

Table 2 Combination Gene Targets

Genes	Origin	Delivery	Adjuvant	Animal model	Challenge virus/ route/dose	Survival/morbidity	Correlates of protection investigated	Reference
A27L, A33R	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, IHD-J strain/IP/5E8 pfu/mo	70%/severe	Anti-VACV antibody	51
A27L, B5R	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, IHD-J strain/IP/5E8 pfu/mo	95%/significant	MV NAb	51
	VACV, WR strain	Protein (expressed in bacteria), SC, 3 doses	Ribi or TiterMax gold adjuvant	BALB/c mice	VACV, WR strain/IN/~2.4E6 pfu/mo	100%/significant	MV NAb, comet inhibitory, Th1/Th2 balanced response in Ribi (equal IgG1 and IgG2a, Th2 response in TiterMax adjuvant (IgG1 dominant), Cd8 ⁺ and CD4 ⁺ responses)	78
A27L, L1R	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, IHD-J strain/IP/5E8 pfu/mo	40%/severe	MV NAb	51
A33R, B5R	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, IHD-J strain/IP/5E8 pfu/mo	80%/severe	Anti-VACV antibody	51
	VACV, WR strain	Protein (expressed in baculovirus system), SC, 4 doses	Ribi or QS21	BALB/c mice	VACV, WR strain/IN/2E7 pfu/mo	90%/severe	Anti-VACV antibody, Th2 response (IgG1 dominant), comet inhibitory	52
A33R, L1R	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, WR/IP/5E8 pfu/mo	100%/mild	MV NAb	50
	VACV, WR strain	Protein (expressed in baculovirus system), SC, 4 doses	Ribi or QS21	BALB/c mice	VACV, WR strain/IN/2E7 pfu/mo	90%/moderate	MV NAb, Th2 response (IgG1 dominant), comet inhibitory	52
	VACV, WR strain	Protein (expressed in baculovirus system), SC, 2 doses	alum, or alum + CpG, or Ribi, or QS21	BALB/c mice	VACV, WR strain/IN/2E7 pfu/mo	alum: 50%/severe, alum + CpG: 100%/moderate, Ribi: 80%/significant, QS21: 100%/mild	MV Nab (except alum—some anti-VACV antibody), comet inhibitory, Th1/Th2 balanced response in alum + CpG or Ribi (except for anti-L1) or QS21 (equal IgG1 and IgG2a), Th2 response in alum (IgG1 dominant)	80
B5R, L1R	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, IHD-J strain/IP/5E8 pfu/mo	100%/moderate	Weakly MV NAb	51
	VACV, WR strain	Protein (expressed in baculovirus system), SC, 4 doses	Ribi or QS21	BALB/c mice	VACV, WR strain/IN/2E7 pfu/mo	60%/severe	MV NAb, Th2 response (IgG1 dominant)	52

(continued)