Table 1 Suppl. Examples of epitopes fused to coat proteins of plant filamentous viruses. FLT - fresh leaf tissue, CPV - canine parvovirus; HIV-1 - human immunodeficiency virus type 1; gp - glycoprotein; BNYVV - beet necrotic yellow vein virus; ep - epitope; NP - nucleoprotein; HCV - hepatitis C virus; HPV - human papillomavirus; aa - amino acids.

Epitope	Epitope sequence	Epitope length (aa)	Plant virus	Placement on CP	Plant host	Yield of CPVs	References
CPV VP2	VQPDGGQPAVRNERA	15	PPV	N-terminus	*N. clevelandii*	-	Fernández-Fernández *et al*. (1998)
2x CPV VP2	2x VQPDGGQPAVRNERA	30	PPV	N-terminus	*N. clevelandii*	-	Fernández-Fernández *et al*. (1998)
S. aureus FnBP D2	GQNNGNQSFEEDTEKDKPKYEQG GNIIDIDFDSVPHIH	38	PVX	N-terminus	*N. benthamiana*	-	Brennan *et al*. (1999)
HIV-1 gp 41	ELDKWA	6	PVX	N-terminus	*N. benthamiana*	400 - 600 μg.g^{-1} of FLT	Marusic *et al*. (2001)
BNYVV ep4	RTSPPGQ	7	PVX	N-terminus	*N. benthamiana*	up to 115 μg g^{-1} of FLT	Uhde *et al*. (2005)
BNYVV ep6	SANVRRD	7	PVX	N-terminus	*N. benthamiana*	up to 115 μg g^{-1} of FLT	Uhde *et al*. (2005)
BNYVV ep4ep6	RTSPPGQSANVRRD	14	PVX	N-terminus	*N. benthamiana*	up to 115 μg g^{-1}of FLT	Uhde *et al*. (2005)
CSFV E2[1]	Region between 790-860 aa	70	PVX	N-terminus; 6xHis; *via* FMDV 2a	*N. benthamiana*	120 μg g^{-1}of FLT	Marconi *et al*. (2006)
CSFV E2[2]	Region between 854-894 aa	40	PVX	N-terminus; 6xHis; *via* FMDV 2a	*N. benthamiana*	-	Marconi *et al*. (2006)
HPV-16 L2 and E7	LVEETSFIDAGAP and QAEPDRAHYNIVTFCCK	13 and 17	PVA	N- and C-terminus	transgenic *N. benthamiana* HC-Pro	28 - 43 μg g^{-1} of FLT	Čerovska *et al*. (2008)
HPV-16 L2 and E7	LVEETSFIDAGAP and QAEPDRAHYNIVTFCCK	13 and 17	PVA	N- and C-terminus	*N. benthamiana* and *Brassica rapa*	10 and 4 μg g^{-1} of FLT	Hoffmeisterová *et al*. (2008)
Influenza A virus NP	ASNENMETM	9	PVX	N-terminus	*N. benthamiana*	1100 μg g^{-1} of FLT	Lico *et al*. (2009)
HCV-E2 R9	QTTVVGGSQSHTVRGLTSLFSPGA SQN	27	PVX	N-terminus; *via* FMDV 2a	*N. benthamiana*	75 - 125 μg g^{-1} of FLT	Uhde-Holzem *et al*. (2010)
HPV-16 L2	LVEETSFIDAGAP	13	PVX	N- or C-terminus	transgenic *N. benthamiana* 3H	170 or 8 μg g^{-1} of FLT	Cerovska *et al*. (2012)
VEGFR-3	LASEEFEQIESRHRQESGFR	20	TuMV	N-terminus	*A. thaliana*	15 - 45 μg g^{-1} of FLT	Sánchez *et al*. (2013)
VEGFR-3	LASEEFEQIESRHRQESGFR	20	TuMV	N-terminus	*B. juncea*	15 - 30 μg.g^{-1} of FLT	Sánchez *et al*. (2013)
HPV-16 E7	QAEPDRAHYNIVTFCCK	17	PVX	Internal loops; 6xHis or StrepII	*N. benthamiana* (wt and HC-Pro)	-	Vaculik *et al*. (2015)
ZP3 contraceptivve vaccine	ZP3 aa 331-343	13	TMV	between aa 154-155 at C terminus	*N. tabacum* Xanthi	100 μg cm^{-2} of leaf	Fitchen *et al*. (1995)
Malaria B cell epitope	(QGPGAP)2	15	TMV	leaky stop at C terminus	*N. tabacum* Xanthi	1.2 mg g^{-1} FLT (about 25% of wt TMV)	Turpen *et al*. (1995)
Murine hepatitis Virus	PLLGCIGSTCAEDGN	15	TMV	between aa 154-155 at C terminus	*N. tabacum* Xanthi	high concentration in plants, some versions insoluble.	Koo *et al*. (1999)
Rabies virus glycoprotein	DDGDDAVYTRIMMNGGRLKR	20	TMV	between aa 154-155 at C terminus	*N. tabacum* Xanthi	1-3 mg g^{-1} of FLT	Bendahmane *et al*. (1999)

Pseudomonas aeruginosa outer membrane protein	TDAYNQKLSERRAN	14	TMV	between aa 154-155 at C terminus	*N. tabacum* Xanthi	-	Staczek *et al.* (2000)
FMDV		8-10	TMV	between aa 154-155 at C terminus	*N. tabacum* Xanthi	5 mg g^{-1} of FLT	Wu *et al.* (2003)
Rabbit papillomavirus L2	VGPLDIVPEVADPGGPT	17	TMV	between aa 154-155 at C terminus	*N. tabacum*		Palmer *et al*. (2006)
Various xeno and self epitopes		8-19	TMV	chemical linkage to mutant TMV carrying reactive lysine residue	*N. benthamiana*	7.3 mg g^{-1} of FLT	Mc Cormick *et al*. (2006)

Table 2 Suppl. Examples of antigens fused to coat proteins of plant filamentous viruses. SIT - systemically infected tissue, TSP - total soluble protein, FLT - fresh leaf tissue.

Antigen	Antigen length (aa)	Plant virus	Placement on CP	Plant host	Yield	References
Rotavirus VP6	397	PVX	N-terminus; *via* FMDV 2a	*N. benthamiana*	1 µg VP6 g^{-1} of SIT	O´Brien *et al*. (2000)
HPV-16 E7	98	PVX	N-terminus	*N. tabacum* cv. *Petit Havana*	0,5% E7CP relative to TSP	Morgenfeld *et al*. (2009)
HPV-16 E7ggg	98	PVX	N- or C-terminus	transgenic *N. benthamiana* HC-Pro	instability during purification	Plchova *et al*. (2011)
HPV-16 E6GT	158	PVX	C-terminus	transgenic *N. benthamiana* K7	5 µg CPV $g^{-1}$of FLT	Cerovska *et al*. (2013)
Protein A	133	TMV	C-terminus, via 15 aa flexible linker	*N. benthamiana*	3 mg g^{-1} of FLT	Werner *et al*. (2006)

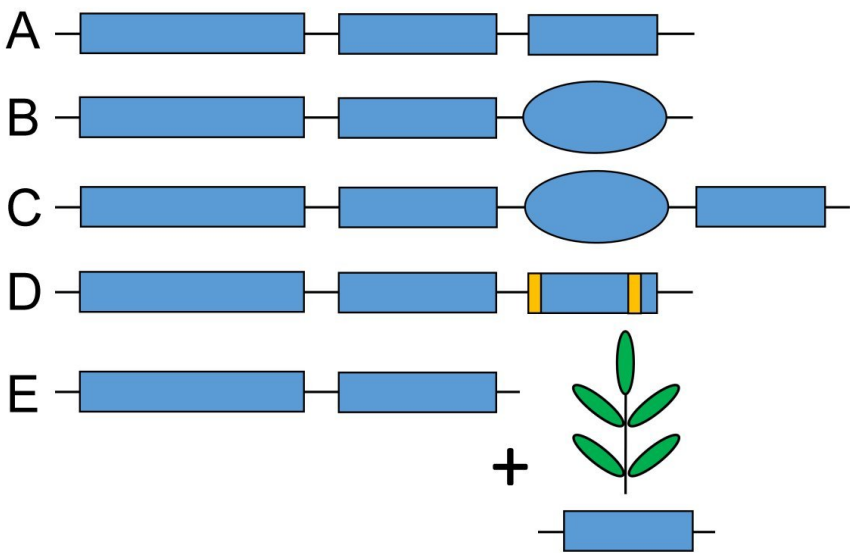

Fig. 1 Suppl. Different strategies for plant viral vector design. *A* - native virus, *B* - exchange of genes, *C* - gene insertion, *D* - epitope display, *E* - deconstructed virus. Genes of viral genome are schematically depicted as *rectangles*, *ellipse* represents gene for foreign protein, *yelow rectangles* demonstrate foreign epitopes. The plant symbol emblematizes the transgenic plants bearing the part of the deconstructed viral genome