

Supplementary Table 1: List of HCMV strains analyzed in this study.

Strain name	GenBank ID	Mutated genes
3301*	GQ466044	
AF1*	GU179291	<i>RL6, UL9</i>
BE/21/2010*	KC519322	<i>RL5A, UL9, UL150</i>
HANChild1*	KY490071	<i>RL5A</i>
HANChild2&3*	KY490072	<i>RL5A, US9</i>
HANChild4*	KY123649	
HANRTR10*	KY490078	<i>UL1, US7</i>
HANRTR1A*	KY490073	<i>UL9, US6</i>
HANRTR1B*	KY490074	
HANRTR2*	KY123650	
HANRTR4*	KY123651	<i>UL1</i>
HANRTR5*	KY123652	
HANRTR6*	KY490075	
HANRTR8*	KY490076	<i>RL6, UL9, UL30, US8</i>
HANRTR9*	KY490077	<i>UL1, UL9</i>
HANSCTR10*	KY490084	<i>RL1, RL6, UL142</i>
HANSCTR11A*	KY490085	<i>UL9</i>
HANSCTR11B*	KY490086	<i>RL5A, RL6</i>
HANSCTR12*	KY490087	<i>UL1</i>
HANSCTR13*	KY490088	<i>UL1</i>
HANSCTR1A*	KY490079	<i>UL43, US7</i>
HANSCTR1B*	KY490080	<i>RL5A</i>
HANSCTR2*	KY490081	<i>RL5A, UL9</i>
HANSCTR4*	KY123653	<i>UL1, UL9</i>
HANSCTR8*	KY490082	<i>UL1</i>
HANSCTR9*	KY490083	
JER1070*	KR534199	
JER2002*	KR534201	<i>RL5A, UL9</i>
JER2282*	KR534202	<i>RL6</i>
JER3230*	KR534203	<i>UL9</i>
JER3855*	KR534204	<i>RL5A</i>
JER4035*	KR534205	
JER4041*	KR534206	<i>UL111A</i>
JER4053*	KR534207	
JER4559*	KR534208	<i>RL5A, UL9</i>
JER4755*	KR534209	<i>RL5A, UL9, UL40</i>
JER5268*	KR534210	<i>RL5A, UL1, US7</i>
JER5409*	KR534211	
JER5550*	KR534212	<i>RL6, UL9</i>
JER5695*	KR534213	<i>UL9, UL111A</i>
JHC*	HQ380895	<i>UL140, UL1, UL131A</i>
JP*	GQ221975	<i>RL5A, UL111A</i>
LUS193*	MK290742	
LUS243*	MK422176	
LUS248*	MK290743	
LUS283*	MK290744	

NAN1LA*	KU550087	<i>RL6, US9</i>
NAN2LA*	KU550088	
NAN4LA*	KU550089	<i>RL6, UL9, US9</i>
NANU*	KU550090	<i>RL5A</i>
PAV1*	KJ361959	<i>RL5A</i>
PAV11*	KJ361965	
PAV12*	KJ361966	<i>RL5A</i>
PAV16*	KJ872539	<i>RL5A, UL9, UL111A</i>
PAV18*	KJ872540	
PAV20*	KJ872541	<i>RL5A</i>
PAV21*	KJ872542	<i>UL1, UL9, RNA4.9</i>
PAV23*	KJ361967	<i>RL1, RL5A</i>
PAV24*	KJ361968	<i>RL5A</i>
PAV25*	KJ361969	<i>UL9, UL150</i>
PAV26*	KJ361970	<i>UL1, UL9</i>
PAV31*	KY490061	<i>RL5A, UL13</i>
PAV32*	KY490062	<i>RL6</i>
PAV4*	KJ361960	<i>RL5A, UL150, US7</i>
PAV5*	KJ361961	<i>US8</i>
PAV6*	KJ361962	<i>RL1, US7</i>
PAV7*	KJ361963	<i>US7</i>
PAV8*	KJ361964	<i>UL9</i>
PRA1*	KY490063	<i>UL1, UL9</i>
PRA2*	KY490064	<i>UL1, UL9, UL15A</i>
PRA3*	KY490065	<i>UL1</i>
PRA4*	KY490066	
PRA5*	KY490067	<i>UL1, UL9, UL30, UL111A</i>
PRA6*	KY490068	<i>RL5A, UL1, UL9</i>
PRA7*	KY490069	<i>RL5A, UL111A</i>
PRA8*	KY490070	
U11*	GU179290	<i>UL9</i>
U8*	GU179288	
UK/Lon1/Blood/2013*	KT726947	
UK/Lon6/Urine/2011*	KT726949	
UK/Lon7/Urine/2011*	KT726950	
UK/Lon8/Urine/2012*	KT726951	
UKNEQAS2*	KT634296	<i>RL6, RL9</i>
VR1814*	GU179289	
3157	GQ221974	<i>RL13, UL40, UL128</i>
6397	JX512197	<i>RL13, UL9, UL130, UL131A, IRS1, US1, US2, US3, US6, US7, US8, US9</i>
2CEN15	KJ361948	<i>UL97</i>
2CEN2	KJ361946	<i>UL1, UL9</i>
2CEN30	KJ361949	<i>UL1, UL9, UL14</i>
2CEN5	KJ361947	<i>RL5A</i>
AD169	FJ527563	<i>UL144, UL142, UL141, UL140, RL5A, RL13, UL131A, IRS1, US1, US2</i>
BE/1/2010	KP745677	<i>RL5A, US9</i>
BE/1/2011	KP745650	<i>UL1, UL9</i>
BE/1/2012	KP745699	<i>UL1, UL136</i>

BE/10/2010	KC519320	UL9
BE/10/2011	KP745639	UL1
BE/10/2012	KP745649	
BE/11/2010	KC519321	RL5A, UL1
BE/11/2011	KP745684	RL6
BE/11/2012	KP745680	UL150
BE/12/2010	KP745694	RL5A
BE/12/2011	KP745683	R, US9
BE/12/2012	KP745688	RL6
BE/13/2010	KP745645	US9
BE/13/2011	KP745657	RL5A, UL1, UL9, US7
BE/13/2012	KP745707	UL9
BE/14/2010	KP745721	RL6, UL9, UL40
BE/14/2011	KP745671	UL9, UL11, US6
BE/14/2012	KP745658	RL6, UL9, US7
BE/15/2010	KP745638	RL1, UL9, UL111A
BE/15/2011	KP745720	RL5A, UL9
BE/15/2012	KP745693	UL150, US7
BE/16/2010	KP745716	UL1, UL111A, US9
BE/16/2012	KP745665	UL150
BE/17/2010	KP745727	RL5A, RL12, UL111A
BE/17/2011	KP745689	UL1, UL9
BE/18/2010	KP745647	
BE/18/2011	KP745668	
BE/19/2010	KP745712	UL9, UL136
BE/19/2011	KP745654	RL6, UL9
BE/2/2010	KP745717	UL9, UL111A
BE/2/2011	KP745652	
BE/2/2012	KP745710	RL5A, UL133
BE/2/2013	KP745656	RL5A, UL128, US9
BE/20/2010	KP745662	UL9
BE/20/2011	KP745698	US7
BE/21/2011	KP745702	
BE/22/2010	KP745640	
BE/22/2011	KP745653	RL6, UL9
BE/23/2010	KP745697	UL1, UL9
BE/23/2011	KP745675	UL9
BE/24/2010	KP745679	UL9
BE/24/2011	KP745711	
BE/25/2010	KP745678	UL111A
BE/26/2010	KP745719	UL150
BE/26/2011	KP745703	
BE/27/2010	KC519323	RL5A, UL1, UL9, UL111A
BE/27/2011	KP745696	UL9
BE/28/2010	KP745676	RL5A, UL9
BE/28/2011	KP745669	UL40
BE/29/2010	KP745714	
BE/29/2011	KP745672	RL5A, UL9
BE/3/2010	KP745655	RL5A, UL9
BE/3/2011	KP745659	

BE/3/2012	KP745692	<i>US13</i>
BE/30/2010	KP745726	<i>US9, US27</i>
BE/30/2011	KP745670	<i>UL150</i>
BE/31/2010	KP745644	
BE/31/2011	KP745641	
BE/32/2010	KP745634	<i>RL5A, US9</i>
BE/32/2011	KP745704	<i>UL150</i>
BE/33/2010	KP745661	<i>RL6, UL9, US9</i>
BE/33/2011	KP745674	
BE/34/2011	KP745690	
BE/35/2011	KP745713	<i>UL142, US9</i>
BE/36/2011	KP745687	<i>RL6, UL9, UL40</i>
BE/37/2011	KP745723	<i>RL6</i>
BE/38/2011	KP745705	<i>RL6, UL9</i>
BE/39/2011	KP745686	<i>UL9, UL111A, US9</i>
BE/4/2010	KP745728	<i>RL5A, UL111A</i>
BE/4/2011	KP745700	
BE/4/2012	KP745724	<i>RL5A</i>
BE/40/2011	KP745722	<i>RL6</i>
BE/41/2011	KP745706	<i>UL9, UL111A</i>
BE/42/2011	KP745673	<i>RL5A</i>
BE/43/2011	KP745681	<i>RL5A, RL6, UL133</i>
BE/44/2011	KP745715	<i>RL5A, UL150A, IRS1, US9</i>
BE/45/2011	KP745633	
BE/46/2011	KP745682	<i>US9</i>
BE/48/2011	KP745709	<i>UL40 US9</i>
BE/49/2011	KP745725	<i>RL5A</i>
BE/5/2010	KP745663	<i>RL6, US9</i>
BE/5/2011	KP745667	
BE/5/2012	KP745635	
BE/6/2010	KP745701	<i>RL5A, UL9, US7</i>
BE/6/2011	KP745660	<i>UL9</i>
BE/6/2012	KP745695	<i>RL6, US9, US27</i>
BE/7/2011	KP745636	<i>RL12, UL148</i>
BE/7/2012	KP745666	<i>UL150</i>
BE/8/2010	KP745708	<i>UL9</i>
BE/8/2011	KP745648	<i>US9</i>
BE/8/2012	KP745646	<i>RL13</i>
BE/9/2010	KC519319	
BE/9/2011	KP745637	<i>UL9</i>
BE/9/2012	KP745651	<i>UL1, UL9</i>
CZ/1/2011	KP745718	<i>UL9</i>
CZ/1/2012	KP745642	<i>UL9</i>
CZ/1/2013	KP745691	<i>UL111A</i>
CZ/2/2012	KP745643	<i>US13</i>
CZ/2/2013	KP745664	<i>RL6, UL9, UL40</i>
CZ/3/2012	KP745685	<i>UL145</i>
Davis	JX512198	<i>RL5A, RL12, RL13, UL1, UL2, UL4, UL5, UL6, UL99, UL130</i>
DB	KT959235	<i>RL13, UL9</i>
HAN1	JX512199	

HAN11	KJ361950	<i>RL5A, UL150, US9</i>
HAN12	JX512203	<i>UL9</i>
HAN13	GQ221973	<i>RL5A</i>
HAN16	JX512204	<i>US7, US12</i>
HAN19	JX512205	<i>RL5A</i>
HAN2	JX512200	<i>UL1, UL6, UL7, UL8, UL9, UL30, US7</i>
HAN20	GQ396663	
HAN21	KJ361951	
HAN22	JX512206	
HAN27	KJ361952	<i>RL12, UL133</i>
HAN28	JX512207	
HAN3	JX512201	
HAN30	KJ361953	
HAN31	JX512208	<i>UL1</i>
HAN32	KJ361954	<i>UL9</i>
HAN33	KJ361955	<i>UL9</i>
HAN36	KJ361956	<i>UL20</i>
HAN38	GQ396662	<i>RL6, US9</i>
HAN39	KJ361957	<i>UL1</i>
HAN40	KJ361958	<i>RL1, US13</i>
HAN8	JX512202	<i>UL111A</i>
JER1289	KR534200	
JER847	KR534196	<i>RL6</i>
JER851	KR534197	<i>UL1, UL9, UL111A</i>
JER893	KR534198	<i>UL1, UL150</i>
Merlin	NC_006273	<i>UL128</i>
NL/Rot6/Nasal/2012	KT726945	
NR	KX544831	
SUB_22	KX544834	
SUB_24	KX544832	
TB40/E	KF297339	<i>RL13, UL128, IRS1, US1, US2</i>
TB40-E_UNC	KX544839	
Towne	FJ616285	<i>RL13, UL1, UL40, UL130, US1</i>
TR	KF021605	
UKNEQAS1	KJ361971	<i>RL5A</i>
VR3908	KX544833	
VR5022	KX544835	
VR5235	KX544837	
VR7863	KX544838	

Note: asterisk denotes unpassaged strains.