

Table S1: Summary of disease in *FVB* mice following MmuPV1 infection of the female reproductive tract.

Treatment group	Group size, <i>n</i>	No disease	Dysplasia only			SCC Cancer
		Cervix (Vagina)	CIN1 (VIN1)	CIN2 (VIN2)	CIN3 (VIN3)	Cervix (Vagina)
Mock	4	2 (2)	2 (1)	0 (1)	0 (0)	0 (0)
Mock + E2	3	0 (0)	3 (3)	0 (0)	0 (0)	0 (0)
Mock + UVB	3	1 (0)	2 (0)	0 (3)	0 (0)	0 (0)
Mock + UVB + E2	3	3 (3)	0 (0)	0 (0)	0 (0)	0 (0)
MmuPV1 Only	3	1 (1)	0 (0)	2 (2)	0 (0)	0 (0)
MmuPV1 + E2	3	0 (0)	0 (0)	1 (1)	2 (2)	0 (0) *
MmuPV1 + UVB	2	2 (1)	0 (0)	0 (0)	0 (1)	0 (0)
MmuPV1 + UVB + E2	4	0 (0)	0 (0)	1 (0)	3 (1)	0 (3) **

Mice were scored histopathologically for the worst disease present in the cervix and vagina (in parentheses). CIN, cervical intraepithelial neoplasia; VIN, vaginal intraepithelial neoplasia.

Two-Sided Wilcoxon Rank Sum Test was used to compare overall cervicovaginal disease severity (worst disease in cervix and vagina combined).

* $p=0.05$ MmuPV1+E2 vs. Mock+E2

** $p= 0.03$ MmuPV1+UVB+E2 vs. Mock+UVB+E2

Table S2: Summary of disease in *K14E5* transgenic mice following MmuPV1 infection of the female reproductive tract.

Treatment group	Group size, <i>n</i>	No disease	Dysplasia only			SCC Cancer
		Cervix (Vagina)	CIN1 (VIN1)	CIN2 (VIN2)	CIN3 (VIN3)	Cervix (Vagina)
Mock	3	3 (3)	0 (0)	0 (0)	0 (0)	0 (0)
Mock + E2	3	1 (1)	0 (0)	2 (2)	0 (0)	0 (0)
Mock + UVB	2	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)
Mock + UVB + E2	3	2 (2)	0 (0)	1 (1)	0 (0)	0 (0)
MmuPV1 Only	3	2 (2)	0 (0)	1 (0)	0 (1)	0 (0)
MmuPV1 + E2	3	0 (0)	0 (0)	0 (0)	2 (0)	1 (3) *
MmuPV1 + UVB	3	1 (1)	0 (0)	0 (0)	2 (2)	0 (0)
MmuPV1 + UVB + E2	3	0 (0)	0 (0)	1 (2)	0 (0)	2 (3) **

Mice were scored histopathologically for the worst disease present in the cervix and vagina (in parentheses). CIN, cervical intraepithelial neoplasia; VIN, vaginal intraepithelial neoplasia.

Two-Sided Wilcoxon Rank Sum Test was used to compare overall cervicovaginal disease severity (worst disease in cervix and vagina combined).

* $p=0.05$ MmuPV1+E2 vs. Mock+E2

** $p=0.05$ MmuPV1+UVB+E2 vs. Mock+UVB+E2