	51(301)	41	50	41	52	41	51	41	51	39	48(300)	37	46	38	49	41	49	39	49	69	76	40 50(296)	37 46	38 49	41 49	38 48		40 48	68 73	89 91				
UL49.5	Glycoprotein gN	79	90.0	87.3	87.3	67	71	66	68	-	66	68	66	70(78)	65	67(78)	63	66(78)		96	97	96	96	97	99	57	61(77)	62	66	74	78	83	85	82	83	35	46(91)	35	42	39	47	36	44	36	44	35	46(87)	33	40	35	46	38	49	37	48	50	57														
UL50	dUTPase	369	95.2	95.4	96.7	84	88	82	88	-	84	89	84	89(367)	82	89(368)	84	90(367)		96	97	99	99	97	98	83	89(367)	83	88	92	94	92	94	93	95	54	63(371)	54	64	54	64	55	64	54	63	52	64(371)	53	66	52	62	51	60	52	61	76	81														
UL51	Tegument protein	225	94.4	93.8	93.8	80	84	80	83	-	80	82	80	84(228)	80	83(229)	76	81(229)		96	97	98	99	96	97	75	80(228)	79	83	87	90	88	91	87	90	62	69(244)	63	69	62	69	64	70	63	70	64	72(244)	64	70	64	70	63	70	63	70	74	78														
UL52	DNA helicase/primase subunit	1,057	95.9	96.1	96.7	90	92	91	94	-	91	94	89	92(1058)	89	93(1058)	89	92(1055)		98	98	99	99	98	99	90	93(1053)	91	93	95	96	95	96	94	96	70	77(1058)	70	77	71	78	71	79	71	79	70	79(1066)	71	79	71	79	70	78	70	78	82	87														
UL53	Glycoprotein gK	337	96.6	97.9	98.5	89	93	90	94	-	89	94	89	94(337)	89	94(337)	89	94(337)		99	99	98	99	99	99	89	93(334)	89	93	91	95	92	96	92	96	66	75(338)	66	75	67	76	67	75	66	75	69	78(338)	68	78	71	80	71	79	70	79	85	89														
UL53A														-																								-										-																		-						
UL54	IE regulatory protein ICP27	499	92.4	91.6	93.6	77	81	78	82	-	76	80	76	80(511)	78	82(512)	76	80(518)	