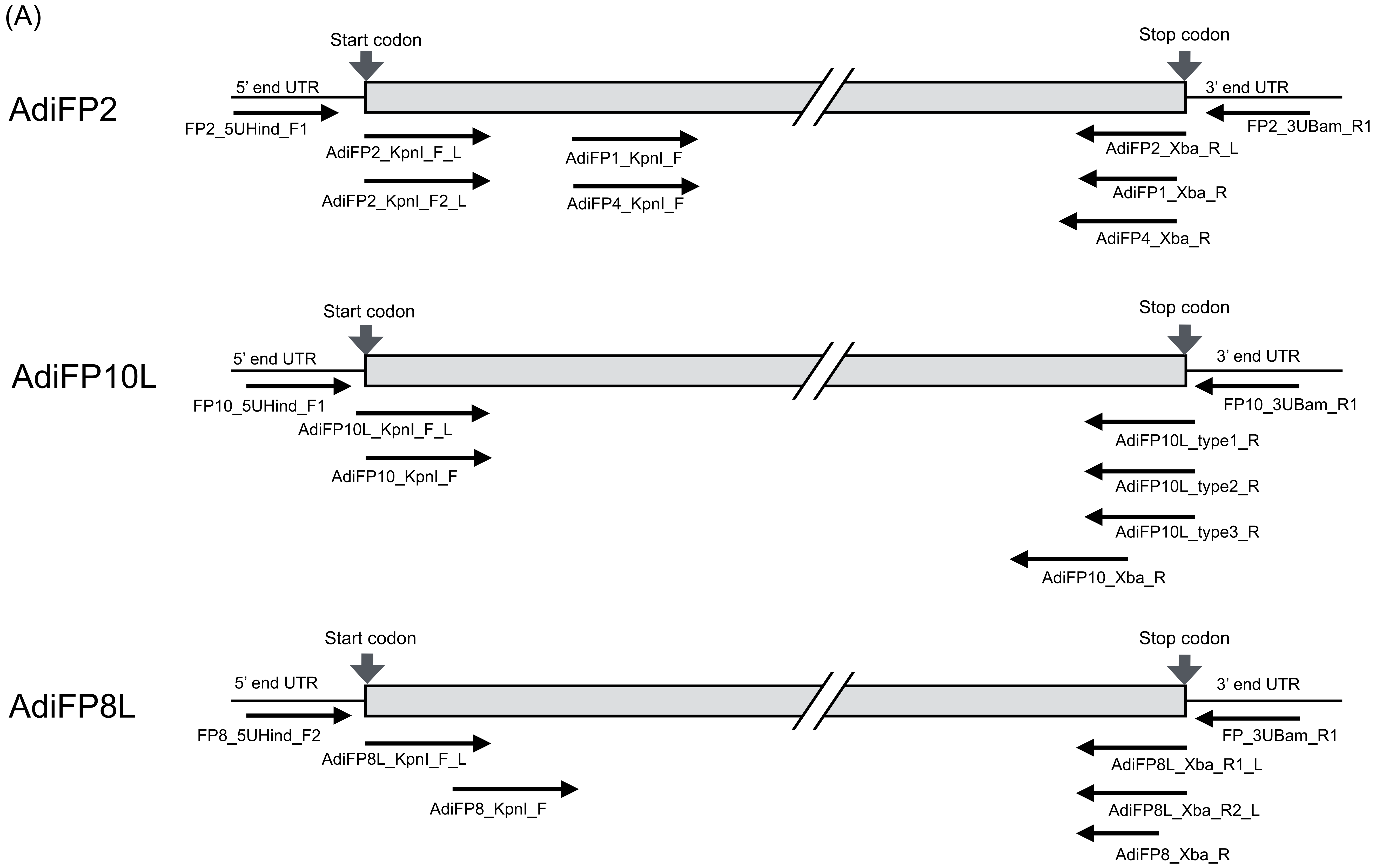
Supporting Figure S1.

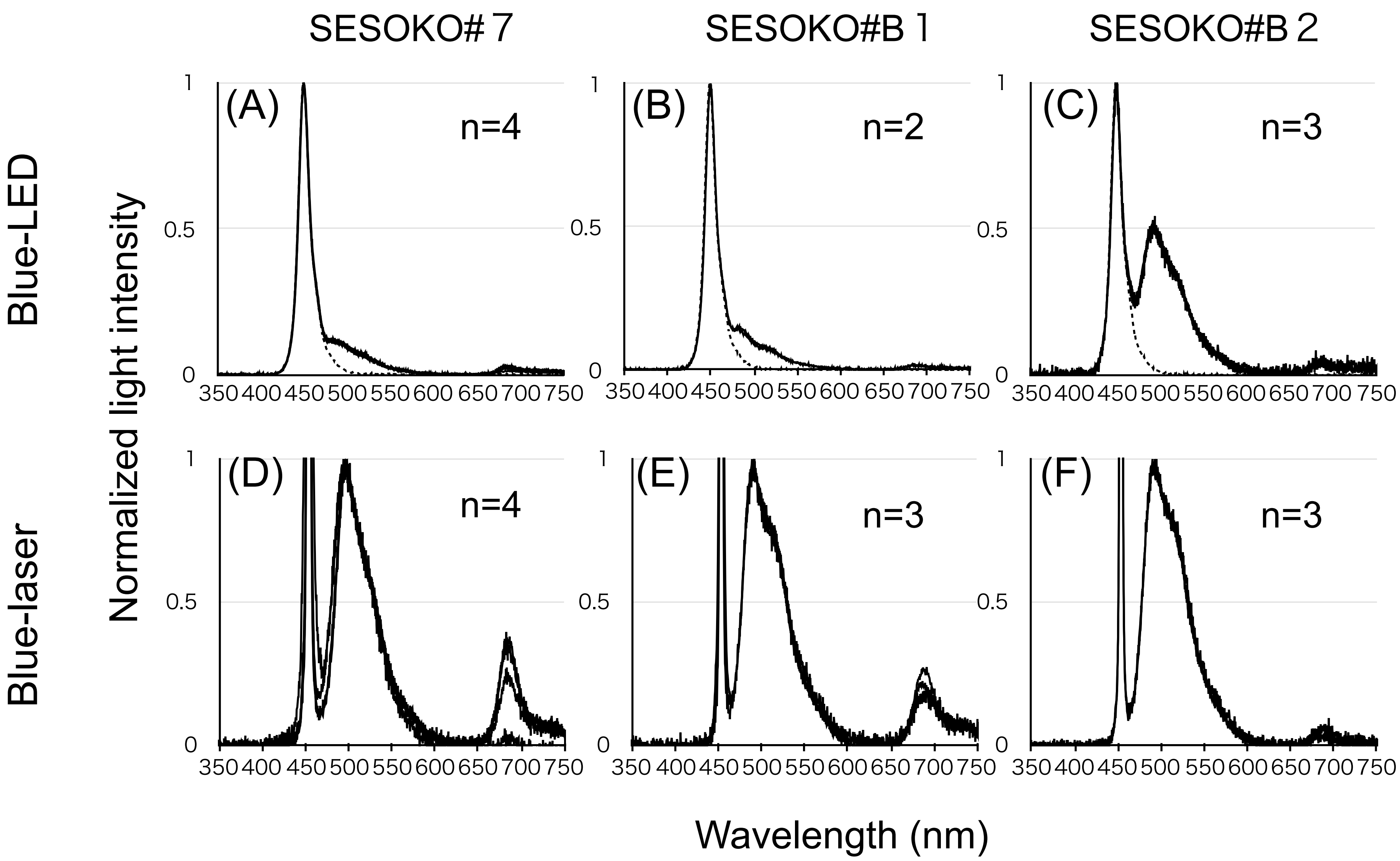


Supporting Fig. S1 continued

(B)

Name of primers	Sequence of primers
FP2_5UHind_F1	5’-CACACAAAGCTTGACRGAGTGAACTRCCGTRAACAG-3’
FP2_3UBam_R1	5’- CACACAGGATCCGTAAGTATTGAAAGTGCTTCCATC-3’
FP10_5UHind_F1	5’- CACACAAAGCTTGCARGAGAGTTACTHGASTTTTGTATCAC-3’
FP10_3UBam_R1	5’- CACACAGGATCCCAGAGWAATAAGCATGCGCATGTAAC-3’
FP8_5U_F2	5’- TCTCTTTCACGGAAGGAGCTACTTAA-3’
FP8_5U_R1	5’- GTYTACACTTCTTCGTTCCTACTTC-3’
AdiFP1KpnI_F	5’-CAGGTACCATGAAGACAAAATACCATATGG-3’
AdiFP1XbaI_R	5’-TGTCTAGATTATTGAACCATCAAAGGGTTA-3’
AdiFP2KpnI_F	5’-AGGTACCATGTCTTATTCAAAGCAAGGCAT-3’
AdiFP2XbaI_R	5’-TGTCTAGATTATTTAACCTTCAAAGGGTTA-3’
AdiFP4KpnI_F	5’-CAGGTACCATGCGGACGAAATACCATATG-3’
AdiFP4XbaI_R	5’-TGTCTAGATTTAACCTTCAAAGGATTAACATGAG-3’
AdiFP10KpnI_F	5’-CAGGTACCATGGAAGGGTCTGTCGATGG-3’
AdiFP10XbaI_R	5’-TGTCTAGAGGAAGCAACAGCATGTTCTAC-3’
AdiFP8KpnI_F	5’- AGGTACCATGACCTACAAGGTTTATATGTC-3’
AdiFP8XbaI_R	5’- TGTCTAGATCAGGCGACCACAGGTTTGC-3’
AdiFP2KpnI_F_L	5’-CACACAGGTACCATGTCTTATTCAAAGCAAGGCAT-3’
AdiFP2KpnI_F2_L	5’-CACACAGGTACCATGTCTCATTCAAAGCAAGGCAT-3’
AdiFP2XbaI_R_L	5’- TGTGTGTCTAGATTATTTAACCTTCAAAGGGTTA-3’
AdiFP10L_KpnIF_L	5’- CACACAGGTACCATGGCTCTGTCAAAGCACGGTCTA-3’
AdiFP10L_type1_R	5’- TGTGTGTCTAGATTATCCGGGCAATGCGGATC-3’
AdiFP10L_type2_R	5’- TGTGTGTCTAGATTATCAGGCCAATGCGGATC-3’
AdiFP10L_type3_R	5’- TGTGTGTCTAGATTATCAGGGCAATGCGGATC-3’
AdiFP8L_KpnIF_L	5’- CACACAGGTACCATGAGTGTGATCGCTAA-3’
AdiFP8XbaI_R1_L	5’- TGTGTGTCTAGATCAGGCGACCACAGGTTTGC-3’
AdiFP8XbaI_R2_L	5’- TGTGTGTCTAGATCAGGCGACCACAAGTTTGC-3’
MWE_qPCR_F3	5’-TGACTATTTCAAGCAAGCATTCCCAGATG-3’
MWE_qPCR_R1	5’- CGAATGTTCCAGCTGGCTGTAGC-3’
MLWE_qPCR_F3	5’- TTTCCTGCTGATGGACCTGTGATGA-3’
MLWE_qPCR_R1	5’- CCACCATCCTTCAGAAGGAGGTAC-3’
CP_qPCR_F1	5’- CAGTACGGAAGCATACCATTCACCAAGTA-3’
MiA_CP_e3_R1	5’- TGGATGCTGGAATCATTGCTGACAGTACAC-3’
EF1a-qPCR_F1	5’- CTGTCTTGATTGTGGCTGCTGGAA-3’
EF1a-qPCR_R1	5’- GCTTTACTCCTAGGGTGTAAGCCAACA-3’

Supporting Fig. S2



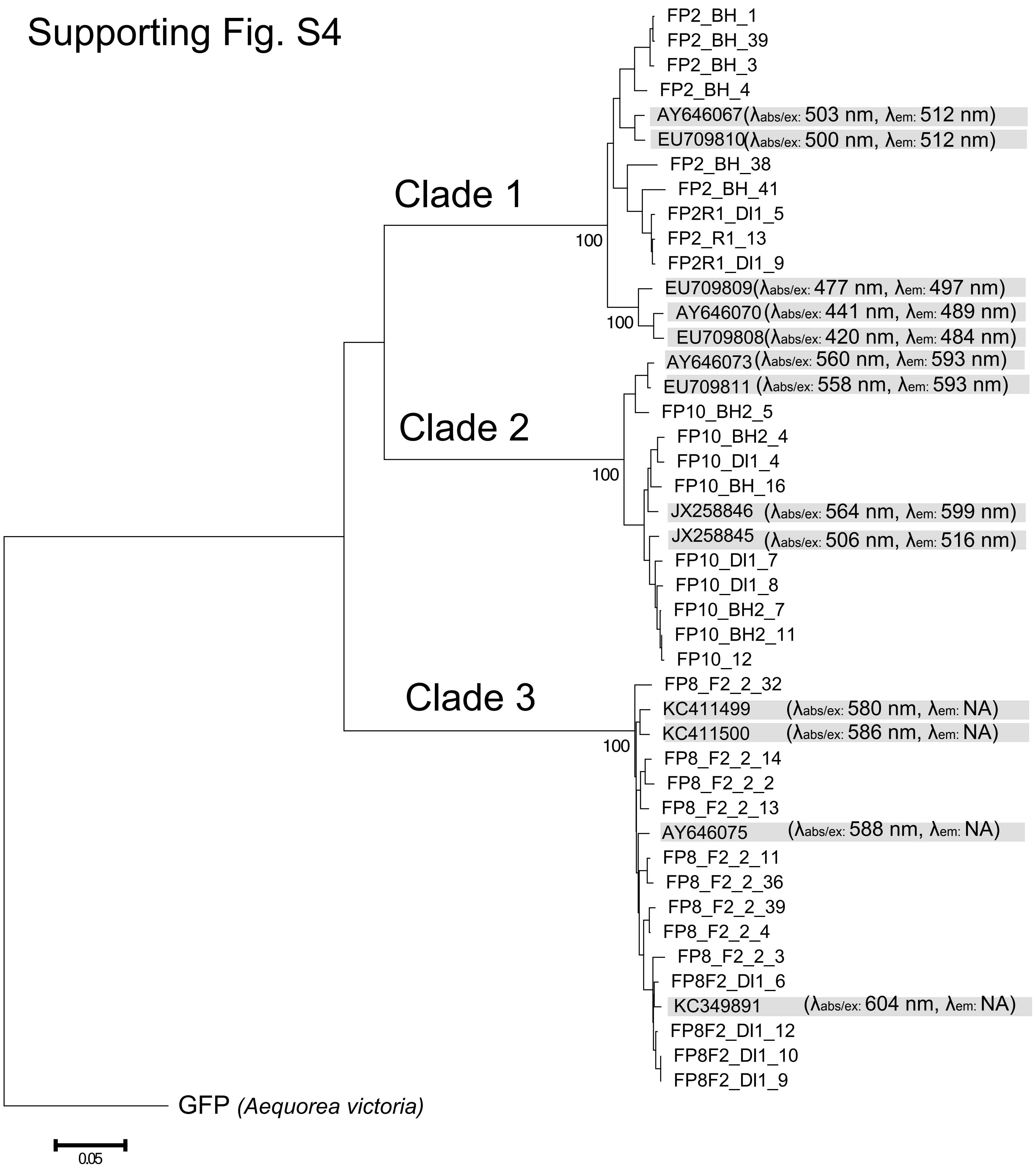
Supporting Fig. S3

```
amilGFP(AY646067)   ATGTCTTATTCAAAGCAAGGCATCGTACAAGAAATGAAGACGAAATACCATATGGAAGGC
AdiFP2 (BR000963)   ATGTCTTATTCAAAGCAAGGCATCGTACAAGAAATGAAGACGAAATACCATATGGAAGGC
amilRFP(AY646073)   ATGGCTCTGTCAAAGCACGGTTTAACAAAGGACATGACGATGAAATACCACATGGAAGGG
AdiFP10(BR000970)   ---------------------------------------------------ATGGAAGGG
AdiFP10L            ATGGCTCTGTCAAAGCACGGTCTAACAAAGGACATGACGATGAAATACCGGATGGAAGGG

amilCP (AY646075)   ------------ATGAGTGTGATCGCTAAACAAATGACCTACAAGGTTTATATGTCAGGC
AdiFP8 (AB698751)   ---------------------------------ATGACCTACAAGGTTTATATGTCAGGC
AdiFP8L             ------------ATGAGTGTGATCGCTAAACAAATGACCTACAAGGTTTATATGTCAGGC
```

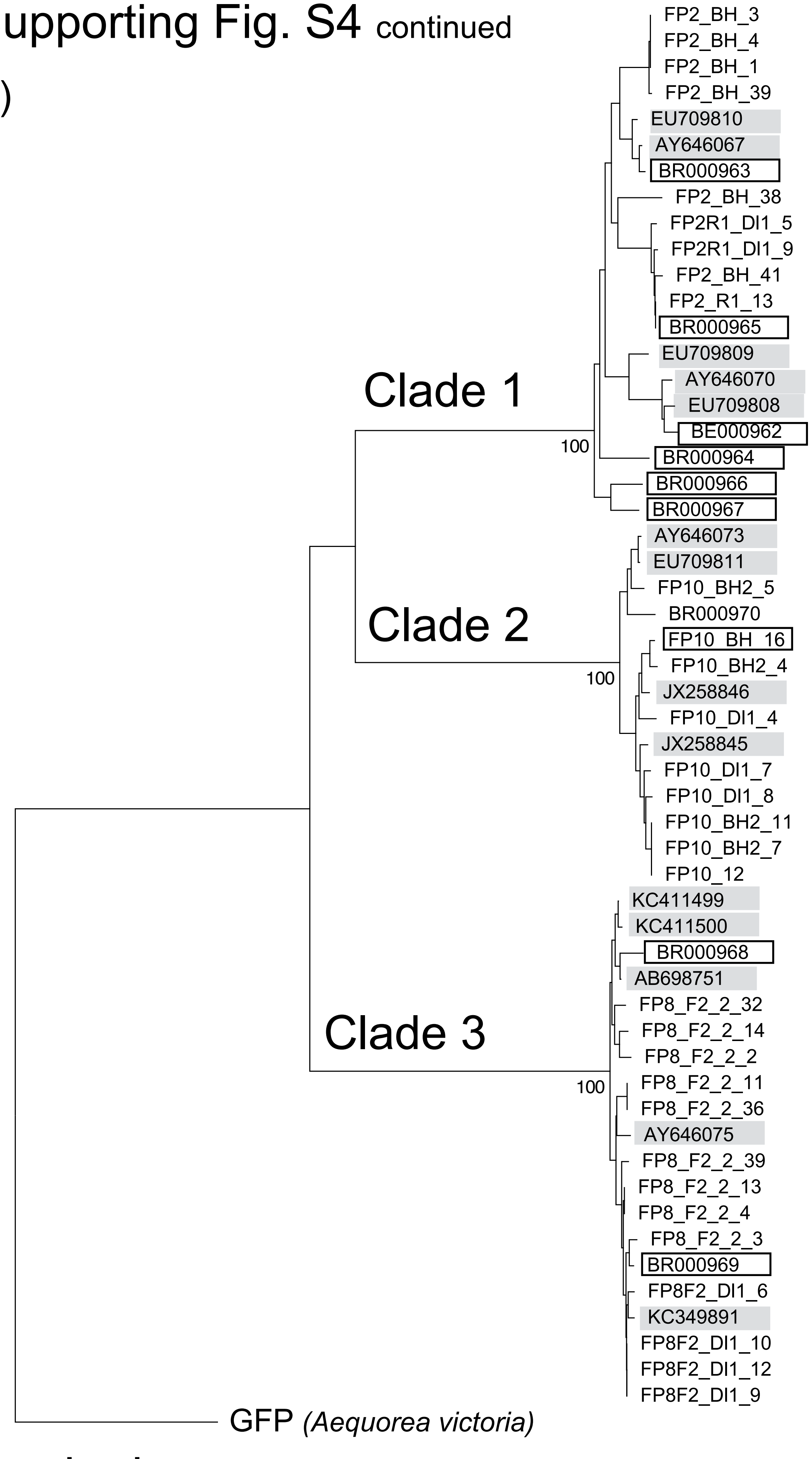
Supporting Fig. S4

(A)



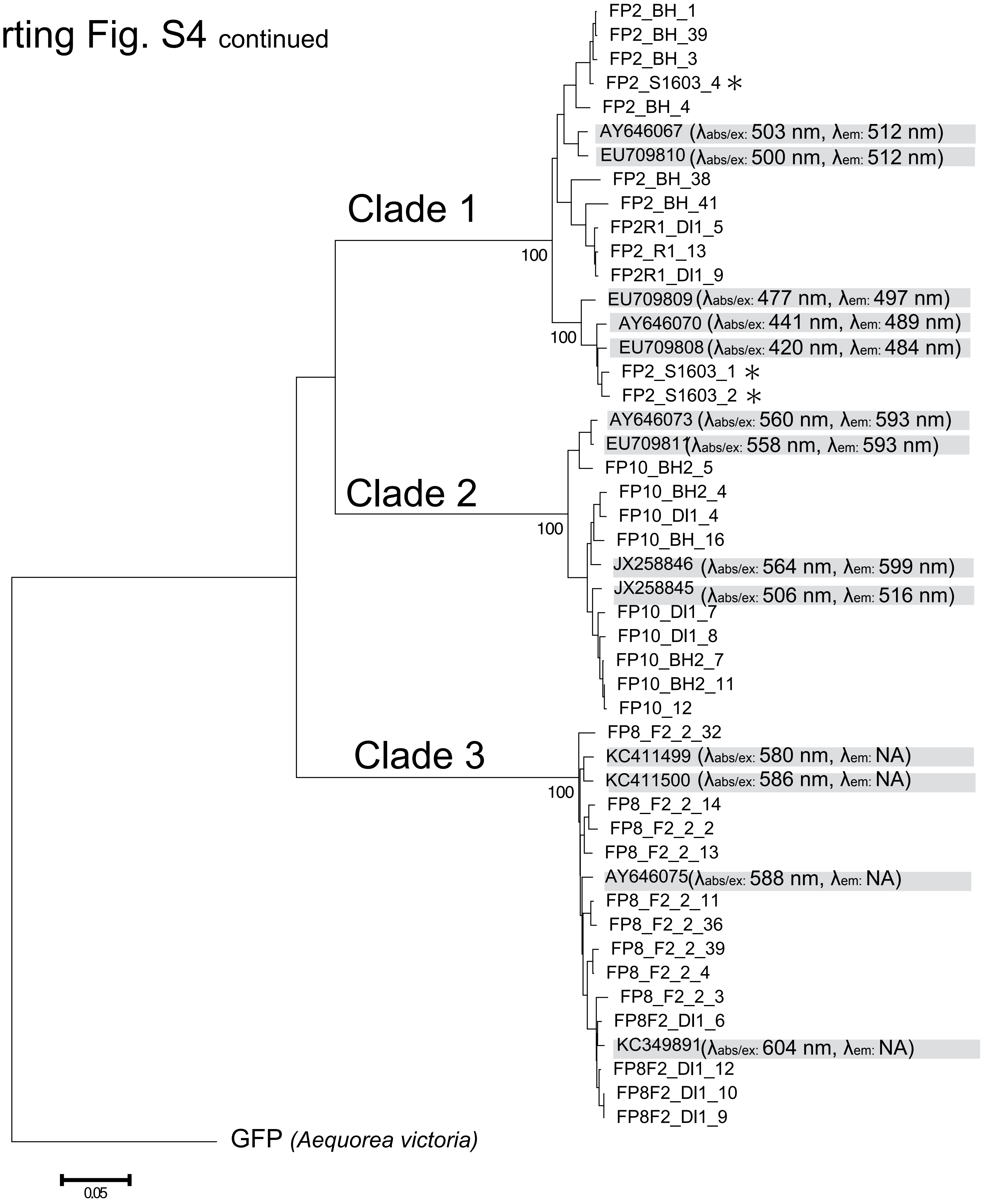
Supporting Fig. S4 continued

(B)

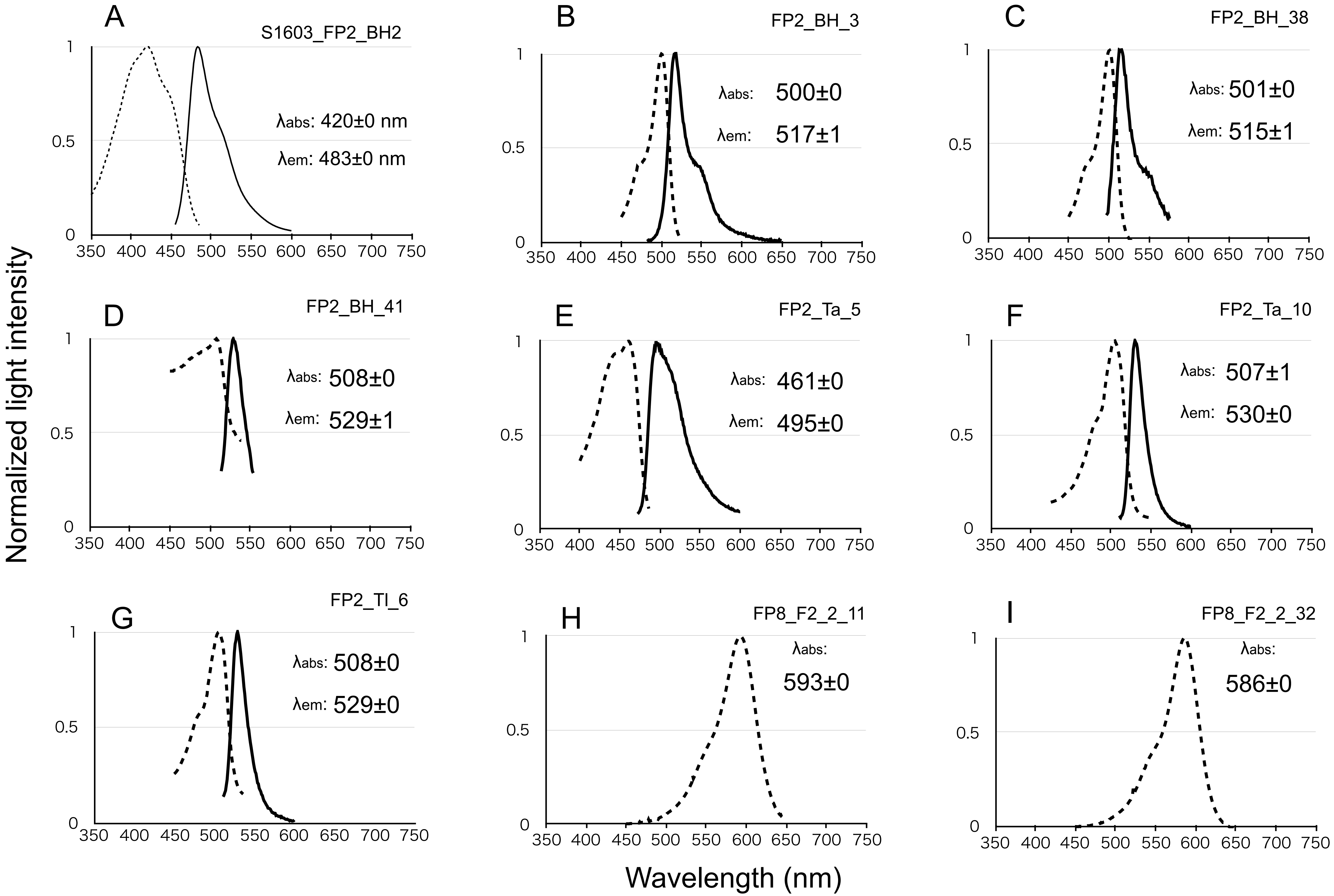


Supporting Fig. S4 continued

(C)



Supporting Fig. S5



Supporting Fig. S6

(A)

S/MWE

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                      *          *  *  * * * ** *   * * * * ** *   *      * ****  ****    **   ** **    *  *   * *    *    ***   *
amilGFP             1 MSYSKQGIVQEMKTKYHMEGSVNGHEFTIEGVGTGYPYEGKQMSELVIIKPAGKPLPFSFDILSSVFQYGNRCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGAVATASWNI--RLEGN 118
amilCFP             1 MSYSKQGIAQVMKTKYHMEGSVNGHEFTIEGVGTGNPYEGTQMSELVITKPAGKPLPFSFDILSTVFQYGNRCFTKYPEGMTDYFKQAFPDGMSFERSFLYEDGGVATASWNI--RLERD 118
Ancestor-MWE        1 MSYSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGNPYEGKQMSELVIIKPAGKPLPFSFDILSTAFQYGNLCFTKYPADMPDYFKQGFPDGMSYERSFLFEDGGVATASWNI--RLEGN 118
Ancestor-S/MWE      1 MSYSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGNPYEGKQMSELVIIKPAGKPLPFSFDILSTVFQYGNRCFTKYPEGMPDYFKQAFPDGMSYERSFLFEDGGVATASWNI--RLEGN 118
FP2_BH_1            1 MSYSKQGIVQEMKTKYHMEGSVNGHEFTIEGVGTGYPYEGKQMSELVIIKPAGKPLPFSFDILSSVFQYGNRCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGAVATASWNI--RLEGN 118
FP2_BH_3            1 MSHSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGYPYEGKQMSELVIIKPAGKPLPFSFDILSSVFQYGNRCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGAVATASWNI--RLEGN 118
FP2_BH_39           1 MSYSKQGIVQEMKTKYHMEGSVNGHEFTIEGVGTGYPYEGKQMSELVIIKPAGKPLPFSFDILSSVFQYGNRCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGAVATASWNI--RLEGN 118
FP2_BH_4            1 MSHSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGNPYEGKQMSELVIIKPAGKPLPFSFDILSTAFQYGNLCFTKYPADMPDYFKQGFPDGMSYERSFLFEDGAVATASWNI--RLEGN 118
FP2_BH_38           1 MSYSKQGIVQEMKTKYHMEGNVNGHEFTIEGVGTGNPYEGTQMSELVIIKPVGKPLPFSFDILSSVFQYGNLCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGGVATASWNI--RLEGN 118
FP2_BH_41           1 MSYSKQGIAPEMRTKYRMEGNVNGHEFTIEGVGTGNPYEGTQMSELVIIKPVGKPLPFSFDILSSVFQYGNLCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGGVATASWNI--RLEGN 118
FP2R1_Dl1_5         1 MSYSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGNPYEGKQMSELVIIKPAGKPLPFSFDILSTAFQYGNLCFTKYPADMPDYFKQGFPDGMSYERSFLFEDGGVATASWNI--RLEGN 118
FP2_R1_13           1 MSHSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGNPYEGKQMSELVIIKPAGKPLPFSFDILSTAFQYGNLCFTKYPADMPDYFKQGFPDGMSYERSFL-EDGGVATASWNI--RLEGN 117
FP2R1_Dl1_9         1 MSYSKQGIAQEMRTKYHMEGSVNGHEFTIEGVGTGNPYEGKQMSELVIIKPAGKPLPFSFDILSTAFQYGNLCFTKYPADMPDYFKQGFPDGMSYERSFLFEDGGVATASWNI--RLEGN 118
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FP2_S1603_2         1 MSYSKQGIAQVMKTKYHMEGSVNGHEFTIEGVGTGNPYEGTQMSELVITKPAGKPLPFSFDILSTVFQYGNRCFTKYPEGMTDYFKQAFPDGMSYERSFLYEDGGVATASWNI--RLERD 118
FP2_S1603_4         1 MSYSKQGIVQEMKTKYHMEGSVNGHEFTIEGVGTGYPYEGKQMSELVITKPAGKPLPFSFDILSSVFQYGNRCFTKYPADMPDYFKQAFPDGMSYERSFLFEDGAVATASWNI--RLEGN 118
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M/LWE

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amilRFP             1 MALSKHGLTKDMTMKYHMEGSVDGHKFVITGHGNGNPFEGKQTMNLCVVE--GGPLPFSEDILSAAFDYGNRVFTEYPQGMVDFFKNSCPAGYTWHRSLLFEDGAVCTTSADITVSVEEN 118
Ancestor-M/LWE      1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFDYGNRVFTEYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
FP10_BH_16          1 MALSKHGLTKNMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFDYGNRVFTEYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
FP10_BH2_4          1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFDYGNRVFTDYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
FP10_BH2_5          1 MALSKHGLTKDMTMKYRMEGSVDGHKFVITGHGNGNPFEGKQTMNLCVAE--GGPLPFSEDILSPAFDYGNMVFTEYPQGMVDFFKNSCPAGYTWHRSLLFEDGAVCTASADITVSVEEN 118
FP10_Dl1_4          1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFDYGNRVFTDYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
FP10_BH2_11         1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFTYGNRVFTEYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
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FP10_12             1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFTYGNRVFTEYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
FP10_Dl1_7          1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFTYGNRVFTEYPQGMVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
FP10_Dl1_8          1 MALSKHGLTKDMTMKYRMEGCVDGHKFVITGHGNGSPFEGKQTINLCVVE--GGPLPFSEDILSAVFTYGNRVFTEYPQGIVDFFKNSCPAGYTWQRSLLFEDGAVCTASADITVSVEEN 118
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CP

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amilCP              1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGYTWERIMNFEDGAVCTVSNDS--SIQGN 112
Ancestor-CP         1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGYTWERIMNFEDGAVCTVSNDS--SIQGN 112
FP8_F2_2_11         1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWDRIMNFEDGAVCTVSNDS--SIQGN 112
FP8_F2_2_13         1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVRLTVTK--GGPLPFAWDILSPQYQYGSIPFTKYPDDIPDYVKQSFPEGYTWERIMNFEDGAVCTVSNDS--SIQGN 112
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FP8_F2_2_2          1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVRLTVTK--GGPLPFAWDILSPQYQYGSIPFTKYPDDIPDYVKQSFPEGYTWERIMNFEDGAVCTVSNDS--SIQGN 112
FP8_F2_2_3          1 MSV----IAKEMTYKAYMSGTVNGHYFEVVGDGKGKPYEGEQTEKLTVTK--GGPLPFTWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAVCTVTNDS--SIQGN 112
FP8_F2_2_32         1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGAQTVKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGYTWERIMNFEDGAACTVSNDS--SIQGN 112
FP8_F2_2_36         1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVRLTVTK--GGPLPFAWDILSPQYQYGSIPFTKYPEDIPDYVKQSFPEGFTWDRIMNFEDGAVCTVSNDS--SIQGN 112
FP8_F2_2_39         1 MSV----IAKQMTYKIYMSGTVNGHYFEVEGDGKGKPYEGEQTVKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAACTVTNDS--SIQGN 112
FP8_F2_2_4          1 MSV----IAKQMTYKVYMSGTVNGHYFEVEGDGKGKPYEGEQTVKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAACTVTNDS--SIQGN 112
FP8F2_Dl1_10        1 MSV----IAKQMTYKAYMSGTVNGHYFEVEGDGKGKPYEGEQTEKLTVTK--GGPLPFSWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAVCTVTNDS--SIQGN 112
FP8F2_Dl1_12        1 MSV----IAKQMTYKAYMSGTVNGHYFEVEGDGKGKPYEGEQTEKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAVCTVTNDS--SIQGN 112
FP8F2_Dl1_6         1 MSV----IAKQMTYKAYMSGTVNGHYFEVEGDGKGKPYEGEQTEKLTVTK--GGPLPFAWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAVCTVTNDS--SIQGN 112
FP8F2_Dl1_9         1 MSV----IAKQMTYKAYMSGTVNGHYFEVEGDGKGKPYEGEQTEKLTVTK--GGPLPFSWDILSPQCQYGSIPFTKYPEDIPDYVKQSFPEGFTWERIMNFEDGAVCTVTNDS--SIQGN 112
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Supporting Fig. S6 continued

(B)

```
                                                                                                                      1 1111111111 1111111111
Nucleotide          1 1111111112 2222222223 3333333334 4444444445 5555555556 6666666667 7777777778 8888888889 9999999990 0000000001 1111111112
site       1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890
amilRFP    MALSKHGLTK DMTMKYHMEG SVDGHKFVIT GHGNGNPFEG KQTMNLCVVE GGPLPFSEDI LSAAFDYGNR VFTEYPQGMV DFFKNSCPAG YTWHRSLLFE DGAVCTTSAD ITVSVEENCF
FP10_BH2_4 .......... ......R... C......... .....S.... ...I...... .......... ...V...... ...D...... .......... ...Q...... ......A... ..........
FP10_12    .......... ......R... C......... .....S.... ...I...... .......... ...V.T.... .......... .......... ...Q...... ......A... ..........

           1111111111 1111111111 1111111111 1111111111 1111111111 1111111111 1111111111 1111111112 2222222222 2222222222 2222222222 222
Nucleotide 2222222223 3333333334 4444444445 5555555556 6666666667 7777777778 8888888889 9999999990 0000000001 1111111112 2222222223 333
Site       1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 123
amilRFP    YHNSKFHGVN FPADGPVMKK MTTNWEPSCE KIIPVPRQGI LKGDIAMYLL LKDGGRYRCQ FDTIYKAKSD PKEMPEWHFI QHKLTREDRS DAKNQKWQLV EHAVASRSAL PG*
FP10_BH2_4 ..E....... .......... .......C.. .......... ....V..... .......... ...V....T. ..K....... .......... .........A ..S....... .*
FP10_12    ..E....... .......... .......C.. .......... ....V..... .......... ..SV....T. S.K....... .......... .........A ..S....... A*
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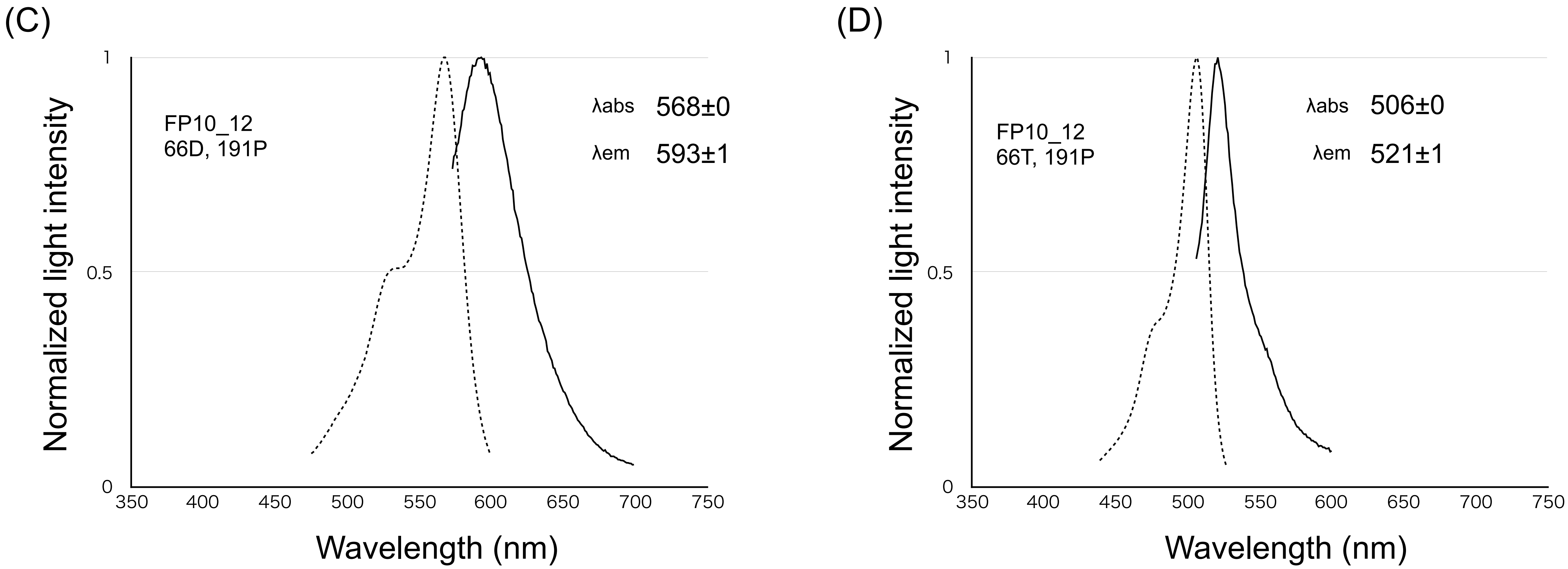
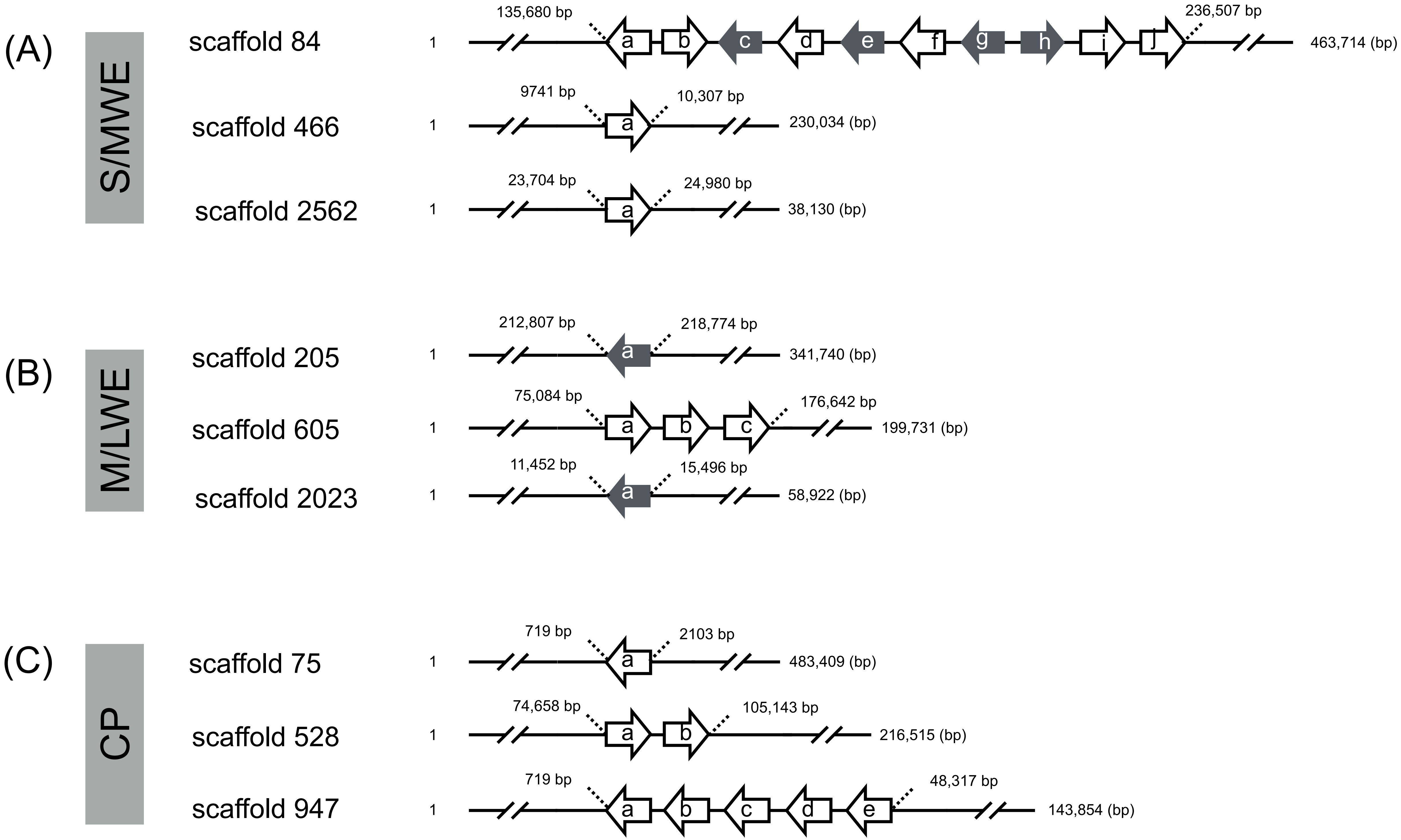
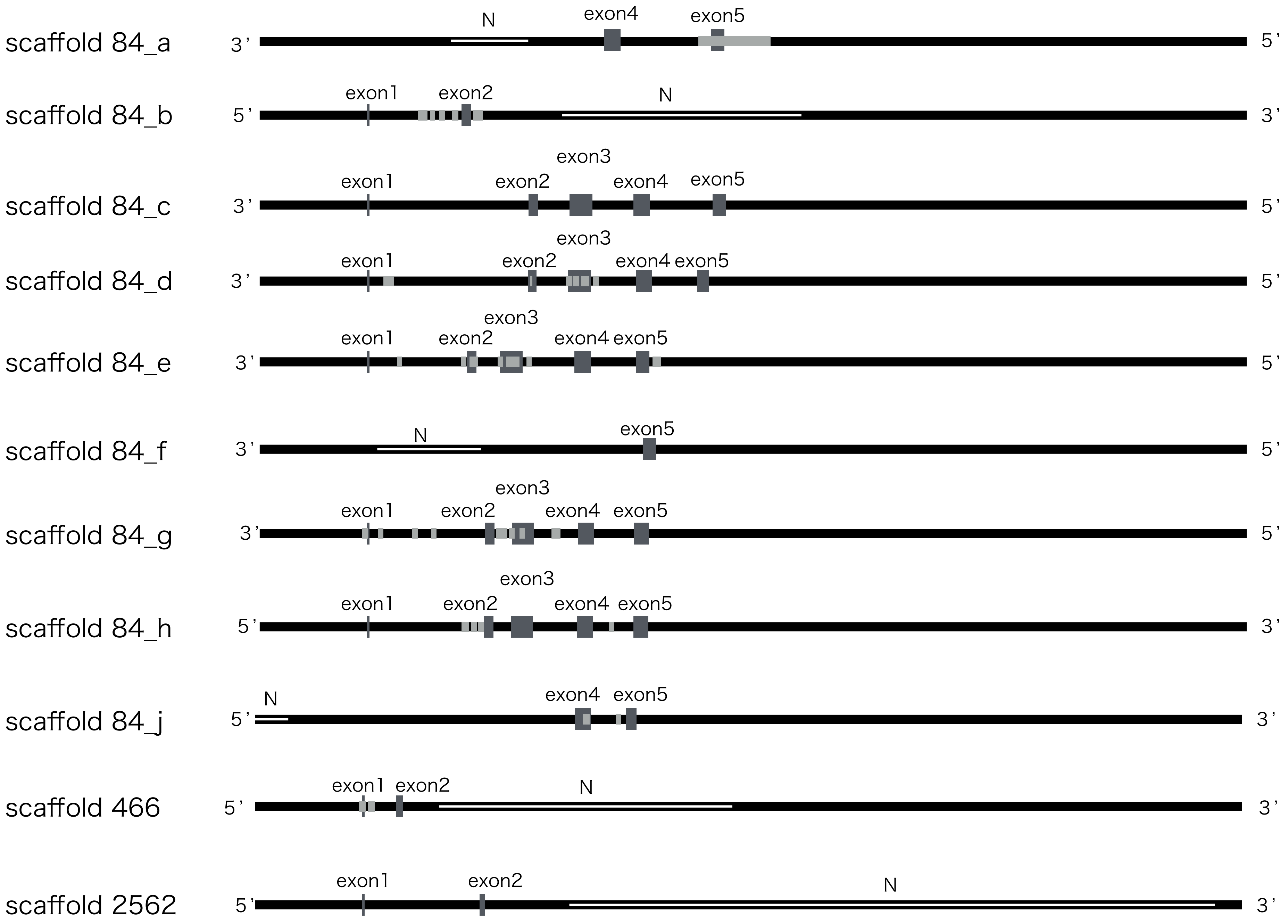


Supporting Fig. S7



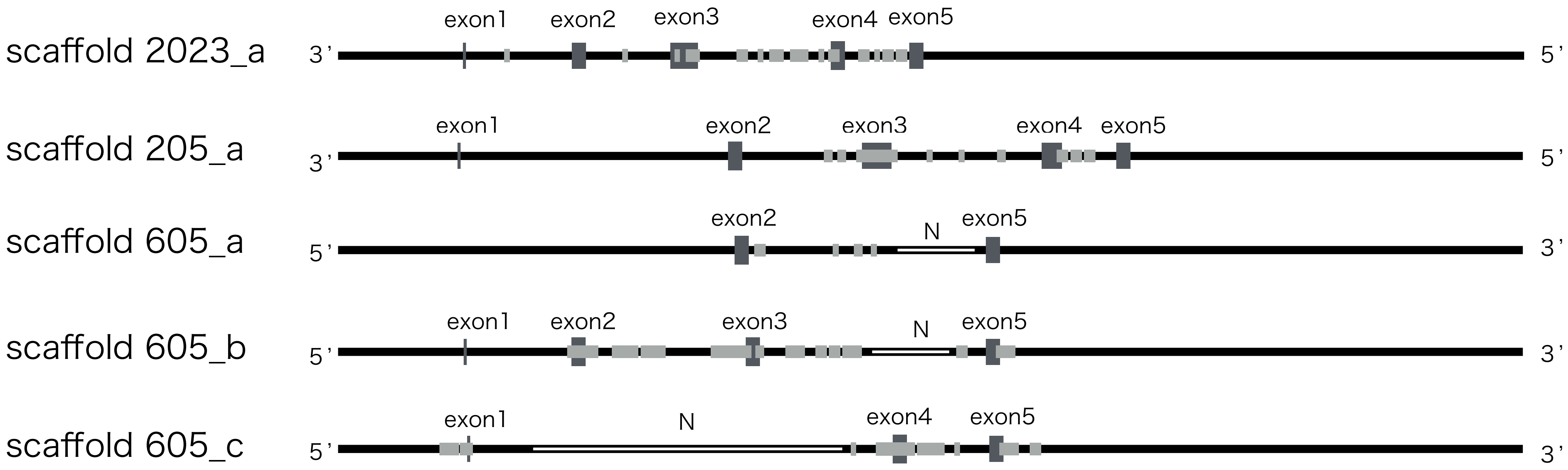
Supporting Fig. S7

(D) S/MWE



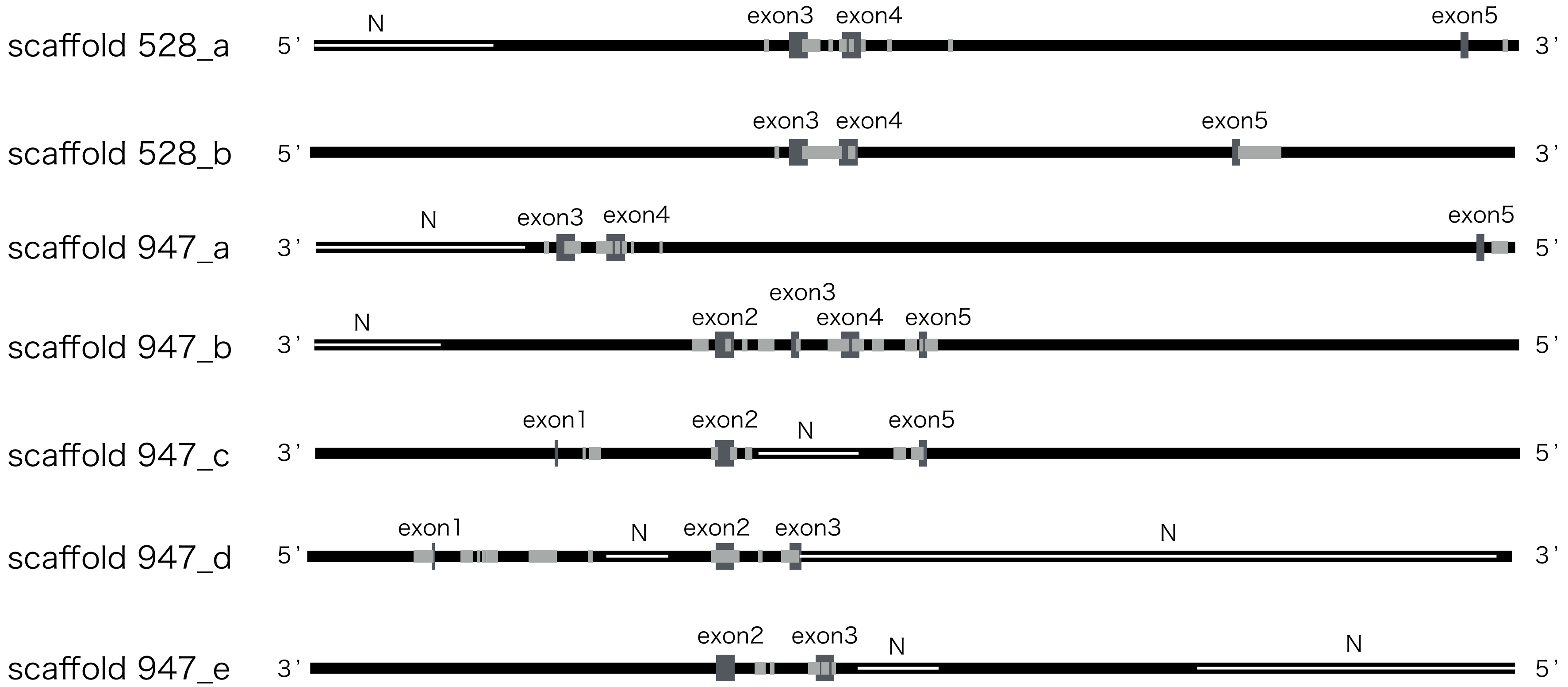
Supporting Fig. S7 continued

(E) M/LWE



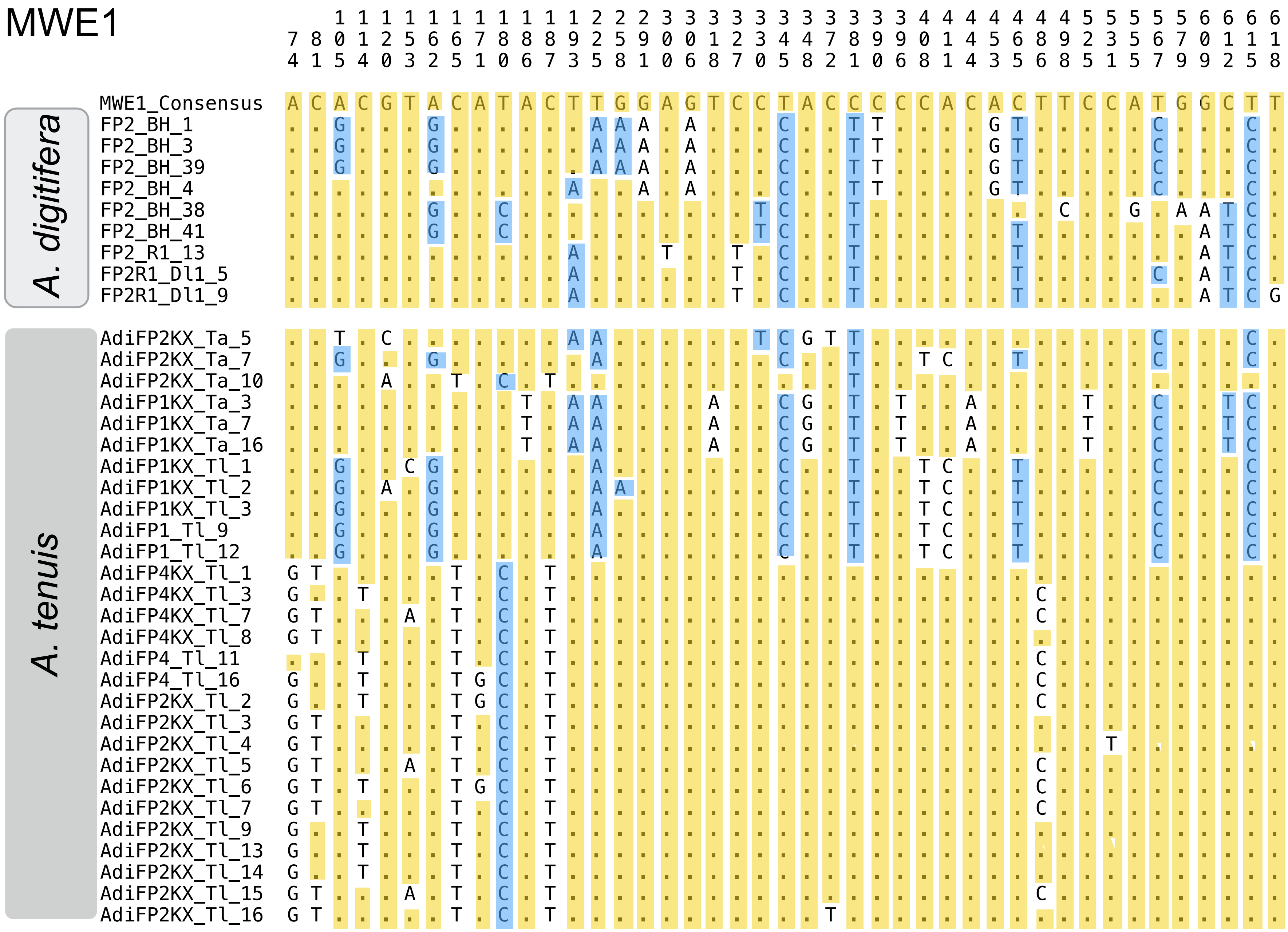
Supporting Fig. S7 continued

(F) CP



Supporting Fig. S8

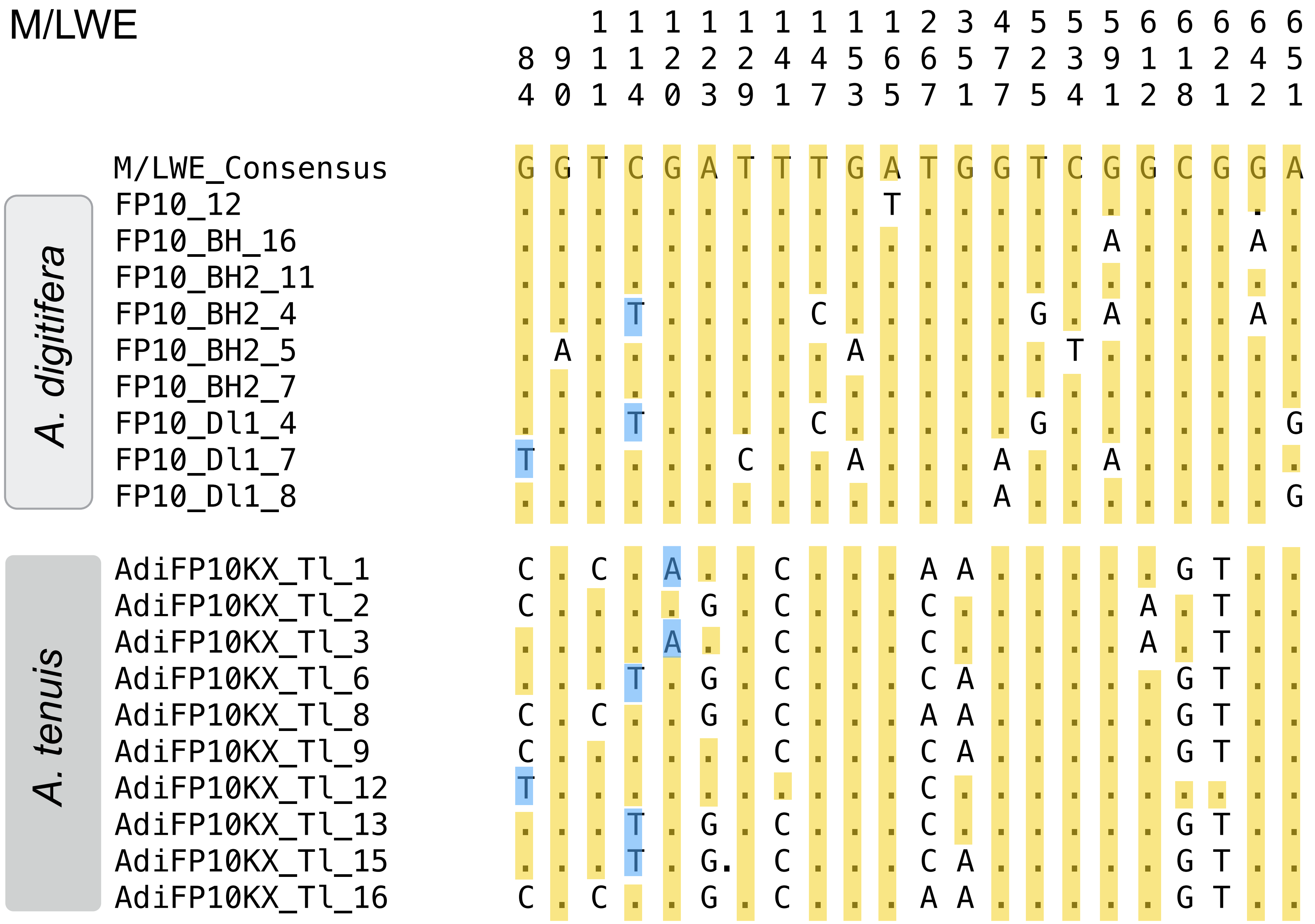
(A)



MWE1		74	81	105	114	120	153	162	165	171	180	186	187	193	225	258	291	300	306	318	327	330	345	348	372	381	390	396	408	414	444	453	465	486	498	525	531	555	567	579	609	612	615	618
	MWE1_Consensus	A	C	A	C	G	T	A	C	A	T	A	C	T	T	G	G	A	G	T	C	C	T	A	C	C	C	C	C	A	C	A	C	T	T	C	C	A	T	G	G	C	T	T
A. digitifera	FP2_BH_1	.	.	G	.	.	.	G	.	.	.	.	.	.	A	A	A	.	A	.	.	.	C	.	.	T	T	.	.	.	.	G	T	.	.	.	.	.	C	.	.	.	C	.
	FP2_BH_3	.	.	G	.	.	.	G	.	.	.	.	.	.	A	A	A	.	A	.	.	.	C	.	.	T	T	.	.	.	.	G	T	.	.	.	.	.	C	.	.	.	C	.
	FP2_BH_39	.	.	G	.	.	.	G	.	.	.	.	.	.	A	A	A	.	A	.	.	.	C	.	.	T	T	.	.	.	.	G	T	.	.	.	.	.	C	.	.	.	C	.
	FP2_BH_4	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	A	.	A	.	.	.	C	.	.	T	T	.	.	.	.	G	T	.	.	.	.	.	C	.	.	.	C	.
	FP2_BH_38	.	.	.	.	.	.	G	.	.	C	.	.	.	.	.	.	.	.	.	.	T	C	.	.	T	.	.	.	.	.	.	.	.	C	.	.	G	.	A	A	T	C	.
	FP2_BH_41	.	.	.	.	.	.	G	.	.	C	.	.	.	.	.	.	.	.	.	.	T	C	.	.	T	.	.	.	.	.	.	T	.	.	.	.	.	.	.	A	T	C	.
	FP2_R1_13	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	T	.	.	T	.	C	.	.	T	.	.	.	.	.	.	T	.	.	.	.	.	.	.	A	T	C	.
	FP2R1_Dl1_5	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	T	.	C	.	.	T	.	.	.	.	.	.	T	.	.	.	.	.	C	.	A	T	C	.
	FP2R1_Dl1_9	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	T	.	C	.	.	T	.	.	.	.	.	.	T	.	.	.	.	.	.	.	A	T	C	G
A. tenuis	AdiFP2KX_Ta_5	.	.	T	.	C	.	.	.	.	.	.	.	A	A	.	.	.	.	.	.	T	C	G	T	T	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	C	.
	AdiFP2KX_Ta_7	.	.	G	.	.	.	G	.	.	.	.	.	.	A	.	.	.	.	.	.	.	C	.	.	T	.	.	T	C	.	.	T	.	.	.	.	.	C	.	.	.	C	.
	AdiFP2KX_Ta_10	.	.	.	.	A	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP1KX_Ta_3	.	.	.	.	.	.	.	.	.	.	T	.	A	A	.	.	.	.	A	.	.	C	G	.	T	.	T	.	.	A	.	.	.	.	T	.	.	C	.	.	T	C	.
	AdiFP1KX_Ta_7	.	.	.	.	.	.	.	.	.	.	T	.	A	A	.	.	.	.	A	.	.	C	G	.	T	.	T	.	.	A	.	.	.	.	T	.	.	C	.	.	T	C	.
	AdiFP1KX_Ta_16	.	.	.	.	.	.	.	.	.	.	T	.	A	A	.	.	.	.	A	.	.	C	G	.	T	.	T	.	.	A	.	.	.	.	T	.	.	C	.	.	T	C	.
	AdiFP1KX_Tl_1	.	.	G	.	.	C	G	.	.	.	.	.	.	A	.	.	.	.	.	.	.	C	.	.	T	.	.	T	C	.	.	T	.	.	.	.	.	C	.	.	.	C	.
	AdiFP1KX_Tl_2	.	.	G	.	A	.	G	.	.	.	.	.	.	A	A	.	.	.	.	.	.	C	.	.	T	.	.	T	C	.	.	T	.	.	.	.	.	C	.	.	.	C	.
	AdiFP1KX_Tl_3	.	.	G	.	.	.	G	.	.	.	.	.	.	A	.	.	.	.	.	.	.	C	.	.	T	.	.	T	C	.	.	T	.	.	.	.	.	C	.	.	.	C	.
	AdiFP1_Tl_9	.	.	G	.	.	.	G	.	.	.	.	.	.	A	.	.	.	.	.	.	.	C	.	.	T	.	.	T	C	.	.	T	.	.	.	.	.	C	.	.	.	C	.
	AdiFP1_Tl_12	.	.	G	.	.	.	G	.	.	.	.	.	.	A	.	.	.	.	.	.	.	C	.	.	T	.	.	T	C	.	.	T	.	.	.	.	.	C	.	.	.	C	.
	AdiFP4KX_Tl_1	G	T	.	.	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP4KX_Tl_3	G	.	.	T	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP4KX_Tl_7	G	T	.	.	.	A	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP4KX_Tl_8	G	T	.	.	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP4_Tl_11	.	.	.	T	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP4_Tl_16	G	.	.	T	.	.	.	T	G	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_2	G	.	.	T	.	.	.	T	G	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_3	G	T	.	.	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_4	G	T	.	.	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	T	.	.	.	.	.	.	.
	AdiFP2KX_Tl_5	G	T	.	.	.	A	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_6	G	T	.	T	.	.	.	T	G	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_7	G	T	.	.	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_9	G	.	.	T	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_13	G	.	.	T	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_14	G	.	.	T	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_15	G	T	.	.	.	A	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP2KX_Tl_16	G	T	.	.	.	.	.	T	.	C	.	T	.	.	.	.	.	.	.	.	.	.	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Supporting Fig. S8 continued

(B)



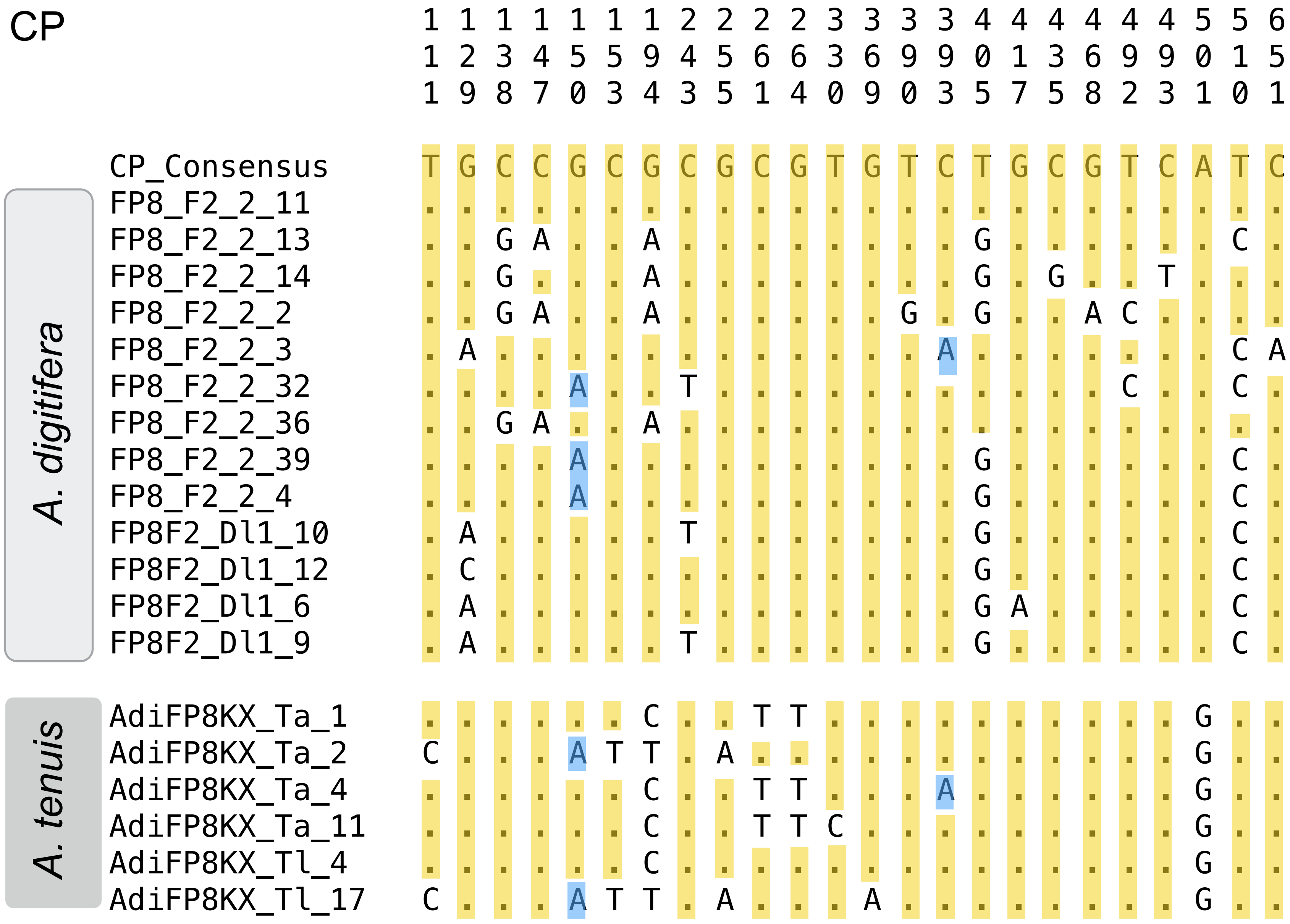
M/LWE

		84	90	111	114	120	123	129	141	147	153	165	267	351	477	525	534	591	612	618	621	642	651
	M/LWE_Consensus	G	G	T	C	G	A	T	T	T	G	A	T	G	G	T	C	G	G	C	G	G	A
A. digitifera	FP10_12	.	.	.	.	.	.	.	.	.	.	T	.	.	.	.	.	.	.	.	.	.	.
	FP10_BH_16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	A	.
	FP10_BH2_11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	FP10_BH2_4	.	.	.	T	.	.	.	.	C	.	.	.	.	.	G	.	A	.	.	.	A	.
	FP10_BH2_5	.	A	.	.	.	.	.	.	.	A	.	.	.	.	.	T	.	.	.	.	.	.
	FP10_BH2_7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	FP10_Dl1_4	.	.	.	T	.	.	.	.	C	.	.	.	.	.	G	.	.	.	.	.	.	G
	FP10_Dl1_7	T	.	.	.	.	.	C	.	.	A	.	.	.	A	.	.	A	.	.	.	.	.
	FP10_Dl1_8	.	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	.	G
A. tenuis	AdiFP10KX_Tl_1	C	.	C	.	A	.	.	C	.	.	.	A	A	.	.	.	.	.	G	T	.	.
	AdiFP10KX_Tl_2	C	.	.	.	.	G	.	C	.	.	.	C	.	.	.	.	.	A	.	T	.	.
	AdiFP10KX_Tl_3	.	.	.	.	A	.	.	C	.	.	.	C	.	.	.	.	.	A	.	T	.	.
	AdiFP10KX_Tl_6	.	.	.	T	.	G	.	C	.	.	.	C	A	.	.	.	.	.	G	T	.	.
	AdiFP10KX_Tl_8	C	.	C	.	.	G	.	C	.	.	.	A	A	.	.	.	.	.	G	T	.	.
	AdiFP10KX_Tl_9	C	.	.	.	.	.	.	C	.	.	.	C	A	.	.	.	.	.	G	T	.	.
	AdiFP10KX_Tl_12	T	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.
	AdiFP10KX_Tl_13	.	.	.	T	.	G	.	C	.	.	.	C	.	.	.	.	.	.	G	T	.	.
	AdiFP10KX_Tl_15	.	.	.	T	.	G	.	C	.	.	.	C	A	.	.	.	.	.	G	T	.	.
	AdiFP10KX_Tl_16	C	.	C	.	.	G	.	C	.	.	.	A	A	.	.	.	.	.	G	T	.	.

Supporting Fig. S8 continued

(C)

CP



		111	129	138	147	150	153	194	243	255	261	264	330	369	390	393	405	417	435	468	492	493	501	510	651
	CP_Consensus	T	G	C	C	G	C	G	C	G	C	G	T	G	T	C	T	G	C	G	T	C	A	T	C
A. digitifera	FP8_F2_2_11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	FP8_F2_2_13	.	.	G	A	.	.	A	.	.	.	.	.	.	.	.	G	.	.	.	.	.	.	C	.
	FP8_F2_2_14	.	.	G	.	.	.	A	.	.	.	.	.	.	.	.	G	.	G	.	.	T	.	.	.
	FP8_F2_2_2	.	.	G	A	.	.	A	.	.	.	.	.	.	G	.	G	.	.	A	C	.	.	.	.
	FP8_F2_2_3	.	A	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	.	C	A
	FP8_F2_2_32	.	.	.	.	A	.	.	T	.	.	.	.	.	.	.	.	.	.	.	C	.	.	C	.
	FP8_F2_2_36	.	.	G	A	.	.	A	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	FP8_F2_2_39	.	.	.	.	A	.	.	.	.	.	.	.	.	.	.	G	.	.	.	.	.	.	C	.
	FP8_F2_2_4	.	.	.	.	A	.	.	.	.	.	.	.	.	.	.	G	.	.	.	.	.	.	C	.
	FP8F2_Dl1_10	.	A	.	.	.	.	.	T	.	.	.	.	.	.	.	G	.	.	.	.	.	.	C	.
	FP8F2_Dl1_12	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	G	.	.	.	.	.	.	C	.
	FP8F2_Dl1_6	.	A	.	.	.	.	.	.	.	.	.	.	.	.	.	G	A	.	.	.	.	.	C	.
	FP8F2_Dl1_9	.	A	.	.	.	.	.	T	.	.	.	.	.	.	.	G	.	.	.	.	.	.	C	.
A. tenuis	AdiFP8KX_Ta_1	.	.	.	.	.	.	C	.	.	T	T	.	.	.	.	.	.	.	.	.	.	G	.	.
	AdiFP8KX_Ta_2	C	.	.	.	A	T	T	.	A	.	.	.	.	.	.	.	.	.	.	.	.	G	.	.
	AdiFP8KX_Ta_4	.	.	.	.	.	.	C	.	.	T	T	.	.	.	A	.	.	.	.	.	.	G	.	.
	AdiFP8KX_Ta_11	.	.	.	.	.	.	C	.	.	T	T	C	.	.	.	.	.	.	.	.	.	G	.	.
	AdiFP8KX_Tl_4	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	G	.	.
	AdiFP8KX_Tl_17	C	.	.	.	A	T	T	.	A	.	.	.	A	.	.	.	.	.	.	.	.	G	.	.

Supporting Fig. S9

(A) *A. digitifera*: MWE1

```
          11111|1111122222|2233333334|4444445555|55666666
      233600023|5689911125|6901237792|3457990446|78001257
     7678256822|5203745658|3164703701|1832342567|39092668

   7 0    *** *| * *******|*****   **|**********|********
  26  0  ***** |* *  *****| *** *****|***   ****|*  *** *
  37   0 ***** |* *  *****| *** *****|***   ****|*  *** *
  38    0***** |* *  *****| *** *****|***   ****|*  *** *
  62     0     |          |          |   ***    | **   **
 105      0    |          |          |          |       *
 106       0   |          |          |          |       *
 108        0  |          |          |          |       *
 122         0 |          |          |   ***    | **   **
 132          0|          | ***    **|**********|********
 155           |0         |          |   ***    | **   **
 162           | 0        | ***    **|**********|********
 180           |  0       |          |   ***    | **   **
 193           |   0      | ***    **|**********|********
 197           |    0     | ***    **|**********|********
 214           |     0    |          |          |       *
 215           |      0   |          |          |       *
 216           |       0  |          |          |       *
 225           |        0 |          |          |       *
 258           |         0|          |          |       *
 263           |          |0***    **|**********|********
 291           |          | 0        |          |       *
 306           |          |  0       |          |       *
 314           |          |   0      |          |       *
 327           |          |    0     |         *|
 330           |          |     0    |   ***    | **   **
 373           |          |      0   |   ***    | **   **
 377           |          |       0  |   ***    | **   **
 390           |          |        0 |          |       *
 421           |          |         0|          |       *
 431           |          |          |0         |       *
 448           |          |          | 0        |       *
 453           |          |          |  0       |       *
 472           |          |          |   0     *|
 493           |          |          |    0    *|
 494           |          |          |     0   *|
 502           |          |          |      0   |       *
 545           |          |          |       0  |       *
 546           |          |          |        0 |       *
 567           |          |          |         0| **   **
 573           |          |          |          |0      *
 589           |          |          |          | 0
 600           |          |          |          |  0
 609           |          |          |          |   0   *
 612           |          |          |          |    0  *
 626           |          |          |          |     0 *
 656           |          |          |          |      0
 678           |          |          |          |       0

# of nontrivial sites =   48
```

(B) *A. digitifera*: M/LWE

```
      111112444|5555666
     6145992679|2579459
     3473672879|5041214

  63 0         |  *****
 114  0        |  *****
 147   0       |  *****
 153    0**  **| * *  *
 196     0     |  ** *
 197      0    |  ** *
 222       0   |  *****
 468        0  |  *****
 477         0 |  ** *
 499          0|  ** *
 525           |0 *****
 550           | 0** *
 574           |  0
 591           |   0  *
 642           |    0
 651           |     0
 694           |      0

  # of nontrivial sites =   17
```

(C) *A. digitifera*: CP

```
       11111111|1222223344|4455666
     2311222335|8136791922|6925255
     7579026587|2910091347|0831835

  27 0         | *        |
  35  0        | *    *   |
 117   0       | *    *   |
 119    0      | *    *   |
 120     0     | *    *   |
 122      0    |  **  ****|**** **
 126       0   |  **  ****|**** **
 135        0  |  **  ****|**** **
 138         0 | **  *****|* **
 157          0|  **  ****|**** **
 182           |0      ** |****  *
 219           | 0* ***** |* ***
 231           |  0 * *   | *    *
 260           |   0      |
 270           |    0*****|* **
 299           |     0*  *|
 311           |      0***|***** *
 393           |       0  | *    *
 424           |        0 | *    *
 427           |         0| *    *
 460           |          |0*    *
 498           |          | 0**
 523           |          |  0   *
 551           |          |   0  *
 628           |          |    0
 653           |          |     0
 655           |          |      0

  # of nontrivial sites =   27
```

Supporting Fig. S9 continued

(D) *A.tenuis*: MWE1

```
               |   1111111|1111112222|2222233333|3333344444|4455555666
      113557788|9990033344|5679990111|2244922445|5588924466|7724479133
     1453181523|1795712928|7401232368|0119125691|4858852734|1934772936
   1 0    *    |*         |          |        * |        * |          |
  14  0        |          |          |        * |          |          |
  15   0       |          |          |        * |          |          |
  33    0      |          |          |        * |          |          |
  51     0     |*         |         *|        * |        * |          |
  58      0    |*        *|          |        * |        * |          |
  71       0   |          |         *|          |          |          |
  75        0  | *        |         *|          |          |          |
  82         0 | *        |         *|          |          |          |
  83          0| *        |         *|          |          |          |
  91           |0         |         *|          |        * |          |
  97           | 0******* |** ****   |** ***   *|  *****  *| **** ****|
  99           |  0       |         *|          |          |          |
 105           |   0      |         *|        * |          |          |
 107           |    0     |         *|        * |          |          |
 131           |     0    |         *|          |          |          |
 132           |      0   |         *|          |          |          |
 139           |       0  |         *|          |          |          |
 142           |        0 |         *|        * |          |          |
 148           |         0|         *|          |          |          |
 157           |          |0        *|        * |          |          |
 164           |          | 0       *|        * |          |          |
 170           |          |  0       | * *    * |         *|          |
 191           |          |   0     *|        * |          |          |
 192           |          |    0    *|        * |          |          |
 193           |          |     0   *|          |          |          |
 202           |          |      0  *|        * |          |          |
 213           |          |       0  | * *    * |         *|          |
 216           |          |        0 | * *    * |         *|          |
 218           |          |         0|******   *| ****** **| **** ****|
 220           |          |          |0         |          |          |
 221           |          |          | 0 *  *** |*      *  |*    *    |
 241           |          |          |  0       |          |          |
 249           |          |          |   0  **  |*      * *|*    *    |
 291           |          |          |    0     |          |          |
 322           |          |          |     0  * |          |          |
 325           |          |          |      0 * |         *|          |
 346           |          |          |       0* |         *|          |
 349           |          |          |        0*|**   * * *|********  |
 351           |          |          |         0|          |          |
 354           |          |          |          |0        *|          |
 358           |          |          |          | 0        |          |
 385           |          |          |          |  0       |          |
 388           |          |          |          |   0      |          |
 398           |          |          |          |    0     |          |
 425           |          |          |          |     0    |          |
 442           |          |          |          |      0   |          |
 447           |          |          |          |       0 *|          |
 463           |          |          |          |        0 |          |
 464           |          |          |          |         0|*    *    |
 471           |          |          |          |          |0         |
 479           |          |          |          |          | 0        |
 523           |          |          |          |          |  0       |
 544           |          |          |          |          |   0      |
 547           |          |          |          |          |    0     |
 577           |          |          |          |          |     0    |
 592           |          |          |          |          |      0   |
 619           |          |          |          |          |       0  |
 633           |          |          |          |          |        0 |
 636           |          |          |          |          |         0|

# of nontrivial sites =   60
```

(E) *A.tenuis*: M/LWE

```
           1245|5555
      144459890|3448
     1303926046|8484

   1 0 *  ** * |   *
  13  0  ** * *|****
  40   0 **    |
  43    0   *  |   *
  49     0 ****|***
  52      0****|****
 196       0   |
 280        0  |
 494         0 |
 506          0|
 538           |0
 544           | 0
 548           |  0
 584           |   0

# of nontrivial sites =   14
```

(F) *A.tenuis*: CP

```
     1224
     1008
     5583

 115 0  *
 205  0 *
 208   0*
 483    0

# of nontrivial sites =    4
```

Supporting Table S1.

Table S1

Sample name	Species	Life stage	Experiment
SESOKO#B1	*A. digitifera*	adult	fluorescence measurements
SESOKO#B2	*A. digitifera*	adult	fluorescence measurements
SESOKO#3	*A. digitifera*	adult	fluorescence measurements
SESOKO#4	*A. digitifera*	adult	fluorescence measurements
SESOKO#7	*A. digitifera*	adult	fluorescence measurements
Adigi1	*A. digitifera*	adult	RNA-seq analysis and FP sequence isolation from cDNA
Adigi2	*A. digitifera*	adult	FP gene copy number estimation from genomic DNA
Adigi3	*A. digitifera*	adult	FP gene copy number estimation from genomic DNA
Adigi4	*A. digitifera*	adult	FP gene copy number estimation from genomic DNA
Adigi5	*A. digitifera*	adult	FP gene copy number estimation from genomic DNA
S1603	*A. digitifera*	adult	FP sequence isolation from cDNA
Dl1	*A. digitifera*	larva	FP sequence isolation from cDNA
Dl	*A. digitifera*	larvae	RNA-seq analysis
Ta	*A. tenuis*	adult	RNA-seq analysis and FP sequence isolation from cDNA
Tl	*A. tenuis*	larvae	RNA-seq analysis and FP sequence isolation from cDNA

Table S2

Total number of reads	Mapped sequence	Length	Average coverage
A. digitifera larvae	*AdiFP10L*	699	93973
80,164,640	*AdiFP8L*	666	397662
	AdiFP2	696	18032
A. digitifera adult	*AdiFP10L*	699	37
94,059,356	*AdiFP8L*	666	194
	AdiFP2	696	37
A. tenuis larvae	*AdiFP10L*	699	50167
84,018,960	*AdiFP8L*	666	313
	AdiFP2	696	50805
A. tenuis adult	*AdiFP10L*	699	113
88,821,670	*AdiFP8L*	666	1071
	AdiFP2	696	203