**Supplementary Table 2** *List of recombinant MCMVs used in the study*

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| **Virus name** | **Description** |
| MCMVE6+E7 | Expresses the full-length E6 and E7 proteins of the HPV16 under the control of the HCMV IE promoter, because we showed previously that an IE promoter. Lacks the viral genes *m1* to *m16* thusproviding ample cloning capacity. Contains E749-57 epitope at its native position |
| MCMVie2E6-7full | Full-length E6 and E7 proteins are fused to the C-terminus of ie2 protein. Contains E749-57 epitope at its native position |
| MCMVie2E7 | Expresses E749-57 epitope from the C-terminal end of ie2 protein. |
| MCMV∆m06m152 | In this virus immune evasion genes *m06* and *m152* were deleted resulting in absence of surface presentation of peptide-MHC-I molecules |
| MCMVie2SL | HSV gB derived epitope (SSIEFARL) is inserted at the C-terminal end of ie2 protein |
| MCMVM45SL | HSV gB derived epitope (SSIEFARL) is inserted at the C-terminal end of M45 protein |
| MCMVM45ASL | HSV gB derived epitope (SSIEFARL) is inserted at the C-terminal end of M45 protein. Additionally 2 Alanines were introduces at the N-terminus of the epitope - AASSIEFARL |
| MCMVM45I->A | C-terminal Isoleucine of the M45 Db epitope (HGIRNASFI) was swapped to Alanine that preventing epitope binding to MHC-I and its subsequent surface presentation |
| MCMVM45Cterm | Was generated on the backbone of MCMVM45I->A mutant. In this virus HGIRNASFI epitope was inserted at C-terminus of M45 protein resulting in its presentation exclusively from C-terminus. |