Supplementary Files

Plasmid Construction

Table S1. List of primers used for PCR.

Primer Name	**Sequence**
EcoRI.fw.N	CCGCGAATTCATGGCCATTCTAATCTCTCC
RV.*EcoRV*.N	CCGGGATATCATTTCAAACGGTGTTGCTGACC
FW1*SphI*	ATTGCATGCGGACATCGTGTTGCTGCCGGGCTGTG
RV1*SbfI*	GCAAAAAAAAGTAGCAGACATTCCTGCAGGGTTCCTGACAGTCCCTGGTG
FW2*SbfI*	CACCAGGGACTGTCAGGAACCCTGCAGGAATGTCTGCTACTTTTTTTTGC
RV2C*HpaI*	ATTGTTAACAAGCTGTGTGGGGCTGGCGCCGGCTCT
IF.Strep	GCACCGGTCGGGTGGGTCGCTGGTCACACCCACAATTCGAGAAGCGCGCAACCGCAGCTTTAG
IR.Strep	CTAAAGCTGCGGTTGCGCGCTTCTCGAATTGTGGGTGTGACCAGCGACCCACCCGACCGGTGC
EF.Strep	CTTTAGTCTGGGCTATGACCCGCAGACCCAGTTAGTGACG
ER.Strep	GCACCTGTTGTTGGGTCAGGCGTTGAGCTACTTGAG
Fw seq all	TAAGCAGACAGGGGCACAGCAG
Rv seq all	CAGTCGGCGGGCTTTTATTGAAG
XhoI FP	CGCTCGAGTCAATAAAATTCTTTATTTTTCCTGTGATAATAC

KpnI RP	GACGGTACCATGGACACCCGAGGGCGACGAAAAGTTCGG
pVIII-Fwd	GGCGCGGAATTCATGAGCAAAGAAATTCCCACACC
pVIII-Rev	GTCCTCGAGTCAGCTATAACCGCTCACAGAG
pVII.*Sal1*.Rv	GAG GTCGACTCAAACGGTGTTGCTGACCGTAG
Fw.*EcoRI*.pVII.del 1	AUUGAATTCATGGCCGCCTGGGGCAGCCGCACCGGTCGGGTG
*Xho1.*Rv	CCGGCTCGAGATTTCAAACGGTGTTGCTGAC
IR.pVII.Del 2	GTCTGCGGCGCCGGTACTGGCGCCGATAATGCGACCGCACCTTCACTG
IF.pVII.Del 2	CAGTGAAGGTGCGGTCGCATTATCGGCGCCAGTACCGGCGCCGCAGAC
IR.pVII.Del 3	GTCTGCTGCGATAGCGGCCGCGGCGTCAGCCACCACCGCCTCGATTG
IF.pVII.Del 3	CAATCGAGGCGGTGGTGGCTGACGCCGCGGCCGCTATCGCAGCAGAC
RVp7Del4stop*Xho1*	ATTCTCGAGTCAGCGCCGGCCCACCCTGCGGGCCCTC
RVp7Del4Astop*Xho1*	ATTCTCGAGTCACATGGCCATGGCCGCGTCTGCTGCG
RVp7Del4Bstop*Xho1*	ATTCTCGAGTCAGTAGATGTTACGGCGTCGCCGAGC
RVp7Del4Cstop*Xho1*	ATTCTCGAGTCAAACGCGGGCTCCGGTTGCCGCATCG
IR.pVII.Del 3.1	GAACCCGTCGCTGCAGGGCAGTGCGGTCAGCCACCACCGCCTCGATTGTG
IF.pVII.Del 3.1	CACAATCGAGGCGGTGGTGGCTGACCGCACTGCCCTGCAGCGACGGGTTC

IR.pVII.Del 3.2	CTGCGATAGCGGCCGCGCCGGCCGGGGCTCCGACG CAACCTTCTGACTC
IF.pVII.Del 3.2	GAGTCAGAAGGTTGCGTCGGAGCCCCGGCCGGCGCGC GGCCGCTATCGCAG
IR.pVII.Del 70-90	GACGCAACCTTCTGACTCGGCGCACCACCGGATCACCG GTGGCCGCGAC
IF.pVII.Del 70-90	GTCGCGGCCACCGGTGATCCGGTGGTGCGCCGAGTCAG AAGGTTGCGTC
IR.pVII.Del 126-137	GTACCCAGTAGATGTTACGGCGTCGCCGAGCTGGCGCC GCGCGCCGGCCCACCCTGCGGGCCCTCGCCACTTG
IF.pVII.Del 126-137	CAAGTGGCGAGGGCCCGCAGGGTGGGCCGGCGCGCGG CGCCAGCTCGGCGACGCCGTAACATCTACTGGGTAC
NotI RP	TGGCGGCCGCTCAATAAAATTCTTTATTTTTCCTGTGATA ATACC
SacI FP	GCGAGCTCATGGACACCCGAGGGCGACGAAAAG
pVIII RP	GAGCGGCCGCTTAAAACGTGCGGCTAGATAGCACTTG
pVIII FP	GCGAGCTCATGAGCAAAGAAATTCCCACACCTTATG
Sal1.Rv.pVII. Del 4	AUUGTCGACTCAGCGCCGGCCCACCCTGCGGGCCCTC
Sal1.Rv.pVII. Del 4A	ATTGTCGACTCACATGGCCATGGCCGCGTCTGCTGCG
Sal1.Rv.pVII. Del 4B	ATTGTCGACTCAGTAGATGTTACGGCGTCGCCGAGC
Sal1.Rv.pVII. Del 4C	ATT GTCGACTCAAACGCGGGCTCCGGTTGCCGCATCG

Note: *pMCS-VIId.* A 840 bp DNA fragment was amplified by PCR using primers FW1*SphI* and RV1*SbfI* (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1916 bp DNA fragment was amplified by PCR using primers FW2*SbfI* and RV2C*HpaI* (Table S1), and plasmid PUC304A+ DNA as a template. In the

third PCR, these two PCR products were mixed, reannealed and used as DNA template to amplify a 2764 bp PCR product by overlapping PCR using FW1*SphI* and RV2C*HpaI* primers (Table S1). The final PCR product (2764 bp) was digested with *SphI* - *HpaI* and ligated to *SphI* - *HpaI* digested plasmid pMCS to create transfer plasmid pMCS-VIId .

pMCS-pVIIdKAN. A 1240 bp *SbfI* DNA fragment was isolated from plasmid pUC4K [71] and ligated to *SbfI* digested plasmid pMCS-VIId to create plasmid pMCS-pVIIdKAN.

pPUC304A.Kan.dpVII. A 3996 bp *SphI* - *HpaI* DNA fragment was isolated from plasmid pMCS-pVIIdKAN and recombined with plasmid PUC304A+ plasmid to create plasmid pPUC304A.Kan.dpVII.

pPUC304A.dVII. The plasmid pPUC304A.Kan.dpVII was digested with *SbfI* and the large fragment was re-ligated to create plasmid pPUC304A.dVII. The identity of the plasmid was confirmed by RE analysis and sequencing of DNA by Fw seq all and Rv seq all primers (Table S1).

pcDNA3.HA.pVII.Strep. An 1105bp DNA fragment was amplified by PCR using primers EF.Strep and IR.Strep (Table S1), and plasmid pUC304A+ [21] DNA as a template. A 1349bp DNA fragment was amplified by PCR using primers ER.Strep and IF.Strep (Table S1), and plasmid pUC304A+ DNA as a template. In the third PCR, two PCR products were annealed to amplify a 2391bp fragment with a Strep-tag II encoding sequence (introduced between amino acid 52-53 in pVII) by overlapping PCR using primers EF.Strep and ER.Strep (Table S1). Finally, pVII containing strep tag was amplified by PCR using primers *EcorI*.fw.N and RV.*EcorV*.N (Table S1) and 2391bp PCR product as a template. The new PCR product was digested with *EcoRI-EcoRV* and ligated to *EcoRI-EcoRV* digested plasmid pcDNA3.HA DNA to create plasmid pcDNA3.HA.pVII.Strep.

pPUC304A.pVIIStrep. A 1105bp DNA fragment was amplified by PCR using primers EF.Strep and IR.Strep (Table S1), and plasmid pUC304A+ [21] DNA as a template. A 1349bp DNA fragment amplified by PCR using primers ER.Strep and IF.Strep (Table S1), and plasmid pUC304A+ [21] DNA as a template. In the third PCR, two PCR products were annealed to amplify a 2391bp fragment with a Strep-tag II encoding sequence (introduced between amino acid 52-53 in pVII) by overlapping PCR using primers EF.Strep and ER.Strep (Table S1). Finally, the *SbfI* digested plasmid

pPUC304A.dVII DNA was recombined with the 2391bp PCR product to create plasmid *pPUC304A.pVIIStrep.*

pC.IVa2. A 1364 bp DNA fragment was amplified by PCR using primers *XhoI* FP (including 13 nucleotide splice sequence) and *KpnI* RP (Table S1), and plasmid pUC304A+ [21] DNA as a template. The PCR product was digested with *KpnI-XhoI* and ligated to *KpnI-XhoI* digested plasmid, pCDNA3 (Invitrogen) creating plasmid pC.IVa2.

pC.pVIII. A 672bp DNA fragment was amplified by PCR using primers *pVIII-Fwd* and *pVIII-Rev* (Table S1), and plasmid pFBAV302 (72) DNA as a template. The PCR product was digested with *EcoRI* - *XhoI* and ligated to *EcoRI* - *XhoI* digested plasmid pcDNA3.1 DNA (Invitrogen) creating plasmid pC.pVIII.

pC.HA.pVII. The full-length VII protein coding sequence (516bp) was amplified by PCR using primers *EcorI*.fw.N and RV.*EcorV*.N (Table S1) and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-EcoRV* and ligated to *EcoRI-EcoRV* digested plasmid pcDNA3.HA DNA to create plasamid pC.HA.pVII.

pC.HA.pVII d1. A 396 bp DNA fragment was amplified by PCR using primers Fw*.EcorI*.pVII.del 1 and *Xho1.*Rv (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR fragment was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pcDNA3.HA DNA creating plasmid pC.HA.pVIId1 (containing a deletion of protein VII amino acid 1-40).

pC.HA.pVII d2. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 2 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 2 and ER.Pro (Table S1), and plasmid PUC304A+ DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 396 bp PCR product by overlapping PCR using *EcorI*.fw.N and *Xho1.*Rv primers (Table S1). This final PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pCDNA3HA DNA creating plasmid pC.HA.pVIId2 (containing a deletion of protein VII amino acid 41-80).

pC.HA.pVIId3. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 3 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers

IF.pVII.Del 3 and ER.Pro (Table S1), and plasmid PUC304A+ DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 381 bp PCR product by overlapping PCR using *Ecor*I.fw.N and *Xho1.*Rv primers (Table S1). This final PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pCDNA3HA DNA creating plasmid pC.HA.pVIId3 (containing a deletion of protein VII amino acid 81-125).

pC.HA.pVIId4. A 375 bp DNA fragment was amplified by PCR using primers *EcorI*.fw.N and RVp7Del4stop*Xho1* (Table S1), and plasmid PUC304A+ DNA as a template was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pcDNA3.HA DNA creating plasmid pC.HA.pVIId4 (containing a deletion of protein VII amino acid 126-171).

pC.HA.pVIId3.1. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 3.1 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 3.1 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 460 bp PCR product by overlapping PCR using *EcorI*.fw.N and *Xho1.*Rv primers (Table S1). This final PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pCDNA3HA DNA creating plasmid pC.HA.pVIId3.1 (containing a deletion of protein VII amino acid 80-101).

pC.HA.pVIId3.2. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 3.2 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 3.2 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were mixed and reannealed and used as DNA template to amplify a 460 bp PCR product by overlapping PCR using *EcorI*.fw.N and *Xho1.*Rv primers (Table S1). This final PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pCDNA3HA DNA creating plasmid pC.HA.pVIId3.2 (containing a deletion of protein VII amino acid 102-122).

pC.HA.pVIId70-90. A 1000 bp DNA fragment was amplified by PCR using primers

EF.Pro and IR.pVII.Del 70-90 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 70-90 and ER.Pro (Table S1), and plasmid PUC304A+ DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 450 bp PCR product by overlapping PCR using *EcorI*.fw.N and *Xho1.*Rv primers (Table S1). This final PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pCDNA3HA DNA creating plasmid pC.HA.pVIId70-90 (containing a deletion of protein VII amino acid 70-90).

pC.HA.pVIId4.1. A 411 bp DNA fragment was amplified by PCR using primers *EcorI*.fw.N and RVp7Del4Astop*Xho1* (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pcDNA3.HA DNA creating plasmid pC.HA.pVIId4.1 (containing a deletion of protein VII amino acid 137-171).

pC.HA.pVIId4.2. A 444 bp DNA fragment was amplified by PCR using primers *EcorI*.fw.N and RVp7Del4Bstop*Xho1* (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pcDNA3.HA DNA creating plasmid pC.HA.pVIId4.2 (containing a deletion of protein VII amino acid 148-171).

pC.HA.pVIId4.3. A 477 bp DNA fragment was amplified by PCR using primers *EcorI*.fw.N and RVp7Del4Cstop*Xho1* (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pcDNA3.HA DNA creating plasmid pC.HA.pVIId4.3 (containing a deletion of protein VII amino acid 159-171).

pC.HA.pVIId126-137. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 126-137 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 126-137 and ER.Pro (Table S1), and plasmid PUC304A+ DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 483 bp PCR product by overlapping PCR using *EcorI*.fw.N and *Xho1.*Rv primers (Table S1). This final PCR product was digested with *EcoRI-Xho1* and ligated to *EcoRI-Xho1* digested plasmid pCDNA3HA DNA creating plasmid

pC.HA.pVIId126-137 (containing a deletion of protein VII amino acid 126-137).

pGN.IVa2. The full-length IVa2 protein coding sequence (1347 bp) was amplified by PCR using primers *SacI* FP and *Not1* RP (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *SacI- Not*1 and ligated to *SacI- Not*1 digested plasmid pGN.linker DNA [29] to create plasmid pGN.IVa2.

pGN.pVIII. The full-length protein VIII protein coding sequence (651 bp) was amplified by PCR using primers pVIII FP and pVIII FP (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *Xma1-EcoRI* and ligated to *Xma1-EcoRI* digested plasmid pGN.linker DNA [29] to create plasmid pGN.pVIII.

pGC.pVII. The full-length protein VII protein coding sequence (516bp) was amplified by PCR using primers *EcorI*.fw.N and pVII.*Sal*1.Rv (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker DNA [29] to create plasmid pGC.pVII.

pGC.pVII Del 1. A 396 bp DNA fragment was amplified by PCR using primers Fw.*EcorI*.pVIIDel 1 and pVII.*Sal1*.Rv (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker DNA [29] to create plasmid pGC.pVIId1.

pGC.pVIId2. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 2 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 2 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 396 bp PCR product by overlapping PCR using *Ecor*I.fw.N and pVII.*Sal1*.Rv primers (Table S1). The final PCR product was digested with *EcoRI-Sal1* and ligated to *Eco*RI-*Sal*1 digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId2 (containing a deletion of protein VII amino acid 41-80).

pGC.pVIId3. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 3 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 3 and ER.Pro

(Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 381 bp PCR product by overlapping PCR using *EcorI*.fw.N and pVII.*Sal1*.Rv primers (Table S1). The final PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId3 (containing a deletion of protein VII amino acid 81-125).

pGC.pVIId4. A 375 bp DNA fragment was amplified by PCR using primers *EcoRI*.fw.N and *Sal*1.Rv.pVII. Del 4. (Table S1), and plasmid PUC304A+ [21] DNA as a template was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId4 (containing a deletion of protein VII amino acid 126-171).

pGC.pVIId3.1. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 3.1 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 3.1 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 460 bp PCR product by overlapping PCR using *EcoRI*.fw.N and pVII.*Sal*1.Rv primers (Table S1). The final PCR product was digested with *EcoRI-Sal*1 and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId3.1 (containing a deletion of protein VII amino acid 80-101).

pGC.pVIId3.2. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 3.2 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 3.2 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 460 bp PCR product by overlapping PCR using *EcoRI*.fw.N and pVII.*Sal*1.Rv primers (Table S1). The final PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId3.2 (containing a deletion of protein VII amino acid 102-122).

pGC.pVIId70-90. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro

and IR.pVII.Del 70-90 (Table S1), and plasmid PUC304A+ [21]DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 70-90 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products reannealed and used as DNA template to amplify a 450 bp PCR product by overlapping PCR using *EcorI*.fw.N and pVII.*Sal1*.Rv primers (Table S1). The final PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId70-90 (containing a deletion of protein VII amino acid 70-90).

pGC.pVIId4.1. A 411 bp DNA fragment was amplified by PCR using primers *EcoRI*.fw.N and *Sal1*.Rv.pVII. Del 4A. (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId4.1 (containing a deletion of protein VII amino acid 137-171).

pGC.pVIId4.2. A 444 bp DNA fragment was amplified by PCR using primers *EcoRI*.fw.N and *Sal1*.Rv.pVII. Del 4B. (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId4.2 (containing a deletion of pVII amino acid 148-171).

pGC.pVIId4.3. A 477 bp DNA fragment was amplified by PCR using primers *EcorI*.fw.N and *Sal1*.Rv.pVII. Del 4C. (Table S1), and plasmid PUC304A+ [21] DNA as a template. The PCR product was digested with *EcoRI-Sal1* and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId4.3 (containing a deletion of protein VII amino acid 159-171).

pGC.pVIId126-137. A 1000 bp DNA fragment was amplified by PCR using primers EF.Pro and IR.pVII.Del 126-137 (Table S1), and plasmid PUC304A+ [21] DNA as a template. Similarly, a 1000 bp DNA fragment was amplified by PCR using primers IF.pVII.Del 126-137 and ER.Pro (Table S1), and plasmid PUC304A+ [21] DNA as a template. In the third PCR, these two PCR products were reannealed and used as DNA template to amplify a 483 bp PCR product by overlapping PCR using *EcoRI*.fw.N and pVII.*Sal1*.Rv primers (Table S1). The final PCR product was digested with *EcoRI-Sal1*

and ligated to *EcoRI-Sal1* digested plasmid pGC.linker [29] DNA creating plasmid pGC.pVIId126-137 (containing a deletion of protein VII amino acid 126-137).

Table S2. Other cellular proteins identified from LC-MS/MS. nd: No Data

Peptide Identity	Accession #	MW	Protein Probability (32 hours Sample)	Protein Probability (48 hours Sample)	# of Peptide
Cluster of Acetyl-CoA carboxylase 1 ACACA	Q9TTS3 [2]	35 kDa	100%	100%	5
Tropomyosin alpha-1 chain TPM1	Q5KR49	33 kDa	100%	100%	5
Cluster of Vimentin VIM	P48616 [4]	54 kDa	100%	100%	5
Cluster of 78 kDa glucose-regulated protein HSPA5	Q0VCX2 [2]	72 kDa	100%	100%	5
Cluster of Adseverin SCIN	Q28046 [2]	81 kDa	100%	100%	5
Annexin A2 ANXA2	P04272 (+1)	39 kDa	100%	100%	5
EF-hand domain-containing protein D2 EFHD2	A5D7A0	27 kDa	100%	100%	5
Cluster of Polyadenylate-binding protein 1 PABPC1	P61286 [5]	71 kDa	100%	100%	5
Cluster of Heat shock protein HSP 90-beta HSP90AB1	Q76LV1 [16]	83 kDa	100%	100%	5
Heat shock protein beta-1 HSPB1	Q3T149	22 kDa	100%	100%	5
Cluster of Leucine-rich repeat flightless-interacting protein 2 LRRFIP2	Q2T9W6 [2]	45 kDa	100%	100%	5
Serine/arginine-rich splicing factor 1 SRSF1	Q0VCY7 (+3)	28 kDa	100%	100%	5
Gelsolin GSN	Q3SX14	81 kDa	100%	99%	5
Alpha-crystallin B chain CRYAB	P02510	20 kDa	100%	100%	5
Lupus La protein homolog SSB	P10881	47 kDa	nd	100%	5
Cluster of Poly [ADP-ribose] polymerase 1 PARP1	P18493 [3]	113 kDa	nd	100%	5
Cluster of ATP-dependent RNA helicase A DHX9	Q28141 [2]	142 kDa	nd	100%	5
Alpha-enolase OS=Bos taurus GN=ENO1 PE=1 SV=4	Q9XSJ4	47 kDa	nd	100%	5

Table S3. Ribosomal proteins identified from LC-MS/MS

Peptide Identity	Accession #	MW	Protein Probability (32 hours Sample)	Protein Probability (48 hours Sample)	# of Peptide
40S ribosomal protein S2 RPS2	O18789 (+1)	18 kDa	100%	100%	5
40S ribosomal protein S3 RPS3	Q3T169	27 kDa	100%	100%	5
60S ribosomal protein L6 RPL6	Q58DQ3	33 kDa	100%	100%	5
40S ribosomal protein S18 RPS18	Q3T0R1	18 kDa	100%	100%	5

Table S4. Mitochondrial proteins identified from LC-MS/MS. nd: No Data

Peptide Identity	Accession #	MW	Protein Probability (32 hours Sample)	Protein Probability (48 hours Sample)	# of Peptide
Cluster of Pyruvate carboxylase PC	Q29RK2 [4]	nd	nd		5
Propionyl-CoA carboxylase beta chain PCCB	Q2TBR0	nd	nd		5
Cluster of Complement component 1 Q subcomponent-binding protein C1QBP	Q3T0B6 [2]	nd	nd		5
Cluster of ATP synthase subunit beta ATP5B	P00829 [19]	nd	nd		5
GrpE protein homolog 1 GRPEL1	Q3SZC1	nd	nd		5
Cluster of ATP synthase subunit alpha ATP5A1	P19483 [19]	nd	nd		5
Hydroxyacylglutathione hydrolase HAGH	Q3B7M2	nd	nd		5

Table S5. Cytoskeleton proteins identified from LC-MS/MS

Peptide Identity	Accession #	MW	Protein Probability (32 hours Sample)	Protein Probability (48 hours Sample)	# of Peptide
Cluster of Alpha-actinin-4 ACTN4	A5D7D1 [7]	105 kDa	100%	100%	5
Cluster of Tubulin beta-5 chain TUBB5	Q2KJD0 [10]	50 kDa	100%	100%	5
Cluster of Myosin regulatory light chain 12B MYL12B	A4IF97 [6]	20 kDa	100%	100%	5
Myosin-10 MYH10	Q27991	229 kDa	100%	100%	5
F-actin-capping protein subunit alpha-1 CAPZA1	A4FUA8	33 kDa	100%	100%	5

Table S6. Nuclear proteins identified from LC-MS/MS. nd: No Data

Peptide Identity	Accession #	MW	Protein Probability (32 hours Sample)	Protein Probability (48 hours Sample)	# of Peptide
Heterogeneous nuclear ribonucleoprotein F HNRNPF	Q5E9J1	nd	nd	nd	4
Small nuclear ribonucleoprotein Sm D2 SNRPD2	Q3SZF8	nd	nd	nd	2

Table S7. Nucleolar proteins identified from LC-MS/MS. nd: No Data

Peptide Identity	Accession #	MW	Protein Probability (32 hours Sample)	Protein Probability (48 hours Sample)	# of Peptide
Nucleophosmin NPM1	Q3T160	nd	nd	nd	4

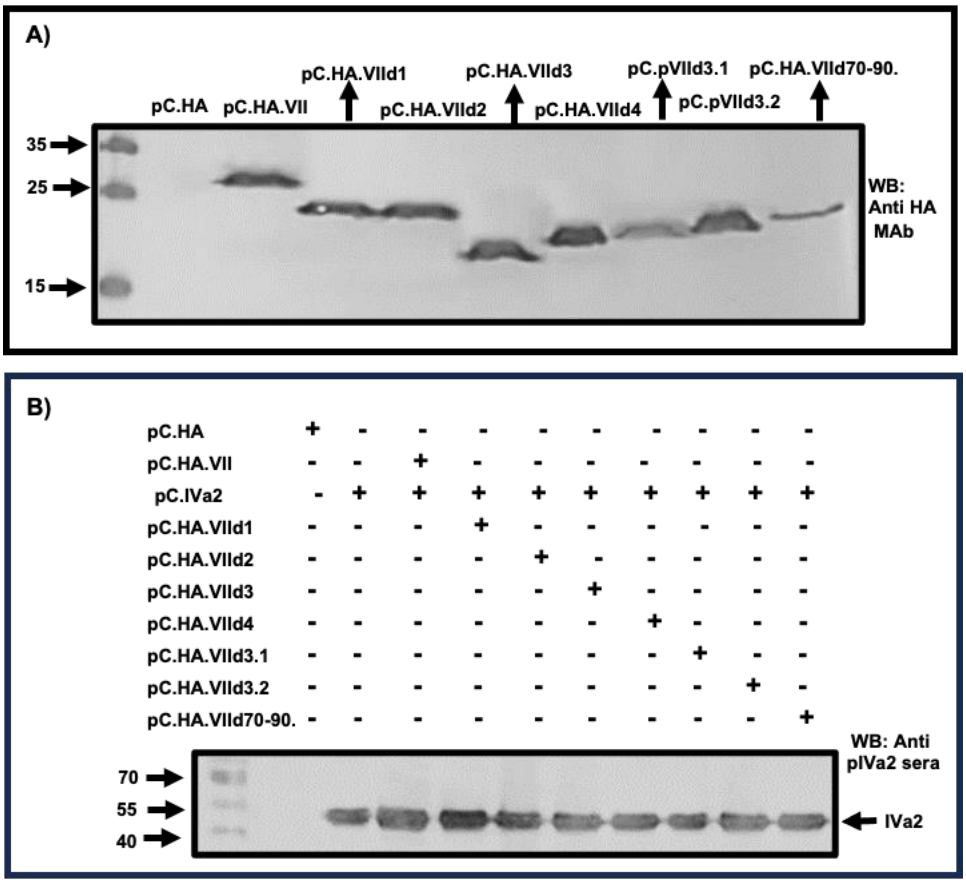

Figure S1. Western blots. Proteins from the lysates of cells co-transfected with indicated plasmids were separated by 12 % SDS-PAGE, transferred to nitrocellulose and probed in Western blot using (A) anti-HA MAb, B) anti-IVa2 sera. Molecular weight markers are shown on the left of the panel.

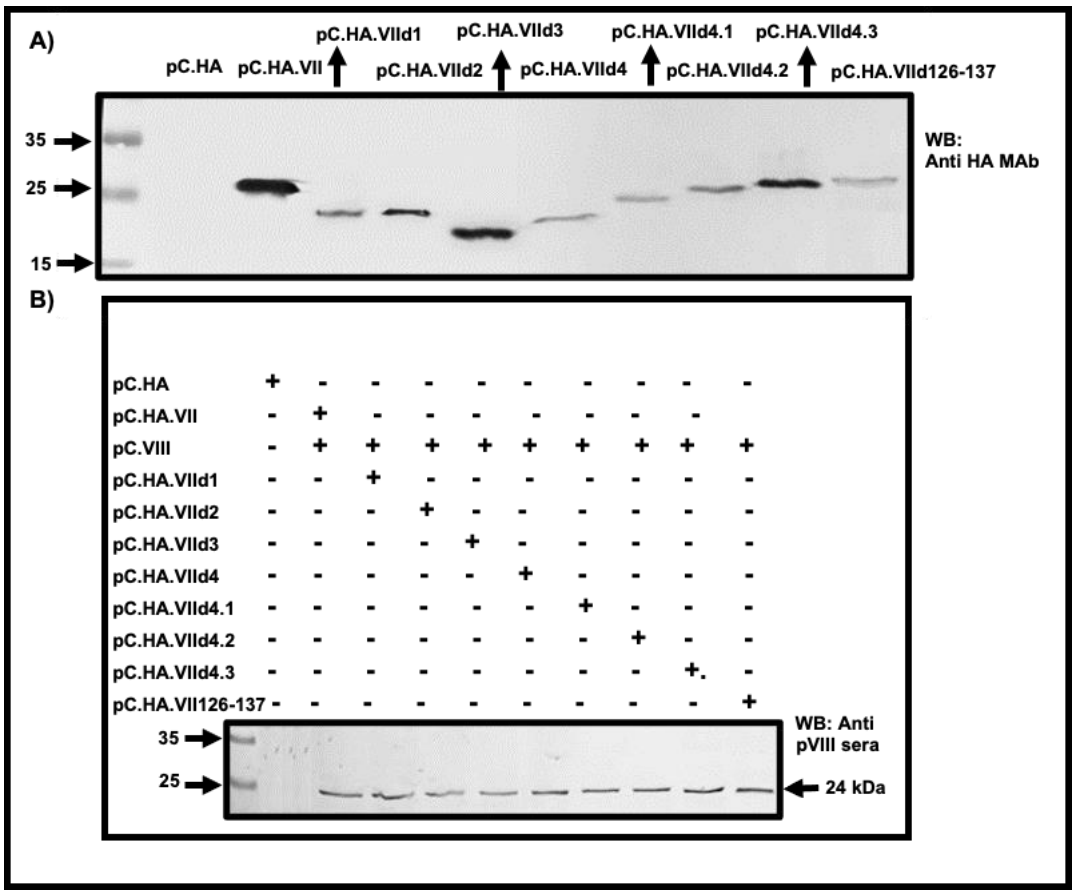

Figure S2. **Western blot**. Proteins from the lysates of cells co-transfected with indicated plasmid DNAs separated by 12% SDS-PAGE, transferred to nitrocellulose and probed in Western blot using A) anti-HA MAb. B) anti-pVIII sera. Molecular weight markers are shown on the left of the panel.

Table S8. Summary for 3.9 Results (For both BiFC assay & CO-IP)

Plasmid containing protein VII deletion/truncation	Region of protein VII deleted/truncated	Interaction with protein IVa2
pVIId1	1-40	+
pVIId2	41-80	+
pVIId3	81-125	-
pVIId4	126-171	+
pVIId3.1	81-100	-
pVIId3.2	101-121	+
pVIId70-90	71-90	+

Table S9. Summary for 3.10 Results (For both BiFC assay & CO-IP)

Plasmid containing protein VII deletion/truncation	Region of protein VII deleted/truncated	Interaction with protein VIII
pVIId1	1-40	+
pVIId2	41-80	+
pVIId3	81-125	+
pVIId4	126-171	-
pVIId4.1	138-171	+
pVIId4.2	149-171	+
pVIId4.3	160-171	+
pVIId126-137	126-137	-

Table S10. The percentage of cells showing similar display of protein distribution

Figure	Panel	% of cells displaying pattern
2C	BAdV-3	90%
	pC.HA.VII	90%
2E	pGFP-β-gal	95%
	pVII-GFP-β-gal	95%
2F	BAdV-3	95%
	pC.HA.VII	90%

Table S11. The percentage of cells showing similar display of protein distribution

Figure	Panel	% of cells displaying pattern
3C	pC.HA.VII	87%
	pC.HA.VIImNLS1	85%

	pC.HA.VIImNLS2	85%
	pC.HA.VIImNLS3	80%
	pC.HA.VIImNLS4	80%
3F	pC.HA.VII	85%
	pC.HA.VIImNLS1,2	85%
	pC.HA.VIImNLS1,2,3	85%
	pC.HA.VIImNLS1,2,3,4	80%

Table S12. The percentage of cells showing similar display of protein distribution

Figure	Panel	% of cells displaying pattern
4		
	pC.HA.VII	90%
	pC.HA.VIImNLS1	80%
	pC.HA.VIImNLS2	85%
	pC.HA.VIImNLS3	85%
	pC.HA.VIImNLS4	90%
	pC.HA.VIImNLS1,2	85%
	pC.HA.VIImNLS1,2,3	85%
	pC.HA.VIImNLS1,2,3,4	90%