

Ft -2188 aaa-----  
 Fb -2016 -----  
 Fpa -2051 -----  
 Fv -2958 -----  
 Fc -2405 tctgaaacta ttagactggt agcgtataata ataaattatt tgactgaatt ataatttccg ttaaaccgta gagactacaa gtgtaattta ctctaaaagt  
 Fp -2781 -----

Ft -2185 -----gGC  
 Fb -2016 -----  
 Fpa -2051 -----  
 Fv -2958 -----  
 Fc -2305 aaattaaatt caaacttgta ttcgaattaa actgctacta ttttactgct attaataata tttaataatt taaagtgttg tttcaaaagt aactatatGC  
 Fp -2781 -----

**DR**

Ft -2182 TTATGTTTGT TGGTAGTTTT TCTTTTTGCA TTgtatatga ta----TCTA GAACATGAAA AAagGACTCA CCAGGACAGG AGTATtgcac ctatGTTTTT  
 Fb -2016 -----  
 Fpa -2051 -----  
 Fv -2958 -----  
 Fc -2205 TTATGTTTGT TGATATTTTT TTCTTTTGT TTTGTTATTG TTTACGTCTA GAACATGAAA AA--GACACA CCAGGACACA AGCATCTGA- ----GTTTTT  
 Fp -2781 ----- TTCTTTTGT TTTGTTATTG TTTACGTCTA GAACATGAAA AA--GACACA CCAGGACACA AGCATCTGA- ----GTTTTT

Ft -2086 ATTCGAATAT TTCTCGTTAC ACAATAGAAA AacAAAACAA ATCCACGGAA AGGATAATGA GCTTATACGT GGAcAATATT GAGACTATAT TTCTATGGTT  
 Fb -2016 -----  
 Fpa -2051 -----  
 Fv -2958 -----  
 Fc -2112 ATTCGAATAT TTCTCTTTAC TCAATAGAAA AGTAAAACAA ATCCATGAAA AGGATAATTA ACTTATATGT GGACCATATT GAGACTATAT TTTTGTGGTT  
 Fp -2708 ATTCGAATAT TTCTCTTTAC TCAATAGAAA AGTAAAACAA ATCCATGAAA AGGATAATTA ACTTATATGT GGgCCATATT GAGACTATAT TTTTGTGGTT

**MEM-1**

Ft -1986 AAATCATGTG AATTTAT-G-  
 Fb -2016 --ATCATGTG AATTTAT-G- AAAAAATTAA ATTGGAAAGA GGAAATCAAA AACAAAATTG GATCTTTCAT ATCACGAAAA GGCAGGAGTT  
 Fpa -2051 --ATCATGTG AATTTATTGC AAA-CTTGTG AAAAAATTAG ATTGGAAAGA GGAAATCAAA AACAAAATTG GATCTTTCAT ATCACGAAAA GGCAGGAGTT  
 Fv -2958 --ATCATGTG AATTTAT-GA AAAA-CTTGTG AAAAAATTAA ATTGGAAAGA GGAAATCAAA AACAAAATTG GATCTTTCAT ATCACGAAAA GGCAGGAGTT  
 Fc -2012 AAATCATATG AATTTAT-GA AAAA-CTTGTG AAGAGATTGA ATTGGAAAGA GGAAATAGAA AGCAAAGTTG GATCTTTCAT ATCACGAAAA GGCATGAGTT  
 Fp -2608 AAATCATATG AATTTAT-GA AAAA-CTTGTG AAGAGATTGA ATTGGAAAGA GGAAATAGAA AGCAAAGTTG GATCTTTCAT ATCACGAAAA GGCATGAGTT  
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Ft -1968 -----AGA GCTGTACTTA CTCACTAAAA CAAACAA-  
 Fb -1930 CTTGCCACTT GACCAAGGAG TGTTTCGTAGA GCCGTACTTA CTCACTAAAA CAAACAAAA ACAAAACAAAC AAAAACTGA AACAAACAAA TTCTCCAT-  
 Fpa -1954 CTTGCCACTT GACCAAGGAG TGTTTCGTAGA GCCGTACTTA TTCACTAAAA CAAACAAAA ACAAAACAAAC AAAAACTGA AACAAACAAA TTCTCCAT-  
 Fv -2862 CTTGCCACTT GACCAAGGAG TGTTTCGTAGA GCCGTACTTA CTCACTAAAA CAAACAAAA ACAAA--AAC AAAAACTGA AACAAACAAA TTCTCCAT-  
 Fc -1913 CTTGCCACTT GACCAAGGAG TGTTTCGTAGA GCCGTACTTA CT----AAAA CAAACAA- -AAAA-CTAA AACAAACAAA ATCTTCCAT-  
 Fp -2509 CTTGCCACTT GACCAAGGAG TGTTTCGTAGA GCCGTACTTA CT----AAAA CAAACAA- -AAAA-CTAA AACAAACATA ATCTTCCAT-  
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Ft	-1658	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fb	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fpa	-1747	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fv	-2314	aaaaacataa	aactactgaa	ctacaactac	tgaaactata	actactgaaa	agtaaattac	aagtactgaa	aggaaaccat	cacaactact	gaagttgata
Fc	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fp	-2321	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Ft	-1658	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fb	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fpa	-1747	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fv	-2214	acttcagctg	ttgcgacaac	tactgaagtt	gataacttca	gctgttgtga	caactactga	agttgataac	ttcagctggt	gtgacaacta	ctgatcactt
Fc	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fp	-2321	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Ft	-1658	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fb	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fpa	-1747	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fv	-2114	tggtcttcag	tctttgtctt	tagtctttgt	tcttcagact	tttactttca	gactttgtct	tcagctgata	gcttcagact	ttgtcttcag	ttctttactt
Fc	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fp	-2321	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Ft	-1658	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fb	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fpa	-1747	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fv	-2014	tcagactttg	tcttcagctg	atagcttcag	accttgtctt	cagttcttta	cttttagact	ttgtctttag	tagaagtctt	cagttcttgt	cttcagactt
Fc	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fp	-2321	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Ft	-1658	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fb	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fpa	-1747	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fv	-1914	tgtcttcaga	ccttgtaatc	agctgatggt	ttcagctggt	gtgatcttct	tcagcagttg	caatgtctgt	gggacttaga	ggtttttctg	atcaggctca
Fc	-1723	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Fp	-2321	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Ft	-1658	-----	-----	-----	TCTCTACATA	GAGGCGTTAA	TGCGTCAATT	TTGTGTGTTA	AAGACATAAT	CTAATACAAC	ATTGAAGATT
Fb	-1723	-----	-----	----CTATTC	TCTGTACATA	AAGGCGTTAA	CGGATCAATT	TTGCGTGTTA	AAGACCAAAT	CTGATACAAC	ATTGAAGATT
Fpa	-1747	-----	-----	----CTATTC	TCTGTACATA	AAGGCGTTAA	CGGATCAATT	TTGCGTGTTA	AAGACCAAAT	CTGATACCAC	ATTGAAGATT
Fv	-1814	ttggttcttt	tggtccaaca	aatgCTATTC	TCTGTACATA	AAGGCGTTAA	CGGATCAATT	TTGCaTGTTA	AAGACCAAAT	CTGATACAAC	ATTGAAGATT
Fc	-1723	-----	-----	----GTATTC	TCTGTACATA	GAGGTGTTAA	CGGGTCAAAT	TTGCGTGTTA	AAGACCAAAT	CTGATACGAC	CTTGAAGAAT
Fp	-2321	-----	-----	----GTATTC	TCTGTACATA	GAGGCGTTAA	CGGGTCAAAT	TTGCGTGTTA	AAGACCAAAT	CTGATACGAC	CTTGAAGATT
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DR

Ft -1588 TTCTATG--- -----A ATTTGGAAAG TATGTATACA  
 Fb -1647 TTCTATGAAT TTGGAAAGTA TGCATACACA AAAaaATTAT TAAAGACCAA ATCTGATACA ACATTGAAGA TTTTTTATGA ATTTGGAAAG TATGCATACA  
 Fpa -1671 TTCTATGAAT TTGGAACGTA TGCATACACA AAA--ATTAT TAAAGACCAA ATCTGATACG ACATTGAAGA TTTTTTATGA ATTTGGAAAG TATGCATACA  
 Fv -1714 T-CTATGAAT TGGAAA-GTA TGCATACACA AAA--ATTAT TAAAGACCAA ATCTGATACA ACATTGAAGA TTTTTTATGA ATTTGGAAAG TATGCATACA  
 Fc -1647 TTCTATGAAT TTGGAAAGTA TGCATACA-----  
 Fp -2245 TTCTATGAAT TTGGAAAGTA TGCATACAg-----  
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Ft -1560 CAAAAATTAT GTAAGAGAT- -----A AAAGACTTGT GTG----- --GAAATCAA ATACCTATAA AATAATTGCA ATTGTTACGA  
 Fb -1547 CAAAAATTAT ATAAGAGATG Taactgaaga -----TT TTTTGTACC AAGAAATCAA ATACCTATAA AATAATTGCA CTTGTTACGA  
 Fpa -1573 CAAAAATTAT GTAAGAGATG TGAACCTGAA GAT-----TT TTTTGTACC AAGAAATCAA ATACCTATAA AATAATTGCA CTTGTTACGA  
 Fv -1618 CAAAAATTAT GTAAGAGATG TGAACCTGAA GAT-----TT TTTTGTACC AAGAAATCAA ATACCTATAA AATAATTGCA CTTGTTACGA  
 Fc -1619 --AAAATTAT GTAAGAGAGG TGAACCTGAA AATGACTTGC GTGTTGATTT TTCTGTACC AAGAAATCAA ATATCTATAA AATAATTGCA CTCGTAatgt  
 Fp -2216 -AAAAATTAT GTAAGAGACG TGAACCTGAA AATGACTTGT GTGTTGATTT TTTTGTACC AAGAAATCAA ATATATATAA AATAATTGCA CTCGTAA---  
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Ft -1489 AAGATGATTT GTTTATTTAT GTATTAACCT TTTACATAAA ATACCTACTA AGTTTGATTT TTAAAATAAA ATTACTCTTA AATTTTAg-C AGAATAACCA  
 Fb -1465 AAGATAATTT GTTTATTTAT ATATTAACGT TTTACATAAA ATACCTAGTA AGTTTGATTT TTAAAATAAA ATTACCCCTA AATTTAT-CC AGAATAACCA  
 Fpa -1488 AAGATGATTT GTTTATTTAT ATATTAACGT TTTACATAAA ATACCTAGTA AGTTTGATTT TTAAAATAAA ATTACCCCTA AATTTAT-CC AAAATAACCA  
 Fv -1533 AAGATGATTT GTTTATTTAT ATATTAACGT TTTACATAAA ATACCTGGTA AGTTGGATTT TTAAAATAAA ATTACCCCTA AATTTAT-CC AGAATAACCA  
 Fc -1521 AAGATGGTAC GTTTATTTAT GTGTTAACCT TTTACATAAA cttCCTAATA AGTTTAAAGAT TTAAAATAAA ATAACTCTTA AAATTTAACC AAAATAACCA  
 Fp -2120 --GATAGTTC GTTTATTCAT GTTTAACTT TTTACATAAA ATACCTAATA AGTTTGAGAT TTAAAATAAA ATAACTCTTA AAATTTAATC AGAATAACCA  
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Ft -1390 GGTAAACTCA TAAACACATG GTACTGACTT TACTACTACC CA-TTAGCTA AGTGTGTTT TGATACAACC CTATTTTCGTA TTATGtatAA AACTCACAAA  
 Fb -1366 GGTGAACTCA GAAACACATC ATACTGACTT TACTACTAAC AATTTAGGTA AGTGTGTTT TGATACGACC CTATTTCTTA TTATTT-AAA AATTCACAAA  
 Fpa -1389 GGTGAACTCA GAAACACATC ATACTGACTT TACTACTAAC AATTTAGGTA AGTGTGTTT TGATACGACC CTATTTCTTA TTATTT-AAA AATTCACAAA  
 Fv -1434 GGTGAACTCA AAAACACATC ATACTGACTT TACTACTAAC AATTTAGGTA AATGTGTTT TGATACGACC CTATTTCTTA TTATTT-AAA AATTCACAAA  
 Fc -1421 GATGAACTCA TGAACACATC ATACTAATC TACTACTACC CATTTAGCTA AGCGTGTTT TGATTCGACC CTATGTCGTA TTGTGTCAA AATTCACACA  
 Fp -2022 GGTGAACTCA TGAACACATC GTACTGACTT TACTACTACC CATTTAGCTG AGAGTGTTT TAATTCGACC CTATTTTGTa TTGTGTCAAT AATTCACATA  
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Ft -1291 TCTAGTTGTA TGCATTAGGT GTGAGATAGC CCCAGAAAGT TTTATGAGAG GGTGTGATGT CAAAAAActT TATGATCATA TAGGTTTTGT TTTTTGTTTT  
 Fb -1267 TCTAGTTGTA TGCATTAGGT TTGAGATAGC CCGAGAAAAT TTTATGGGAG GGTGTGATGT CCAGAAA-TT TATGATCATA TAGGTTTTGT TTTTTGTTTT  
 Fpa -1290 TCTAGTTGTA TGCATTAGGT TTGAGATAGC CCGAGAAAAT TTTATGGGAG GGTGTGATGT CCAGAAA-TT TATGATCATA TAGGTTTTCGT TTTTTgtctt  
 Fv -1335 TCTAGTTCTA TGCATTAGGT TTGAGATAGC CCGAGAAAAT TTTATGGGAG GGTGTGATGT CTAGAAActT TATGATCATA TAGGTTTTGT TTTTTGTTTT  
 Fc -1321 TCTAGCTATA TGCATTAGGT GTGAGagaag cctgaAAAAT TTTATGGGAG GTTTTTATAT CCGGAATTTT TATGATCATA TA-----  
 Fp -1922 TCTAGCTATA TGCATTAGGT GTGAGgagcc tcg---AAAT TTTATGGGAG GTTTTTATAT CAAGAATTTT TATGATCATA TA-----  
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Ft -1191 Ttttg----- -----T TTTTTGTTTT TTTTGTTTTT TTTTGTTTTT TTTGTTTTTT TGTTTTGTTT TTTTTGTTT TGTTTTTTTT gttT-----  
 Fb -1168 TGTTTT----- -----T TTTTTGTTTT TATTGGTTTT TTTTGTTTTT TTTGTTTTTgc TTTTTGTTT TTTTTGTTT TGTTTTTTTTg  
 Fpa -1191 g--TTTTTTT TTGTTTTGTT TTTTTGTTTT TATTGTTTTT TATTg----T TTTGTTTTTT TGTTTTGTTT TTTTTGTTT TGTTTTTTTTg ---T-----  
 Fv -1235 TGTTTTGTTT TTTTGTTTTT TTTTTGTTTT TATTGTTTTT TTTg----- TTTTTTTTTT TGTTTTGTTT TGTTTTGTTT TGTTTTGTTT tgttttgttt  
 Fc -1239 -----  
 Fp -1843 -----

Ft -1111 ----- TTT TTGTTTTTTT TGTTTTTTTGG TTTTTGTTTT TCGG----- -----TG TgcGTGTATG  
 Fb -1121 ----- TTTGTTT TGTTTTTTTGG TTTTTGCTTT TCGGtgtatg tgtgtgagTG T--GTGTGTG  
 Fpa -1106 ----- TTT TTGTTTTTTT TGTTTTTTTGG TTTTTgtgtc gta----- -----T--GTGTATG  
 Fv -1141 tgttttgttt tgttttgttt tgttttgttt tgttttggTTT TGTTTTTTT TGTTTTTTTGG -----GTTTT CATT----- -----TG T--GCCTATA  
 Fc -1239 ----- -----GTTTT CATT----- -----TG T--GCCTATA  
 Fp -1843 -----GTTTT CTTT----- -----TG T--ATCTATG

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Ft -1062 AGAGCTAGTG AGGGTACCAC CGA-TAAAAA TGCCACTGAA ATCGATATTG AATATAACGA CCTTTGCAAG AAGAGAATTA AGTATTTATG AGTACATACT  
 Fb -1066 AGAGCTAGTG AGGGTACCAC CGA-TAAAAA TGCCACTAAA ATCGATATTG AATATAACGA CCTTTGCTAG AAGAGAATTA AGTATTTATG AGTACATACT  
 Fpa -1062 AGAGCTAGTG AGGGTACCAC CGA-TAAAAA TGCCACTGAA ATCGATATTG AATATAACGA CCTTTGCTAG AAGAGAATTA AGTATTTATG AGTACATACA  
 Fv -1057 AGAGCTAGTG AGGGTACCAC CGA-TAAAAA TGtCACTGAA ATTGATATTG AATATAACGA CCTTTGCTAG AAGAGAATTA AGTATTTATG AGTACATACT  
 Fc -1220 AGAGCTAGTG AGGTTACGAT AGA-TAAAAA A-CCACTGAA ATCAATaaT GAATATAAGA CCTTTGGTAG AAGAGAATTA AGTATTTATG ACTACATACT  
 Fp -1824 AGAGCTAGTG AGGTTACGAT AGAtTAAAAA A-CCACTGAA ATCAATATTT GAATATAAGA CCTTTGGTAA AAGAGAATTA AGTATTTAct ACTACATACT  
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Ft -963 TTTGAAGGCT TTCTCGTATT TAATCTTTTC CAGGTTTAAA A----- -----ATAT TAATTATATA TTACACCCCA ATG-----  
 Fb -967 TTTGAAGGCT TTCTCGTATT TAATCTTTTC TGGGTTTAAA A----- -----ACAT AAATTATATA TTACACCCCA ATG-----  
 Fpa -963 TTTGAAGGCT TTCTCGTATT TAATCTTTCA TGGGTTTAAA A----- -----ACAT AAATTATATA TTACACCCCTG ATG-----  
 Fv -958 TTTGAAGGCT TTCTCGTATT CAATCTTTTC TGGG--TAAA A----- -----ACAT AAATTATATA TTACACCCCA ATG-----  
 Fc -1122 TTTGAAGGCT TTCTCGTATT TTTCACaGAG AATTACATCG TTGCTAATTT TATTGTATAA TATCccACAT AAATTATATA TATT-----  
 Fp -1725 TTTGAAGGCT TTCTCGTATT TTACACtGAG AATTACATCG TTGCTAACTT TTTTGTATAA TATCttACAT AAATTACTTA TATTttaaata gacatagtaa  
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Ft -895 -----  
 Fb -899 -----  
 Fpa -895 -----  
 Fv -892 -----  
 Fc -1038 -----  
 Fp -1625 gaatcattta agcataaagt acaatcaatc aatacataaa gttt gatggc taaatgataa ttttgggtgga ctagagggtt atttctcact tcttctgtct

Ft -895 -----  
 Fb -899 -----  
 Fpa -895 -----  
 Fv -892 -----  
 Fc -1038 -----ATTAATTAT CAACCTCTTT ATTCTTTATg gtttgtactt taagttttac  
 Fp -1525 tcttttctaac attgaattag tattataaatg ttttattatt ttaaatattat aATTAATTTT AAACATATTT TGTTTTTCTa -----

Ft -895 -----CTTTTAAAT CTTTACAAC TAATCCTTAT AAT-----  
 Fb -899 -----ATTCTAAAT TTTTACAAC TAATCCTTGC AAT-----  
 Fpa -895 -----ATTTTAAAT TTCTACAAC TAATCCTTAT AAT-----  
 Fv -892 -----ATTCTAAAT TTTTACAAC TAATCCTTAC AAT-----  
 Fc -989 tgggttgtat tcacttttag gtattttttt aacctcaata cTTTACATC TTTTACAATT TAACCCGTAT AAT-----  
 Fp -1445 -----TTATAAC TTTTAAAAA TAAgtttata taaaattatg aatacgtagt tatgacgttc  
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Ft-L	-863	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fb-L	-867	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fpa	-863	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fv-L	-860	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fc-L	-916	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fp-L	-1388	ttatttttat	ctacatttcg	gtataagtta	gtcaaatata	atatttttta	attttttggt	catgatgtaa	taatttttct	aaattcgaat	ataccgttac

Ft	-863	----TTTTCA	TTTTCAACTT	TGATCCCATA	TACTTTTTTTA	TATTTTATAAA	-----	-----	-----	-----	-----
Fb	-867	----TTTTTA	TTTTCAACTT	TGATCCCATA	TACTTTTTT-A	TATTTTATAAA	-----	-----	-----	-----	-----
Fpa	-863	----TTTTCA	TTTTCAACTT	TGATCCCATA	TACTTTTTT-A	TATTTTATAAA	-----	-----	-----	-----	-----
Fv	-860	----TTTTCA	TTTTCAACTT	TGATCCCATA	TATTTTTTT-A	TATTTTATTA	-----	-----	-----	-----	-----
Fc	-916	----TTTTCA	TTTTCAATTT	TGGTCCAATA	TACTTTTTT-A	TCTTTTACAT	-----	-----	-----	-----	-----
Fp	-1288	gataTGTTTA	TTTTACCTA	CGTTTTCAATA	TAAATCTATT	TAAaataaac	cgctctcaat	ctgggggctaa	aacctatggg	tcaagtacaa	tgtatttttt
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Ft	-817	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fb	-822	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fpa	-818	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fv	-815	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fc	-871	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fp	-1188	tacaagtatt	ataaaatttt	attatttttaa	tattataact	aatttcaaac	attttttttt	ctcttataac	ttttaaaaca	taatgttttg	taaaattacg

Ft	-817	-----	-----	--AATTTTTA	TCTTACTTTTT	CAGTCTAAAT	TTTACGAGTT	AACAAGCGGC	AACGTGCGCG	TGTGGCTTCA	ATGTTTC---
Fb	-822	-----	-----	--AATTTTTA	TTTTACTTTTT	CACTCTAAAT	TTTACGAGTC	AACACGCGGC	AACGTGCGCG	TGTGGCTTCA	ATGTTTT---
Fpa	-818	-----	-----	--AATTTTTA	TTTTACTTTTT	CAGTCTAAAT	TTTACGAGTT	TACACGCGGC	AACGTGCGCA	TGTGACTTCA	ATGTTTT---
Fv	-815	-----	-----	--ATTTTTT-	--TTACTTTTT	TAGTCTAAAT	TTTACGAGTT	AACACGCGGC	AAAtGTGCGCG	TGTGGCTTCA	ATGTTTT---
Fc	-871	-----	-----	--ATTTTTTCG	TTTTACATTT	CGGTCTAAAT	TTTACGAGTT	AACACACCGC	AACGTGCGCG	TGTGGTTTCA	ATGTTTT---
Fp	-1088	aatatgtagt	tgtgacttgc	ttATTTTTAT-	--TTACATTT	CAGTATAAAT	TTTgtatgaa	accaaccggg	gtcaaatata	atatattttt	aaattttttt
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Ft	-742	-----	-----	-----	-----	--TACGCATA	TTTTTCCA--	TTTGACGGCC	CCGTCAACAAC	GCACAAGTCA	TAGATAGACC
Fb	-747	-----	-----	-----	-----	--TACACATA	TTTTTCCA--	TTTGATGGCC	CCGTCTCAAC	GCACGAGTCA	TAAATTGACT
Fpa	-743	-----	-----	-----	-----	--TACGCATG	TTTTTCCA--	TTTGATGGCC	CCGTCAACAAC	GCGCGAGTCA	TACACTGACT
Fv	-743	-----	-----	-----	-----	--TACACATA	TTTTTCCA--	TTTGACGGCC	CCATCAACAAC	GCGCGAGTCA	TAGATTGACT
Fc	-796	-----	-----	-----	-----	--TATGCATA	TTTTTTCCTG	TTTACGGCC	CCGTCACAAT	GCGCGTGTCA	TAGATTGACT
Fp	-991	acggcgtagt	aatttttctaa	aatttcaaat	atgtcattac	gaTATGCTTA	TTTTACCTA	TTTTttaata	taaattttat	ttaaaatcga	tcactcgaac
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Ft	-686	TAGC-----	-----	-----TA	TTATTTTTTTT	TAATAATATT	TTACGTTTGT	CATGGGTGAT	T-----	-----	-----
Fb	-691	TAGCTAT---	-----	-----TA	TTATTTTTTTT	TATTAATATT	TTACGTTTCT	CATGTGTGAT	T-----	-----	-----
Fpa	-687	TAGCTAT---	-----	-----TA	----TTTTTT	CATTAATATT	TTACGTTTCT	CATGCGTGAT	T-----	-----	-----
Fv	-687	TAGCTAT---	-----	-----TA	TTATTTTTc-T	TATTAATATT	TTACATTTTT	CATGCGTGAT	T-----	-----	-----
Fc	-738	TAGTTA-----	-----	-----TTA	-----T	TTTTAATATT	TTACATTTCA	CGTGCGTGGT	T-----	-----	-----
Fp	-891	tgtgcgggcta	aaatctatgg	gtcaagtaTA	ATGTATTTTTT	TATTTATTTT	TTACAccaac	gtaaattttt	ctaaattttc	cccaacaacg	tgatgttctc
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Ft	-639	-----	-----	-----	-----	C	AACGTTTTTA	TGCATAATTT	TCATGTTGAT	TTATTTATTT	TTGTTGTA	TTATAATGCG
Fb	-641	-----	-----	-----	-----	C	AACGTTTTTA	TAAATAATTTG	TCATATTGAT	TTA-TT-TTT	TTGTTGTA	TTATAATACG
Fpa	-641	-----	-----	-----	-----	T	AACGTTTTTA	TGCATAATTT	TCATGTTGAT	TTATTTATTT	TTGTTGTACA	TTATAATGCG
Fv	-638	-----	-----	-----	-----	C	AACGTTTTTA	TGCATAATTT	TCATATTGAT	TTATTT-TTT	TTGTTGTA	TTATAATACG
Fc	-697	-----	-----	-----	-----	C	AACGTTTTTA	cgtctaattt	ctgttcgg-T	TTATTT-TTT	TCATTGTTTT	TTATAATACG
Fp	-791	ctaaatttga	ataaccatt	atgacatggt	tatttccac	C	AACGTTTTAA	TAAAAAAATT	attttaaacc	agccccaca	tgcgtggccg	aaactcacgg

**PR**

Ft	-578	AGTATTTCCG	G-----	-----	-----	-----	-----	-----	-----	-TGTTAATGA	TGGATGA---	-----	-----	TGTTAA
Fb	-582	AGTCTTTCCG	G-----	-----	-----	-----	-----	-----	-----	-TGTTAATGA	TCGATGA---	-----	-----	TGTTAA
Fpa	-580	AGTCTTTCCG	G-----	-----	-----	-----	-----	-----	-----	-TGTAAATGG	TCGATGA---	-----	-----	TGTTAA
Fv	-578	AGTCTTTCCG	G-----	-----	-----	-----	-----	-----	-----	-TGTTAATGA	TCGATGA---	-----	-----	TGTTAA
Fc	-638	AGTTTTTCCG	G-----	-----	-----	-----	-----	-----	-----	-TGTTGATAG	TCGTTGAcag	ttgtgtgata	ttag	TGCTAC
Fp	-691	atcaaatata	gctttcttca	cactaacgtt	tttatgtttc	gactataaccg	ttgtgacgta	cTGTTTTCTA	CCTACGT---	***	*	-----	-----	TTCTAA

Ft	-545	ATGACATCGT	TTTAA-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fb	-549	ATAACATCGT	TTTAA-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fpa	-547	ATGACATCGT	TTTAA-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fv	-545	CTAACATCGT	TTTAA-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fc	-588	TTGACATGAT	TTTAA	tgcccc	cgtcgtaacg	cgggaggct-	-----	TAAGAC	TAGTTTTCT-T	AATTCACAAA	AGTTCTCAAC	GAATGATTAG	TTGCGTTTGT	-----
Fp	-608	ATAAAATATA	TTTAA	aaaca	tgccgctgca	acacgcgaga	aaac	TACTAG	TTGTTTTCT-T	AATTCACAAA	AATTCCTCAAC	GAATGATTAG	TTGCGTTTGT	-----

Ft	-476	TATTCATAG-	GAAAGCGGAC	GAGCATGTCG	TTATAATTAA	-----	AAAAA	TATCAAAAAGA	GTA AACAAAA	AAGGAAAAAG	ACTAATTATT	TAG----	ATAA
Fb	-479	TATGCATAG-	GAAAGCGGAC	GAACATGTCG	TTATAATTAA	-----	AAAAA	TATCAAAAAGA	GTA AACAAAA	AAGGAAAAAG	ACTGATTATT	AATATAATAA	-----
Fpa	-479	TATGCATAG-	GAAAGCAGAC	GAGCATGTCG	TTATTATTAA	-----	AAAAA	TATCAAAAAGA	GTA AACAAAA	GAGGAAAAAG	ACTAATTATT	AATATAATAA	-----
Fv	-476	TATGCATAG-	GAAAGCGGAC	GAGCATGTCG	TTATTATTAA	-----	AAAAA	TATCAAAAAGA	GTA AACAAAA	GAGGAAAAAG	ACTGATTATT	AAT----	ATAA
Fc	-494	TATGCActgC	GAAAGCGGAC	GTCATGTCG	TTATTATTAA	-----	AAAAA	TACT--AAGA	GTAAAAAATA	GAAGTAAAAG	ACTGATTATC	AAT----	TTAA
Fp	-509	TATGCAaa-C	GAAAGCGGAC	GATCATGTCG	TTATTATTAA	ttaaa	AAAAA	TACTAAAAGA	GTAAAAAATA	GAAGAAAAAG	ACTGATTATC	AAT----	TTAA

Ft	-385	TAATAATATC	CACAAAAATA	TTCGAATTCT	TCAATCCTGA	GTTTGCTC--	TGTGGATGAG	TTTCTGTATC	ATTGATACTT	GATACCTGTA	ATTCACACAC	-----	-----
Fb	-385	TAATAATATC	CACAAAAATA	TTCGAATTCT	TCAATCCTGA	GTTTGCTC--	TGTGGATGAG	CAACTGTATC	GTTGATACTT	GATACCTGTA	ACTCACACAC	-----	-----
Fpa	-385	TAATAATATC	CACAAAAATA	TTCGAATGCT	TCAATCCAGA	GTTTGCTC--	TGTGGATGAG	TTTCTTTATC	GTTGATACTT	GATACCTGTA	ACTCACATAC	-----	-----
Fv	-385	TAATAATATC	CACAAAAATA	TTCGAATGCT	TCAAGCCTAA	GTTTGCTC--	TGTGGATGAG	TTTCTGTATC	GGTGATACTT	GATACCTGTA	ACTCACACAC	-----	-----
Fc	-404	TAATAATATC	CACAAAAATA	TTCCAATAAT	TCAACCTGA	GTTTGCTATT	TGTGGATGAG	TTTCTGTATC	GTTGATAC--	-----	CTGTA	ACTCACACAG	-----
Fp	-413	TAATAATATC	CACAAAAATA	TTCCAATAAT	TTAACC-TGA	GTTTGCTATT	TGTGGATGAG	TTTCTGTATC	GTTGATAC--	-----	CTGTA	ACTCACACAG	-----

→ **Transcription start site**

Ft	-287	CTCATATCTC	ATACTTCATC	TATAAATA--	-----	CCCAA	TTCATTTTGC	TCAAAGTCTC	AACACTGAGC	ATACCCAA--	-----	-----	-----
Fb	-287	CTCATATCTC	ATACTTCATC	TATAAATA--	-----	CCCAA	TTCATTTTGC	TCAAAGTCTC	AACACTGAGC	ATACCCAA--	-----	-----	-----
Fpa	-287	CTCATATCTC	ATACTTCATC	TATAAATG--	-----	CCCAA	TTCATTTTGC	TCAAAGTCTC	AACACTGAGC	ATACCCAA--	-----	-----	-----
Fv	-287	CTCATATCTC	ATACTTCATC	TATAAATA--	-----	CCCAA	TTCATTTTGC	TCAAAGTCTC	AACACTGAGC	ATACCCAA--	-----	-----	-----
Fc	-311	TTCATAAECT	ATACTTCATC	TATAAATACT	CAATCCCCTAA	TTCAATTTTGT	TTAGAGTCTC	AACAGTGAGC	ATACCAACAT	CTCAATTTCA	TCATCTTCTT	-----	-----
Fp	-321	TTCTTAAECT	ATACTTCATC	TATAAATACT	CAATCCCCAA	TTCGTTTTTGT	TTAGAGTCTC	AACACTGAGC	ATACCCATAT	CTCAATTTCA	TCATCTTCTT	-----	-----

Ft	-216										
Fb	-216										
Fpa	-216										
Fv	-216										
Fc	-211										
Fp	-221										
		-----TATTCA	GGTGATCTAA	TTTAACGTTT	GCATGAGTAT	TTTCTTAATA	AAATTTATGT	TGGGTTTACA	GTATCTATTG	GGTGGATTTTC	T-----T
		-----TATTCA	GGTGATCTAA	TTTAACATTT	GCATGAGTAT	TTTCTTAATA	AAATTTCTAT	TGGGTTTACA	GTATCTATTG	GGTGGATTTTC	T-----T
		-----TATTCA	GGTGATCTAA	TTTAACGTTT	GCATGAGTAT	TTTCTTAATA	AAATTTATAT	TGGGTTTACG	ATATCTATTG	GGTGGATTTTC	T-----T
		-----TATTCA	GGTGATCTAA	TTTAACATTT	GCATGAGTAT	TTTCTTAATA	AAATTTCTGT	TGGGTTTACA	GTATCTATTG	GGTGGATTTTC	T-----T
		CCACTATTCA	GGTGATCTGA	TTGAACATTT	ACATAACTAT	TTGCTT----	-AATTTATGT	TGGGTTTACA	GTATCTATTG	GATGGATTTTC	TTGTACCGTT
		CCACTATTCA	GGTGATCTGA	TTGAACATTT	ACATAACTAT	TTGCTT----	-AATTTATGT	TGGGTTTACA	GTATCTATTG	GATGGATTTTC	TTGTACCGTT
		*****	***** * *	** ** *	** * **	** ** *	***** * *	*****	*****	* ***** *	*
		<b>Intron</b>									
Ft	-128										
Fb	-128										
Fpa	-128										
Fv	-128										
Fc	-116										
Fp	-126										
		AAACGGATTG	TGGTTTGATT	AATAAAAAAT	CTTAATGAGA	AGTTTGTGAT	AATATGCTGA	AATG-----	----GGTTGT	TTTTGTGTTA	ATTTTTCAGG
		ATACGGATTG	TGGTTTCATT	AATAAATAAT	CTTAATCAGA	AGTTTGTGAT	AATATGCTAA	AATA-----	----GGTTGT	TTTTATGTTA	ATTTTTCAGG
		ATACGGATTG	TGGTTTGATT	AATAAAAAAT	CTTAATCAGA	AGTTTGTGAT	AATATGCTGA	AGTG-----	----GGTTGT	TTTTGTGTTA	ATTTTTCAGG
		TTACGGATTG	TGGTTTGATT	AATAAAAAAT	CTTAATCAGA	AGTTTGTGAT	AATATGCTAA	AATG-----	----GGTTGT	TTTTGTGTTA	ATTTTTCAGG
		ATATGGTTTG	TGGTTCGATT	ATGGc----	CTCGATCAGA	AGTTTGTGAT	AATCTGCTGA	AATG-----	----GGTTGT	TTTTGTGTTA	ATTTTTCAGG
		ATATGGTTTG	TGGTTCGATT	ATGGg----	CTCGATCAGA	AGTTTGTGAT	AATCTGGTGA	AATGgggttgt	ttgtGGTTGT	TTTTGTGTTA	ATTTTTCAGG
		* * *	***** * *	*	*	** ** **	*****	*** ** * *	* *	*****	*****
		<b>PR +1</b>									
Ft	-38										
Fb	-38										
Fpa	-38										
Fv	-38										
Fc	-31										
Fp	-31										
		GTTGGAGGGG	AATTAAGTAT	TAAGCAAGGG	TGTGAGTAATG						
		GTTGGAGGGG	AATTAAGTAT	TAAGCAAGGG	TGTGAGTAATG						
		GTTGGAGGGG	AATTAAGTAT	TAAGCAAGGG	TGTGAGTAATG						
		GTTGGAGGGG	AATTAAGTAT	TAAGCAAGGG	TGTGAGTCATG						
		GTTGGAGGGG	AATTAAG---	----CAAGGG	TGTGTGTAATG						
		GTTGGAGGGG	AATTAAG---	----CAAGTG	TGTGTGTAATG						
		*****	*****	**** *	**** ** *						

**Supplemental Figure 1:** Comparison of *ppcA* promoter sequences from *Flaveria trinervia* (Ft), *F. bidentis* (Fb), *F. palmeri* (Fpa), *F. vaginata* (Fv), *F. cronquistii* (Fc) and *F. pringlei* (Fp). The alignment was performed with Dialign (Morgenstern et al, 1998) as provided by Genomatix (<http://www.genomatix.de/cgi-bin/dialign/dialign.pl>) using the default parameters and corrected by hand. Aligned nucleotides are shown in upper case letters. Identical positions in all promoters are marked by an asterisk. The distal region (DR) and the proximal region (PR) of the *F. trinervia* promoter are labelled by grey bars. The MEM-1 in the distal region and the Intron in the proximal region are highlighted by black bars.