Table 1 Individual Gene Targets (*Continued*)

Gene(s) (target)	Origin	Delivery	Adjuvant	Animal model	Challenge virus/ route/dose	Survival/morbidity	Correlates of protection investigated	Reference
	CPXV, de novo synthesis	rVSV, IM, 1 dose	None	BALB/c mice	3 months post vaccination: VACV, WR strain/ IN/1E5 pfu/mo (sublethal)	53%/significant	Anti-VACV antibody, slightly comet inhibitory	93
	CPXV, de novo synthesis	Replication incompetent rAd5 vector prime, rVSV boost, IN, 1 dose each	None	BALB/c mice	3 months post vaccination: VACV, WR strain/ IN/1E5 pfu/mo (sublethal)	100%/mild	Anti-VACV antibody, comet inhibitory	93
B18R/ EVM166 (IRM)	ECTV	Protein (expressed in bacteria), IM, 3 doses	None	BALB/c mice	ECTV/Footpad/ 300pfu/mo(60xLD)	100%/mild to moderate	Anti-ECTV antibody, neutralized protein activity	83
D8L (MV)	VACV, IHD-J strain	DNA, IM, 4 doses	None	BALB/c mice	VACV, IHD-J strain/ IN/1E7 pfu/mo	50%/severe	Anti-VACV antibody	88
	VACV, WR strain	DNA, gene gun (abdominal epidermis), 4 doses	None	BALB/c mice	VACV, WR strain/IP/ 5E7	100%/moderate	MV NAb	89
	VARV	DNA, gene gun (abdominal epidermis), 4 doses	None	BALB/c mice	VACV, WR strain/IP/ 5E7 pfu/mo	100%/moderate	MV NAb	79
H3L (MV)	VACV, IHD-J strain	DNA, IM, 4 doses	None	BALB/c mice	VACV, IHD-J strain/ IN/1E7 pfu/mo	33%/severe	No antibody detected	88
	VACV, WR strain	Protein (expressed in bacteria), IM, 2 doses	Ribi	BALB/c mice	VACV, WR strain/IN/ ~5E5 pfu/mo or ~2.5E7 pfu/mo	~5E5:100%/significant ~2.5E7:0%/severe	MV NAb	77
L1R (MV)	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 3 doses	DNA precipitated on gold	BALB/c mice	VACV, WR/IP/5E8 pfu/mo	89%/significant	MV NAb	50
	VACV, WR strain	Protein (expressed in baculovirus system), SC, 4 doses	Ribi or QS21	BALB/c mice	VACV, WR strain/IN/ 1E6 pfu/mo or 2E7 pfu/mo	1E6: 100%/moderate 2E7: 30%/severe	MV NAb, Th2 response (IgG1 dominant)	52
	VACV, NYBH-CONN strain	DNA, gene gun (abdominal epidermis), 4 doses	DNA precipitated on gold	NHP	MPXV/IV/2E7 pfu per NHP	100%/severe	MV NAb	91
	VACV, IHD-J strain	DNA, IM, 4 doses	None	BALB/c mice	VACV, IHD-J strain/ IN/1E7 pfu/mo	0%/severe	No antibody detected	88
	VACV, WR strain	Replication incompetent rAd35 vector, 1 dose	None	BALB/c mice	VACV, WR strain/IP or IN/IP: 2E8 pfu/mo, IN: 2E7 pfu/mo	IP: 100%/mild IN: 75%/severe	MV NAb, not comet inhibitory, Th1/Th2 balanced response (IgG2a and IgG1 both produced), IFNγ producers detected	54

[a]Cell*, A36 is a viral protein expressed on an infected cell that helps direct MV to become EV. *Abbreviations*: alum, aluminum hydroxide; CPXV, cowpox virus (Brighton red strain); ECTV, ectromelia virus (Moscow strain); IHD-J, International Health Department strain J of VACV; ID, intradermal; IM, intramuscular; IP, intraperitoneal; IRM, immune response modifiers; IV, intravenous; MPXV, monkeypox (Zaire 79 strain); MV, mature virus; NAb, neutralizing antibody; ND, not done; NHP, nonhuman primate; NR, not reported; NYBH-CONN, New York Board of Health-Connaught strain; pfu/mo, plaque-forming unit per mouse; QS21, nontoxic saponin derived from the soapbark tree, *Quillaja saponaria*; rAd, recombinant adenovirus; Ribi, MPL+TDM (monophosphoryl lipid A + trehalose dicorynomycolate) adjuvant; rVSV, recombinant Vesicular stomatitis virus; SC, subcutaneous; IN, intranasal; VACV, vaccinia virus; VARV, variola virus (India 1967 strain); VRP, Venezuelan equine encephalitis (VEE) virus replicon particle; WR, western reserve strain of vaccinia virus; IFNg, interferon gamma.