Figure 1

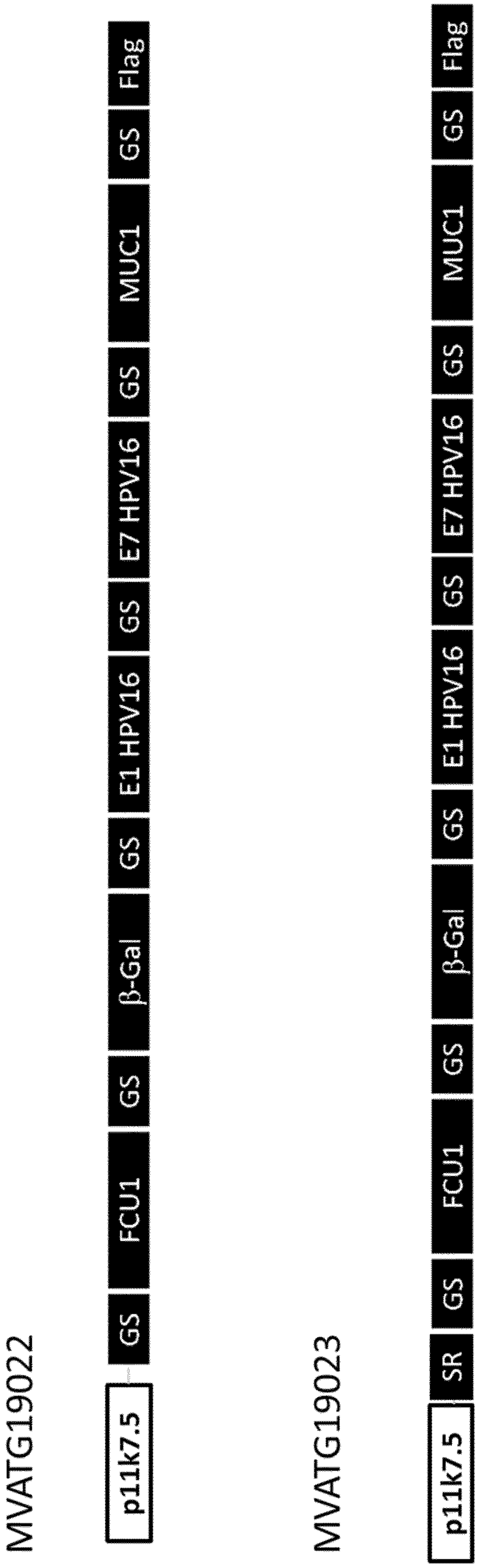
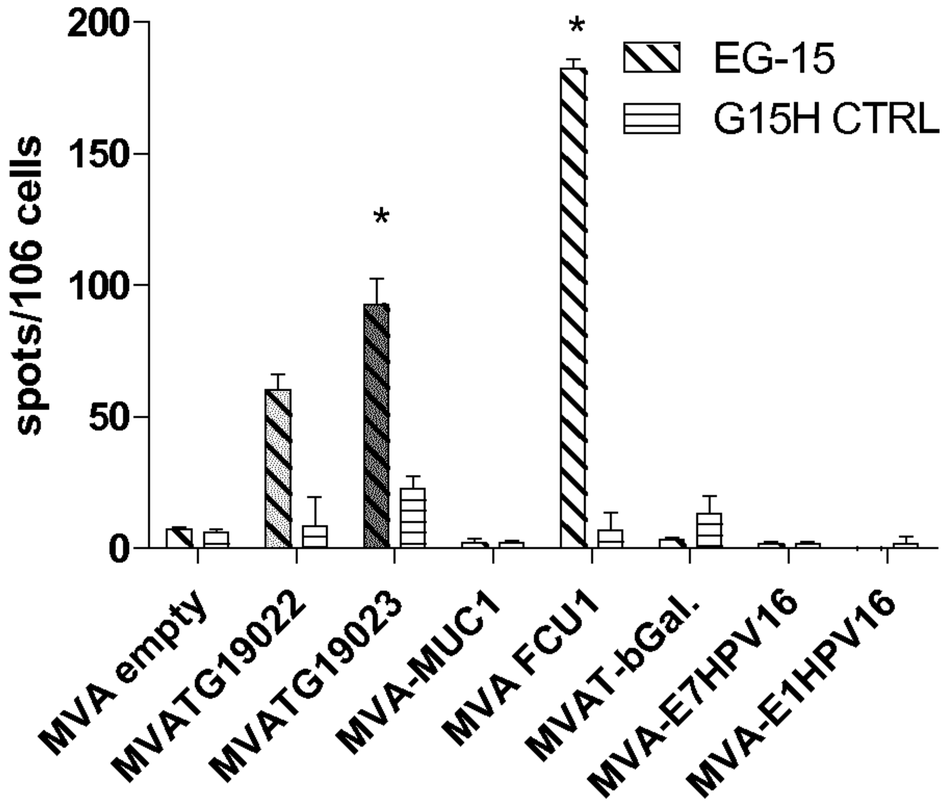

MVATG19022
p11k7.5
GS
FCU1
GS
β-Gal
GS
E1 HPV16
GS
E7 HPV16
GS
MUC1
GS
Flag
MVATG19023
p11k7.5
SR
GS
FCU1
GS
β-Gal
GS
E1 HPV16
GS
E7 HPV16
GS
MUC1
GS
Flag

Figure 2

2A



2B

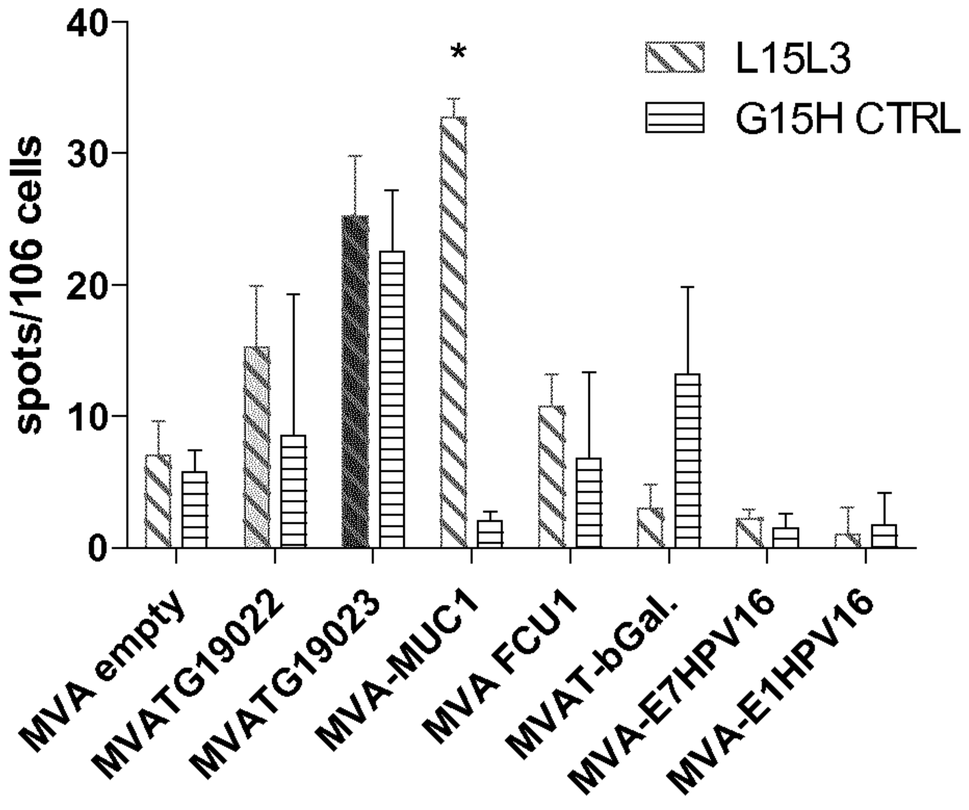


Figure 2C

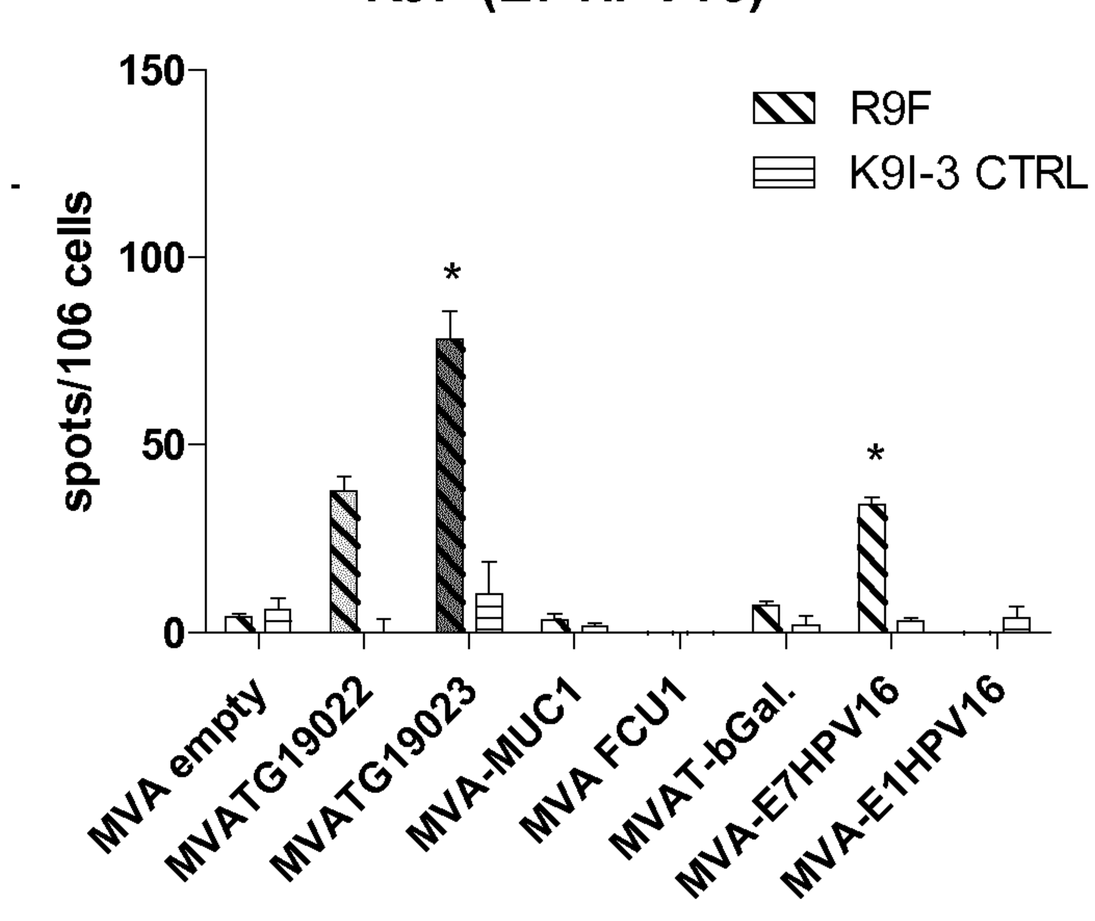
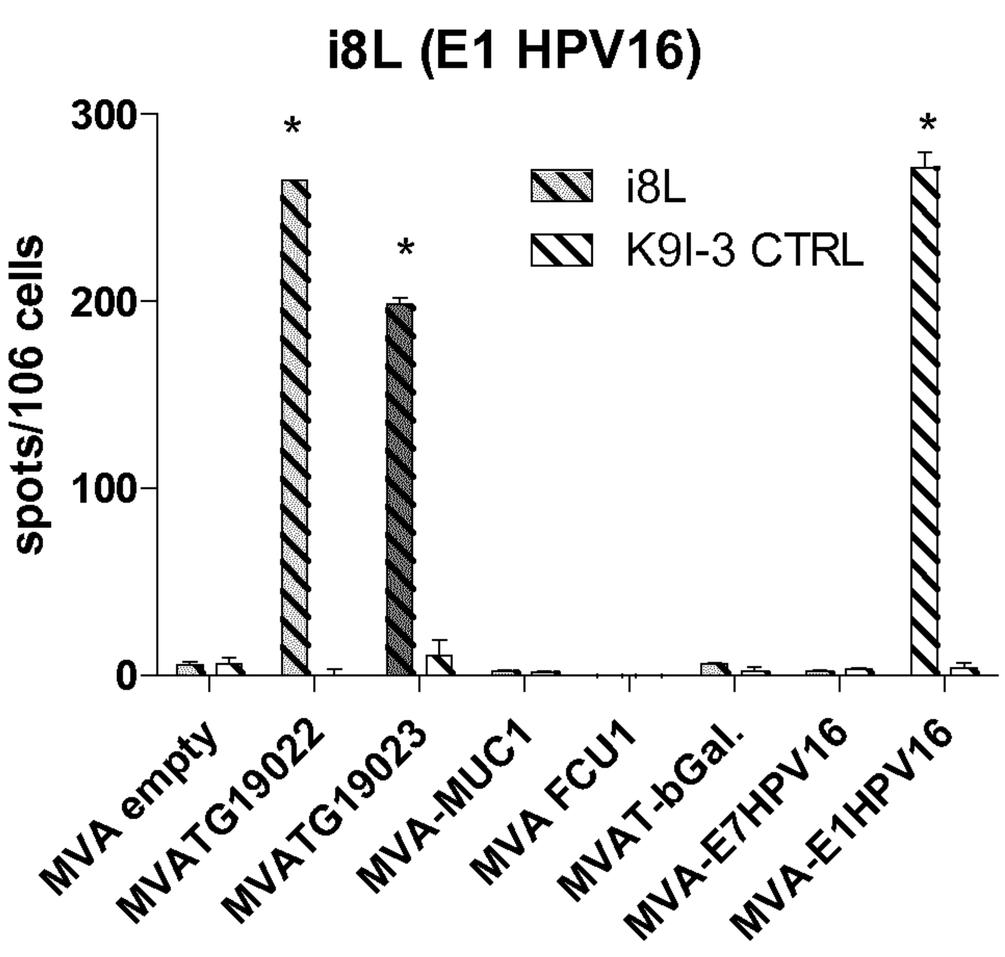


Figure 2D



2E

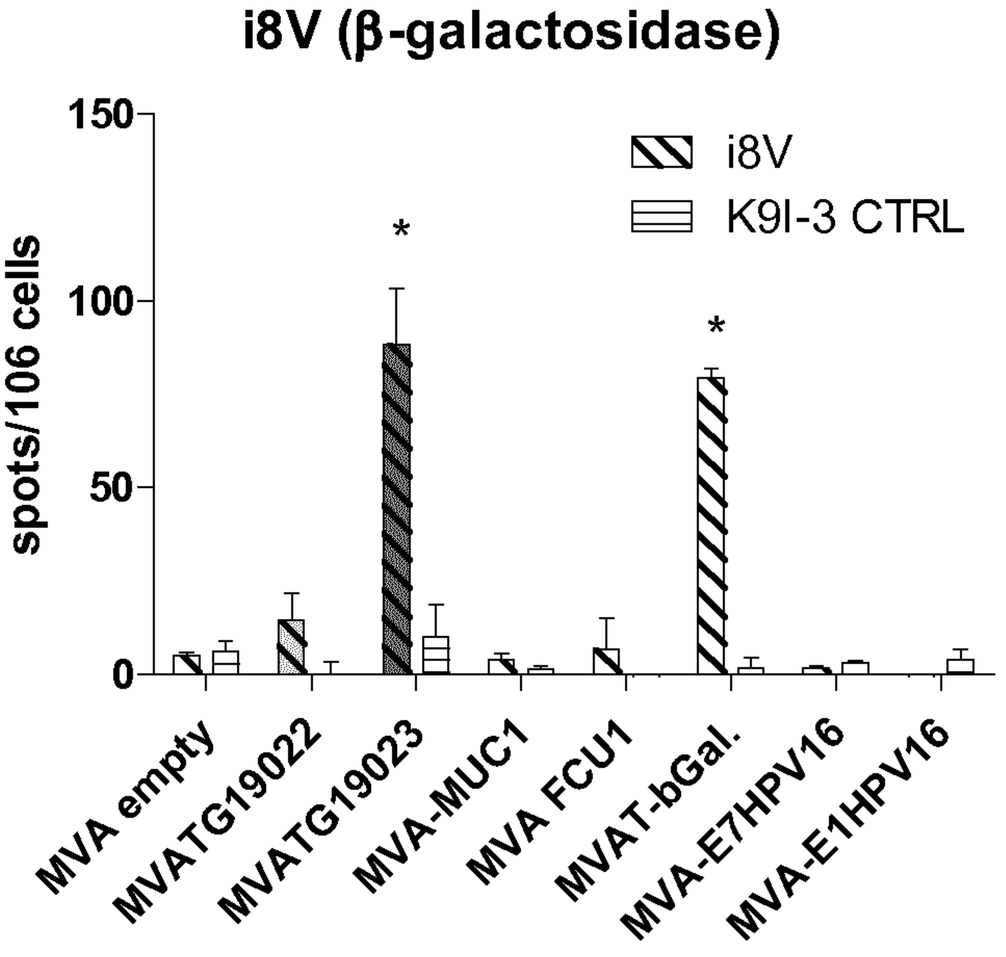


Figure 3

Pentatope 1

MGSGSGSGSGSYRGANLHLEETLAGFWARLLERLFKQLGSGSGSGSGSGYISRVTAGKDSYIALVDKNIMGYIASGSGSGSGSGSAGTQCEYWASRALDSEHSIGSMI
QLPQGSGSGSGSGSEGDPCLRSSDCIDEFCCARHFWTKICKGSGSGSGSGSVTSIPSVSNALNWKEFSFIQSTLGYVAGSGSGSGSGSDYKDDDDK

Pentatope 2

MGSGSGSGSGSPLLPFYPPDEALEIGLELNSSALPPTEGSGSGSGSGSVILPQAPSGPSYATYLQPAQAQMLTPPGSGSGSGSGSDKPLRRNNSYTSYIMAICGMPLDSF
RAGSGSGSGSGSEVIQTSKYYMRDVIAIESAWLLELAPHGSGSGSGSGSEHIHRAGGLFVADAIQVGFGRIGKHFWGSGSGSGSGSEQKLISEEDL

Figure 4

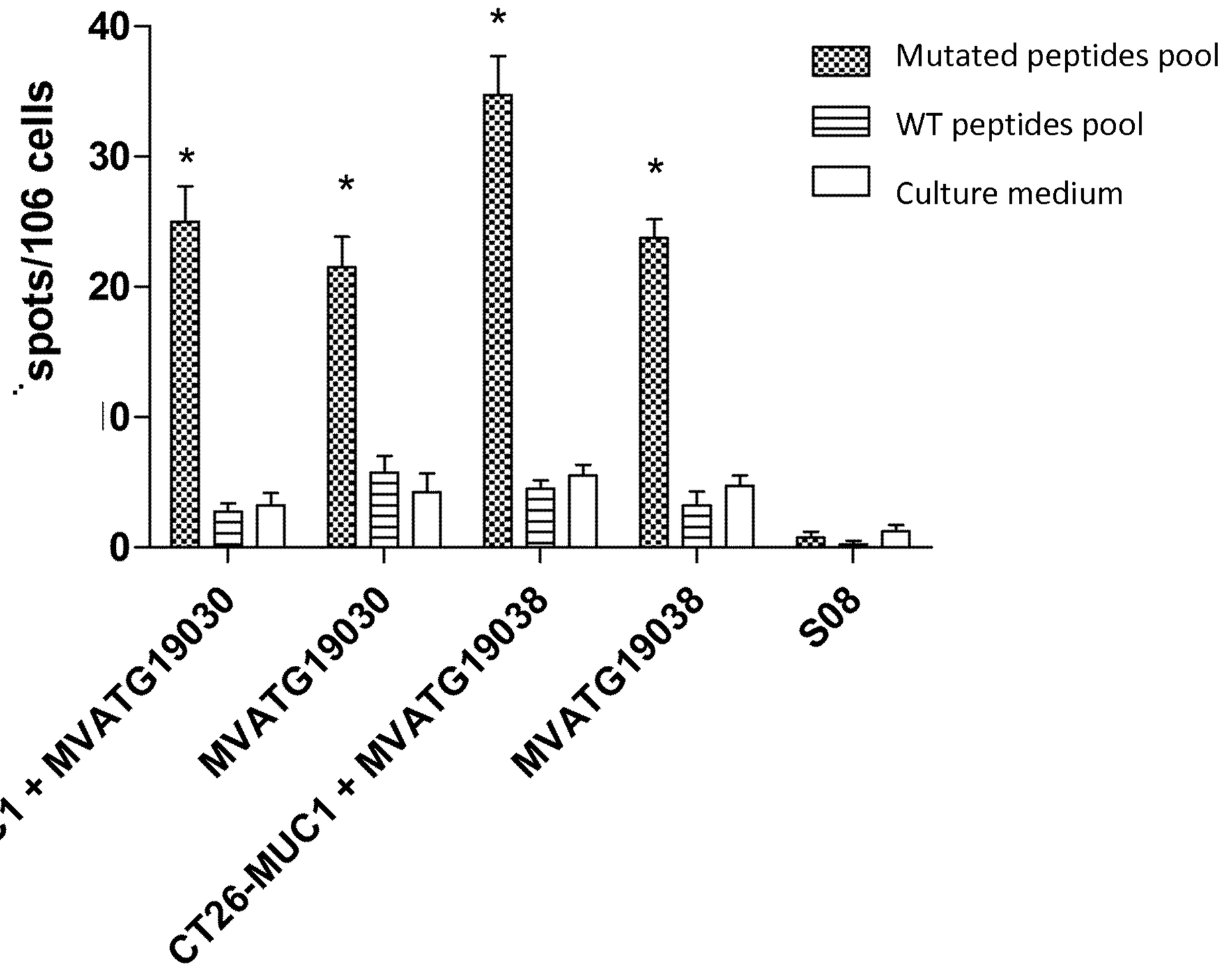

40
30
20
10
0
spots/106 cells
*
*
*
*
Mutated peptides pool
WT peptides pool
Culture medium
+ MVATG19030
CT26-MUC1
MVATG19030
CT26-MUC1
+ MVATG19038
CT26-MUC1
MVATG19038
CT26-MUC1
S08

Figure 5

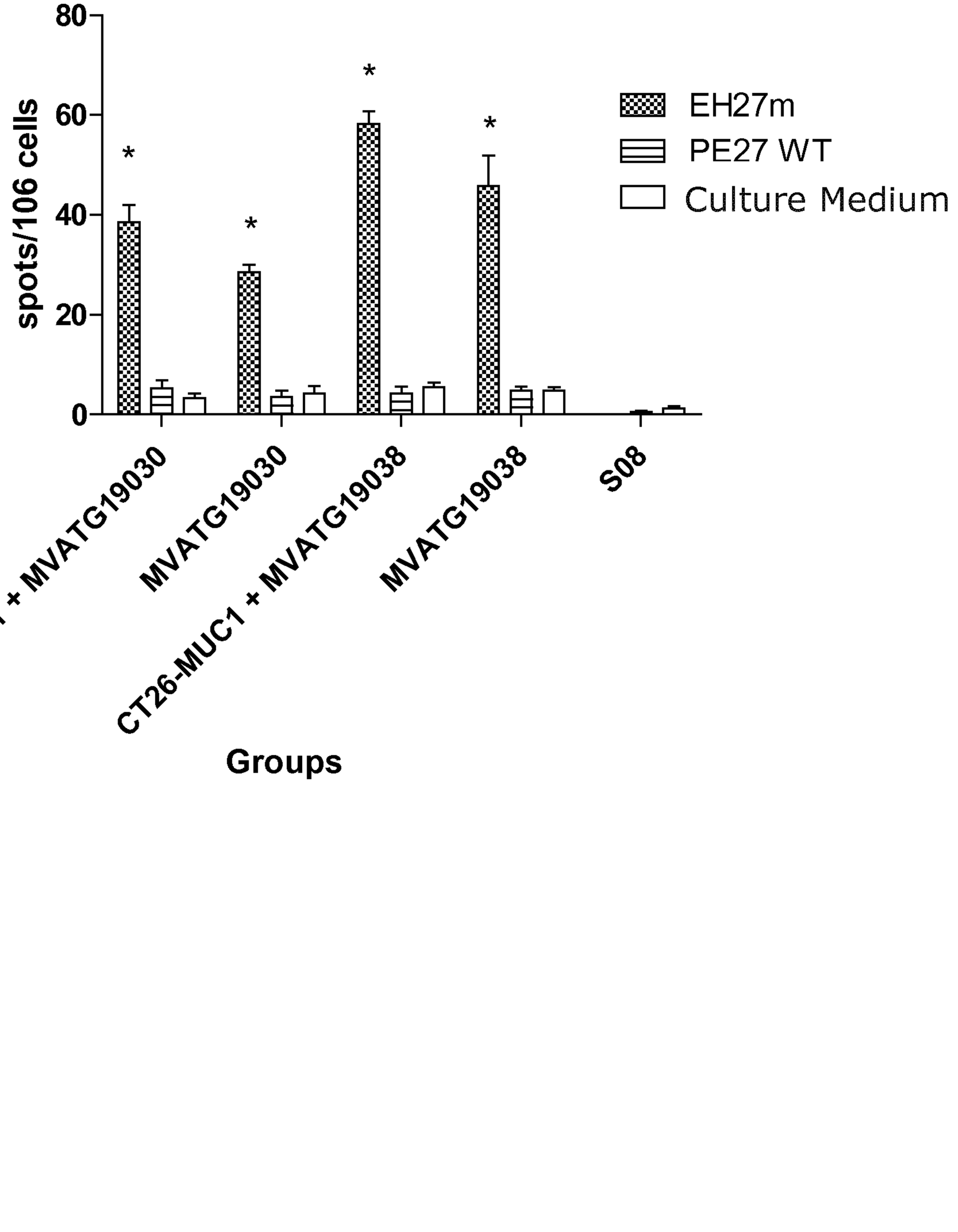

spots/106 cells
80
60
40
20
0
*
*
*
*
EH27m
PE27 WT
Culture Medium
+ MVATG19030
MVATG19030
+ MVATG19038
MVATG19038
S08
CT26-MUC1
CT26-MUC1
Groups

Figure 6

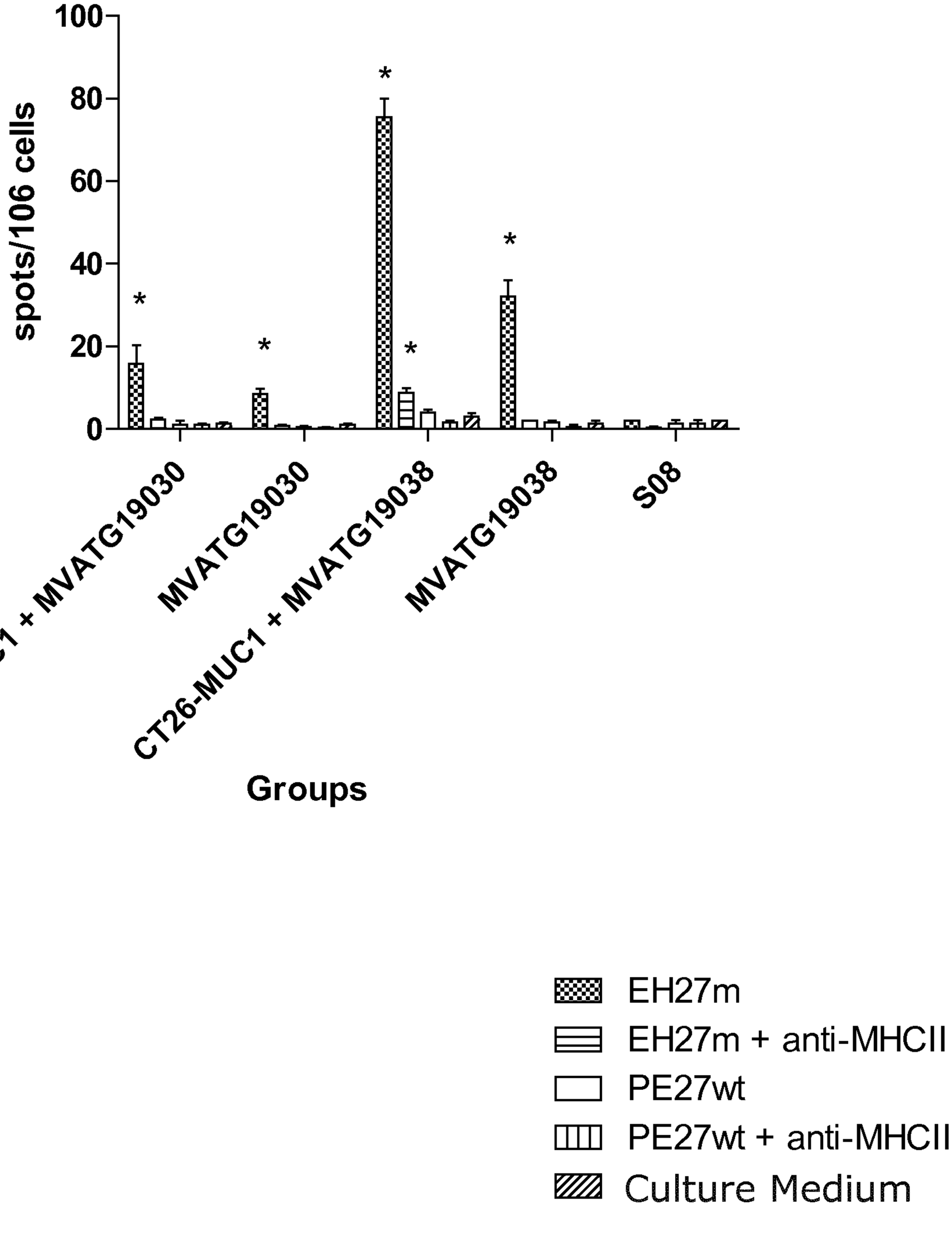

spots/106 cells
100
80
60
40
20
0
*
*
*
*
*
EH27m + MVATG19030
MVATG19030
EH27m + MVATG19038
MVATG19038
S08
CT26-MUC1
CT26-MUC1
Groups
EH27m
EH27m + anti-MHCII
PE27wt
PE27wt + anti-MHCII
Culture Medium

Figure 7

GSG (Gly-Ser-Gly)

GSG_1 : GGAAGCGGT
GSG_2 : GGATCTGGT
GSG_3 : GGATCGGGA
GSG_4 : GGTAGTGGC
GSG_5 : GGTTCTGGG
GSG_6 : GGTTCCGGT
GSG_7 : GGTTCGGGT
GSG_8 : GGCTCAGGA
GSG_9 : GGCTCTGGA
GSG_10 : GGCAGCGGA
GSG_11 : GGCAGTGGT
GSG_12 : GGGAGTGGG
GSG_13 : GGGTCTGGC
GSG_14 : GGGTCAGGG
GSG_15 : GGGTCCGGA

GTS (Gly-Thr-Ser)

GTS_2 : GGAACTTCG
GTS_3 : GGAACGTCC
GTS_4 : GGTACAAGT
GTS_5 : GGTACGAGC
GTS_6 : GGTACCTCT
GTS_7 : GGTACTAGT
GTS_8 : GGGACCAGT
GTS_10 : GGGACTTCA
GTS_11 : GGCACCAGC
GTS_12 : GGCACGTCG

GAS (Gly-Ala-Ser)

GAS_1 : GGTGCGAGC
GAS_3 : GGAGCGTCC
GAS_4 : GGAGCCTCG
GAS_6 : GGTGCATCA
GAS_7 : GGTGCTTCT

Figure 8

MVA	Cassette				Linker	% white plaques	PCR		
		1	2	3			Recombinant mCherry neg	Recombinant mCherry pos	Parental
TG19258	Nb neo	10	10	7	no	4.9	0	0	13
	TM	0	0	0					
	Hydro	-0.36	-0.08	**0.151**					
TG19267	Nb neo	10	10	7	3aa	13.3	**5**	**2**	2
	TM	0	0	0					
	Hydro	-0.39	-0.09	**0.08**					
TG19290	Nb neo	10	10	10 news	no	3.8	**3**	**3**	0
	TM	0	0	0					
	Hydro	-0.36	-0.08	-0.52					
TG19291	Nb neo	10	10	10 news	3aa	4.7	**3**	**4**	0
	TM	0	0	0					
	Hydro	-0.39	-0.09	-0.52					
TG19293	Nb neo	10	10	-	3aa	16	**1**	**9**	0
	TM	0	0	-					
	Hydro	-0.39	-0.09	-					
TG19298	Nb neo	-	10	10 news	3aa	16.3	**8**	**3**	0
	TM	-	0	0					
	Hydro	-	-0.09	-0.52					