

**Table S2.** Selected proteins containing the YxVGG sequence motif that could be possibly cleaved by HC-Pro. The role in viral infection shows a possibility how the plant protein cleavage by HC-Pro could help the virus to spread or to influence the plant metabolism.

Plant protein	Plant	ID	Sequence	Role in viral infection
ATP synthase subunit $\beta$ , mitochondrial (EC 7.1.2.2)	<i>Actinidia deliciosa</i> (Kiwi)	>sp P43395 A TPBM_ACTD E (173 aa)	152 - 156: YmVGG	In apple plants, the mitochondrial ATP synthase oligomycin sensitivity-conferring protein subunit interacts with apple necrotic mosaic virus coat protein and facilitates its infection [1]. In chloroplasts, ATP synthase- $\alpha$ plays active roles in plant defense. Tobacco mosaic virus (TMV) infection reduced the expression levels of the ATP synthase- $\gamma$ gene and silencing ATPsyn- $\gamma$ in <i>Nicotiana benthamiana</i> increased TMV accumulation and pathogenicity [2]. HC-Pro was shown to decrease the amount of ATP-synthase CF1 $\beta$ -subunit in PVY-infected plants [3,4] and also to interact with Ca <sup>2+</sup> -dependent ATP-synthase, MinD [5].
ATP synthase subunit $\beta$ -1, mitochondrial (EC 7.1.2.2)	<i>Arabidopsis thaliana</i>	>sp P83483 A TPBM_ARAT H (556 aa)	535 - 539: YmVGG	
ATP synthase subunit $\beta$ , mitochondrial (EC 7.1.2.2)	<i>Chlamydomonas reinhardtii</i> ( <i>Chlamydomonas smithii</i> )	>sp P38482 A TPBM_CHLR E (574 aa)	487 - 491: YmVGG	
ATP synthase subunit $\beta$ , mitochondrial (EC 7.1.2.2)	<i>Hevea brasiliensis</i> ( <i>Siphonia brasiliensis</i> )	>sp P29685 A TPBM_HEVB R (562 aa)	541 - 545: YmVGG	
ATP synthase subunit $\beta$ , mitochondrial (EC 7.1.2.2)	<i>Zea mays</i>	>sp P19023 A TPBM_MAIZE (553 aa)	532 - 536: YmVGG	
ATP synthase subunit $\beta$ , mitochondrial (EC 7.1.2.2)	<i>Nicotiana glauca</i>	>sp P17614 A TPBM_NICPL (560 aa)	539 - 543: YmVGG	
ATP synthase subunit $\beta$ , mitochondrial (EC 7.1.2.2).	<i>Oryza sativa</i> subsp. <i>japonica</i>	>sp Q01859 A TPBM_ORYSJ (552 aa)	531 - 535: YmVGG	
ATP synthase subunit $\beta$ -2, mitochondrial (EC 7.1.2.2)	<i>Arabidopsis thaliana</i>	>sp P83484 A TPBM_ARAT H (556 aa)	535 - 539: YmVGG	
ATP synthase subunit $\beta$ -3, mitochondrial (EC 7.1.2.2)	<i>Arabidopsis thaliana</i>	>sp Q9C5A9 ATPBO_ARA TH (559 aa)	538 - 542: YmVGG	
Chlorophyll a-b binding protein 215, chloroplastic (LHCII type II CAB-215) (LHCP)	<i>Pisum sativum</i>	>sp P27520 C B215_PEA (265 aa)	174 - 178: YrVGG	The photosynthetic rate of virus-infected plants is always reduced [4] Damaged photosynthetic complexes and degraded chloroplasts are related to plant viral infection [6].
Chlorophyll a-b binding protein 151, chloroplastic (LHCII type II CAB-151) (LHCP)	<i>Gossypium hirsutum</i> ( <i>Gossypium mexicanum</i> )	>sp P27518 C B21_GOSHI (265 aa)	174 - 178: YrVGG	
Chlorophyll a-b binding protein of LHCII type I, chloroplastic (CAB) (LHCP)	<i>Lemna gibba</i>	>sp P12328 C B21_LEMGI (264 aa)	173 - 177: YrVGG	
Chlorophyll a-b binding protein type I, chloroplastic (CAB) (LHCP)	<i>Pinus thunbergii</i> ( <i>Pinus thunbergiana</i> )	>sp P10049 C B21_PINTH (266 aa)	175 - 179: YrVGG	
Chlorophyll a-b binding protein, chloroplastic	<i>Silene latifolia</i> subsp. <i>alba</i> ( <i>Lychnis alba</i> )	>sp P12332 C B21_SILLB (205 aa)	173 - 177: YrVGG	

(LHCII type I CAB) (LHCP).					
Chlorophyll a-b binding protein type 2 member 2 (Chlorophyll a-b binding protein type II 2) (CAB) (LHCP)	<i>Pinus sylvestris</i>	>sp P15192 C B22_PINSY (1 50 aa)	59 - 63: YrVGG		
Chlorophyll a-b binding protein, chloroplastic (LHCII type I CAB) (LHCP)	<i>Oryza sativa</i> subsp. <i>indica</i>	>sp A2XJ35 C B23_ORYSI (2 63 aa)	172 - 176: YrVGG		
Chlorophyll a-b binding protein, chloroplastic (LHCII type I CAB) (LHCP)	<i>Oryza sativa</i> subsp. <i>japonica</i>	>sp Q10HD0 CB23_ORYSJ (263 aa)	172 - 176: YrVGG		
Chlorophyll a-b binding protein 36, chloroplastic (LHCII type I CAB-36) (LHCP)	<i>Nicotiana tabacum</i>	>sp P27494 CB23_TOBAC (265 aa)	174 - 178: YrVGG		
Chlorophyll a-b binding protein 4, chloroplastic (LHCII type I CAB-4) (LHCP)	<i>Solanum lycopersicum</i> ( <i>Lycopersicon esculentum</i> )	>sp P14278 CB24_SOLLC (265 aa)	174 - 178: YrVGG		
Chlorophyll a-b binding protein 5, chloroplastic (LHCII type I CAB-5) (LHCP)	<i>Solanum lycopersicum</i> ( <i>Lycopersicon esculentum</i> )	>sp P14279 CB25_SOLLC (237 aa)	146 - 150: YrVGG		
Chlorophyll a-b binding protein 37, chloroplastic (LHCII type I CAB-37) (LHCP)	<i>Petunia</i> sp.	>sp P12062 CB26_PETSP (265 aa)	174 - 178: YrVGG		
Cysteine--tRNA ligase CPS1, chloroplastic/mitochondrial (EC 6.1.1.16) (Chloroplast synthesis protein 1) (CysteinyI-tRNA synthetase)	<i>Zea mays</i> L.	>sp A0A1D6LAG9 CPS1_MAIZE (564 aa)	200 - 204: YvVGG	The chloroplastic isoform of the plant tRNA ligase mediates the replication of the viroids belonging to the family Avsunviroidae [7].	
Endoribonuclease Dicer homolog 3b (Dicer-like protein 3b) (OsDCL3b) (EC 3.1.26.-)	<i>Oryza sativa</i> subsp. <i>japonica</i>	>sp Q7XD96 DCL3B_ORYSJ (1637 aa)	1195 - 1199: YyVGG	Dicer-like proteins are the central enzymes of RNA silencing which regulate gene expression and represent a way of defense against viruses [8].	
ToMV resistance protein Tm-1(GCR237) (Disease resistance protein Tm-1) (Protein p80(GCR237))	<i>Solanum lycopersicum</i> ( <i>Lycopersicon esculentum</i> )	>sp A7M6E7 TM1R_SOLLC (754 aa)	276 - 280: YvVGG	Tm-1 resistance protein binds ToMV replication proteins and inhibits the RNA-dependent RNA replication of ToMV [9].	
ToMV susceptible protein tm-1(GCR26) (Disease susceptible protein tm-1) (Protein p80(GCR26))	<i>Solanum lycopersicum</i> ( <i>Lycopersicon esculentum</i> )	>sp A7M6E8 TM1S_SOLLC (754 aa)	276 - 280: YvVGG		

Disease resistance protein RPV1 (NAD(+) hydrolase RPV1) (EC 3.2.2.6) (Resistance to Plasmopara viticola protein) (MrRPV1)	<i>Vitis rotundifolia</i>	>sp V9M2S5  RPV1_VITRO (1398 aa)	223 - 227: YgVGG	Disease resistance proteins RPV1 and RUN1 mediate NAD <sup>+</sup> cleavage that triggers a defense system that promotes programmed cell death as shown against fungal pathogens [10,11].
Disease resistance protein RUN1 (NAD(+) hydrolase RUN1) (EC 3.2.2.6) (NADP(+) hydrolase RUN1) (EC 3.2.2.-) (Resistance to Uncinula necator protein) (MrRUN1)	<i>Vitis rotundifolia</i>	>sp V9M398  RUN1_VITRO (1331 aa)	228 - 232: YgVGG	
G-type lectin S-receptor- like serine/threonine- protein kinase At1g11280 (EC 2.7.11.1)	<i>Arabidopsis thaliana</i>	>sp Q9SXB3  Y1112_ARAT H (820 aa)	411 - 415: YsVGG	Role of lectins in plant defense is not entirely elucidated. The lectin gene Restricted TEV movement 1 inhibits the systemic movement of potyviruses and Jacalin-Type lectin required for potyvirus resistance 1 impairs the accumulation of plantago asiatica mosaic virus (PIAMV) RNA at the cellular level [12].
L-type lectin-domain containing receptor kinase IX.2 (LecRK-IX.2) (EC 2.7.11.1)	<i>Arabidopsis thaliana</i>	>sp Q9LSL5  LRK92_ARAT H (675 aa)	132 - 136: YsVGG	
Probable LRR receptor- like serine/threonine- protein kinase At3g47570 (EC 2.7.11.1)	<i>Arabidopsis thaliana</i>	>sp C0LGP4  Y3475_ARAT H (1010 aa)	892 - 896: YgVGG	
Polyamine oxidase 6 (OsPAO6) (EC 1.5.3.-) (Polyamine oxidase B)	<i>Oryza sativa</i> subsp. <i>japonica</i>	>sp A0A0P0X M10 PAO6_O RYSJ (496 aa)	489 - 493: YnVGG	Plants exhibit increased polyamine levels during viral infection, which are rapidly degraded by polyamine oxidases, which are also upregulated upon virus infection [13].
Polyphenol oxidase E, chloroplastic (PPO) (EC 1.10.3.1) (Catechol oxidase)	<i>Solanum lycopersicum (Lycopersicon esculentum)</i>	>sp Q08307 P POE_SOLLIC (587 aa)	187 - 191: YkVGG	
Catechol oxidase B, chloroplastic (EC 1.10.3.1) (Polyphenol oxidase) (PPO)	<i>Solanum tuberosum</i>	>sp Q06355 P POB_SOLTU (588 aa)	188 - 192: YkVGG	The increase of polyphenol oxidase activity was found in tobacco plants infected with tobacco mosaic virus (TMV) [14].
WAT1-related protein At2g37460	<i>Arabidopsis thaliana</i>	>sp Q9ZUS1  WTR13_ARAT H (380 aa)	268 - 272: YyVGG	The protein Walls are thin 1 (WAT1), a plant-specific protein that dictates secondary cell wall thickness of wood fibres and was found to facilitate auxin transport in <i>Arabidopsis</i> [15].
Histone-lysine N- methyltransferase ATX2 (EC 2.1.1.-) (Protein SET DOMAIN GROUP 30) (Trithorax-homolog)	<i>Arabidopsis thaliana</i>	>sp P0CB22  ATX2_ARAT H (1083 aa)	873 - 877: YiVGG	The interaction between HC-Pro from turnip mosaic virus (TuMV) or zucchini yellow mosaic virus (ZYMV) and Hua Enhancer1 (HEN1) led to

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protein 2) (TRX-homolog protein 2)	inhibition of methyltransferase activity [16,17].
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