## Supplementary Materials: Modification of Vip3Ab1 C-**Terminus Confers Broadened Plant Protection from** Lepidopteran Pests

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Table S1. PCR primer sequences used to generate Vip3Ab1-740.

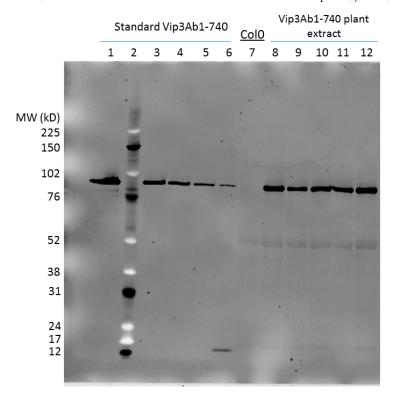
Primer Name	
Vip3Ab1 Part A Forward Primer	5' gga tcc gaa gga gat ata cat atg gca aac atg aac acc aaa ctg aac gcg 3'
Vip3Ab1 Part A Reverse Primer	5' TCC AGT ATT TTC ATC TTT CAA GTA GAT TGA CGC CTT 3'
DIG740 Part B Forward Primer	5' AAG GCG TCA ATC TAC TTG AAA GAT GAA AAT ACT GGA 3'
DIG740 Part B Reverse Primer	5' GGA TCC CTA TTT AAT AGA AAT GTT TTC 3'

Table S2. PCR primer sequences for Arabidopsis copy number analysis.

Primer Name						
DSM2 forward Primer	5' CTTTACGCCTCCTCTCGA 3'					
DSM2 reverse Primer	5' CTGAGCAATGCCAGCATAGG 3'					
TafII forward Primer	5' GAGGATTAGGGTTTCAACGGAG 3'					
TafII reverse Primer	5' GAGAATTGAGCTGAGACGAGG 3'					

	1 10	20	30	40	50	60	70	80	90	100
VIP3Ab1	MNMNNTKL	NARALPSFID	YFNGIYGFAT	GIKDIMNMIF	KTDTGGNLTL	DEILKNQQLL	NEISGKLDGV	NGSLNDLIAQ	GNLNTELSKÉ	ILKIANEQNQ
DIG740	MNMNK NNTK L	SARALPSFID	YFNGIYGFAT	GIKDIMNMIF	KTDTGGDLTL	DEILKNQQLL	NDISGKLDGV	NGSLNDLIAQ	GNLNTELSKE	ILKIANEQNQ
Vip3Ab1-740	MANMNNTKL	NARALPSFID	YFNGIYGFAT	GIKDIMNMIF	KTDTGGNLTL	DEILKNQQLL	NEISGKLDGV	NGSLNDLIAQ	GNLNTELSKE	ILKIANEQNQ
po	110	120	130	140	150	160	170	180	190	200
VIP3Ab1	VLNDVNNKLD	AINTMLHIYL	PKITSMLSDV	MKONYALSLO	VEYLSKOLKĖ	ISDKLDVINÝ	NVLINSTLTĖ	ITPAYORIKÝ	VNEKFEELTE	ATETTLKVKK
DIG740	VLNDVNNKLD	AINTMLHVYL	PKITSMLSDV	MK PNYAL SMO	LEYLSROLOE	ISDKLDIINV	NVLINSTLTE	ITPAYOMIKY	VNEKFEELTF	ATETTLKVKN
Vip3Ab1-740	VLNDVNNKLD	AINTMLHIYL	PKITSMLSDV	MKONYALSLO	VEYLSKOLKE	ISDKLDVINV	NVLINSTLTE	ITPAYORIKY	VNEKFEELTF	ATETTLKVKK
*1p3/101 / 10	210	220	230	240	250	260	270	280	290	300
VIP3Ab1	DSSPADILDE	LTELTELAKS	VTKNDVDGEE	EVI NTEHDVM	VGNNI EGRSA	IKTASELIAK	FNVKTSGSEV	GNVYNEL LVÍ	TALOAKAFLT	LTTCRKLIGI
DIG740									TALOAKAFLT	
Vip3Ab1-740									TALOAKAFLT	
V1p3Ab1-740	310	320	330	340	350	360	370	380	300	400
VIP3Ab1	ADIDALEIWN	EHLNKEKEEE	DVNII PITI SN	TECHDNIANA	KEZDEDAKMI	VEAKBCHALV	GEELSNIDSMT	AI KAAE VKI K	ONYOVDKDSI	SEVIYSDMDK
DIG740										SEVIYGDMDK
Vip3Ab1-740									ONYOVDKDSL	
VID3AD1-740	410	420	430	440	ASO	460	470	480	490	500
VIP3Ab1	LLCPDOSEOI	YYTNNIVEPN	EVVITKIDET	KKMKTI DVEV	TANSVOSST	EIDINKKKAE	SSEAEVATIS	ANNDGVYMPL	GVISETELTE	INGEGLOADE
DIG740		YYTNNIVEPN				EIDLNKKKVE		ANNDGVYMPL		INGEGLOADE
Vip3Ab1-740									GVISETFLTP	
VIP3AD1-740	ELCFDQ3EQ1	FOO	ETVITKIDET	KKWKI LKI LV	550	EIDLINKKKVE	SSEALIKIES 570	580	590	600
VIP3Ab1	NCDI ITI TOK	SYLRELLLAT	DI CNIVETVI I	VDDIECELCALI	0,00	I E DIME ANALKAL	AVVDUTCCIAL	500	GEFSOFVGGK	000
DIG740									GGV S Q F M GD K	
									GEFSQFVGGK	
Vip3Ab1-740	NSKLITLICK	SYLKELLLAT	DESNKEIKEI	VPPIISFISNI	VENGNLEGEN	LEPWIANNKN	ATVUHIGGIN	GIKVLYVHKD	GEFSQFVGGK	LKBKIEYVIQ
MIDDALA	010	620	030	50TVTVD5	650	FEECONG FEAT	6/0	580 580	1970	CTT L C CNC L
VIP3Ab1	YIVKGKASIY		Y E E NND L E				GENFILLELR		IMS DAWVESQ	
DIG740		LKDENTGYIL			GTDLMRVYLI		GDNFTILEIK		INPNSWITTQ	
Vip3Ab1-740	YIVKGKASIY	LKDENIGYIL	YEDTNNDLED	FQTTTKRFILL	GTDLMRVYLI	LKSQSGHEAW	GDNFTILEIK	PALALVSPEL	INPNSWITTQ	GASTSGDKLE
1400414	710	720	730	740	750	760	770	780	790	
VIP3Ab1					VLFEKSYPQL	SPKDISEKFT	TANNTGLYV	E L S R S T S G G		
DIG740		QNLSLNSYST								
Vin34h1-740	ISLIGTNGTER	ONISINSYST	VSISETASGE	ENVTVRNSRF	VIVERNNIMS	STSHISGEEK	TESNNTGI VV	FISRRSGGAG	HISFFNISIK	

Figure S1. Sequence alignment of Vip3Ab1, DIG740 (Vip3Ai1) and Vip3Ab1-740. The black arrow denotes the location at which the chimera protein was generated. Black background shading is used to highlight amino acid diversity between proteins (BLOSUM62 substitution matrix).



**Figure S2.** Representative Western Blot of Arabidopsis leaf extracts. "Col0" denotes Columbia-0 plant extract control to show background immunoreactivity of non-transformed Arabidopsis plants.



Figure S3. DNA sequence for Vip3Ab1-740 plant expression construct.