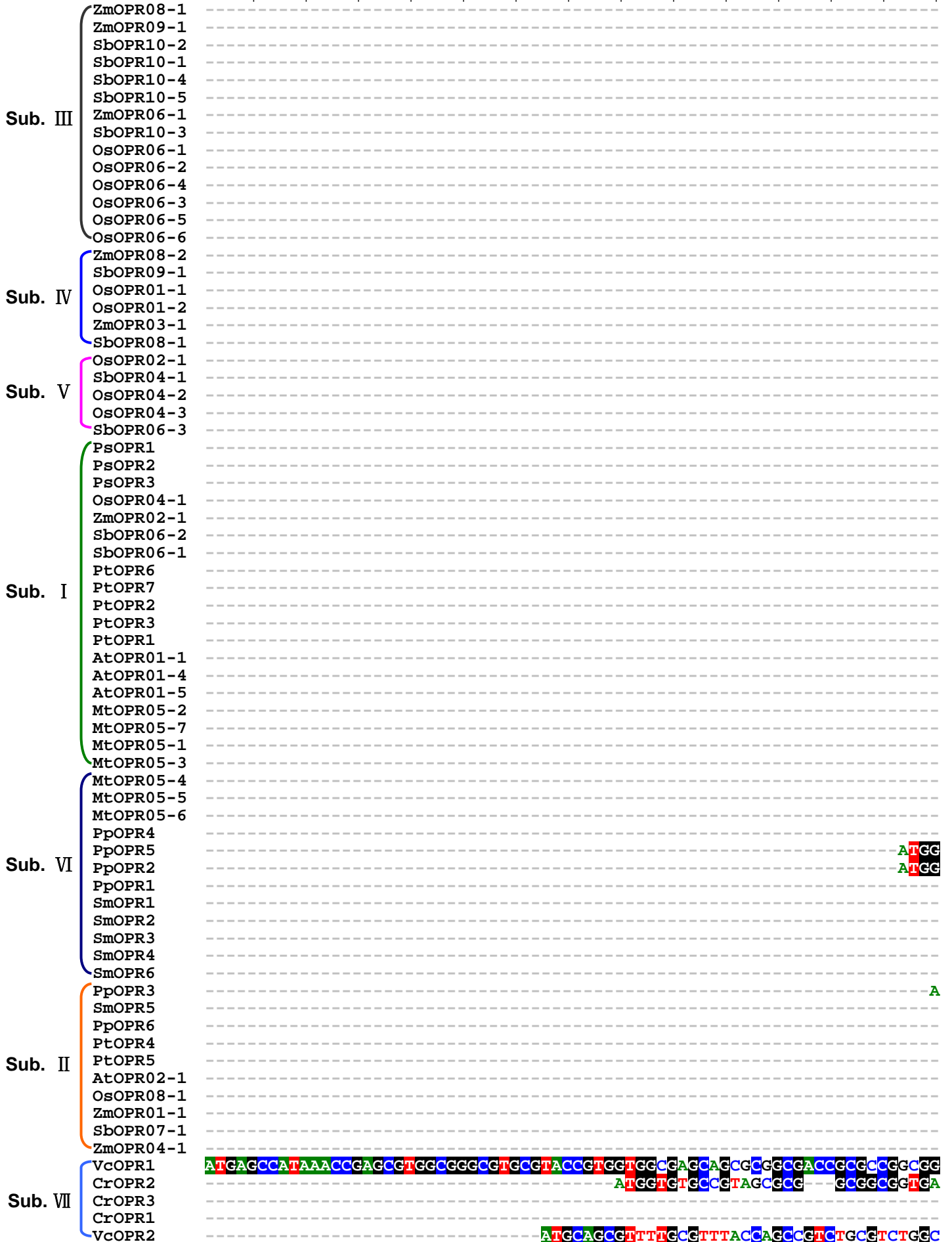
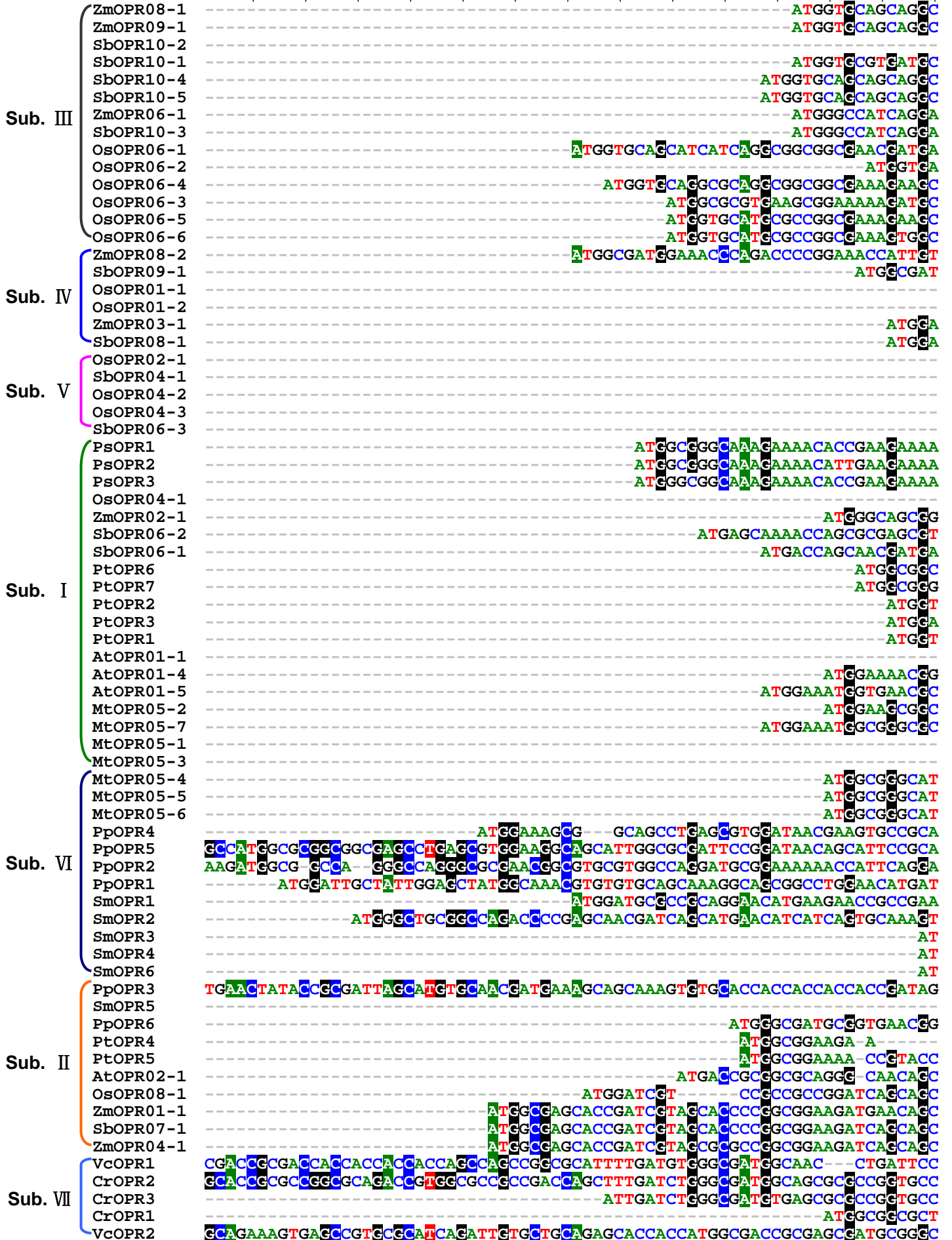


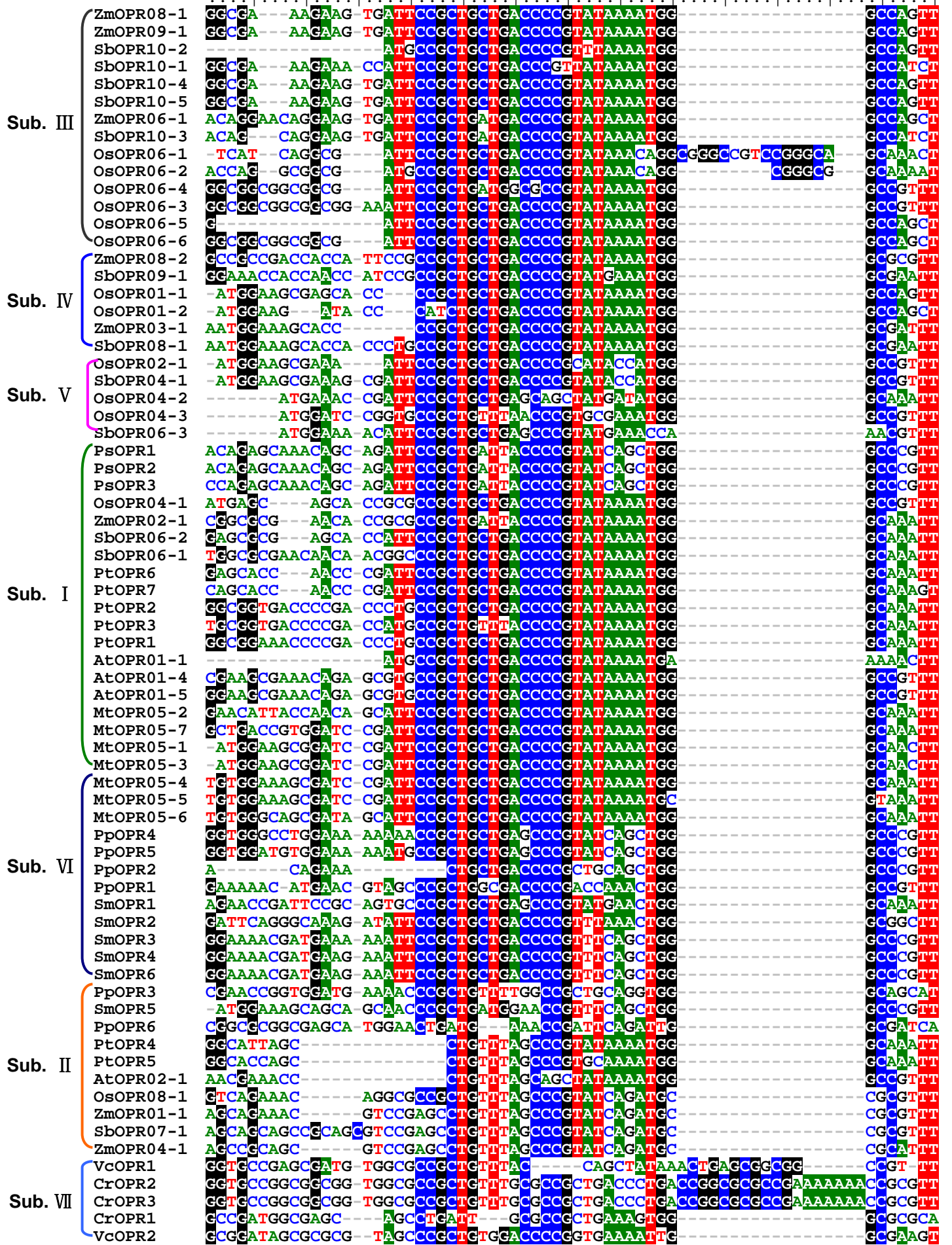
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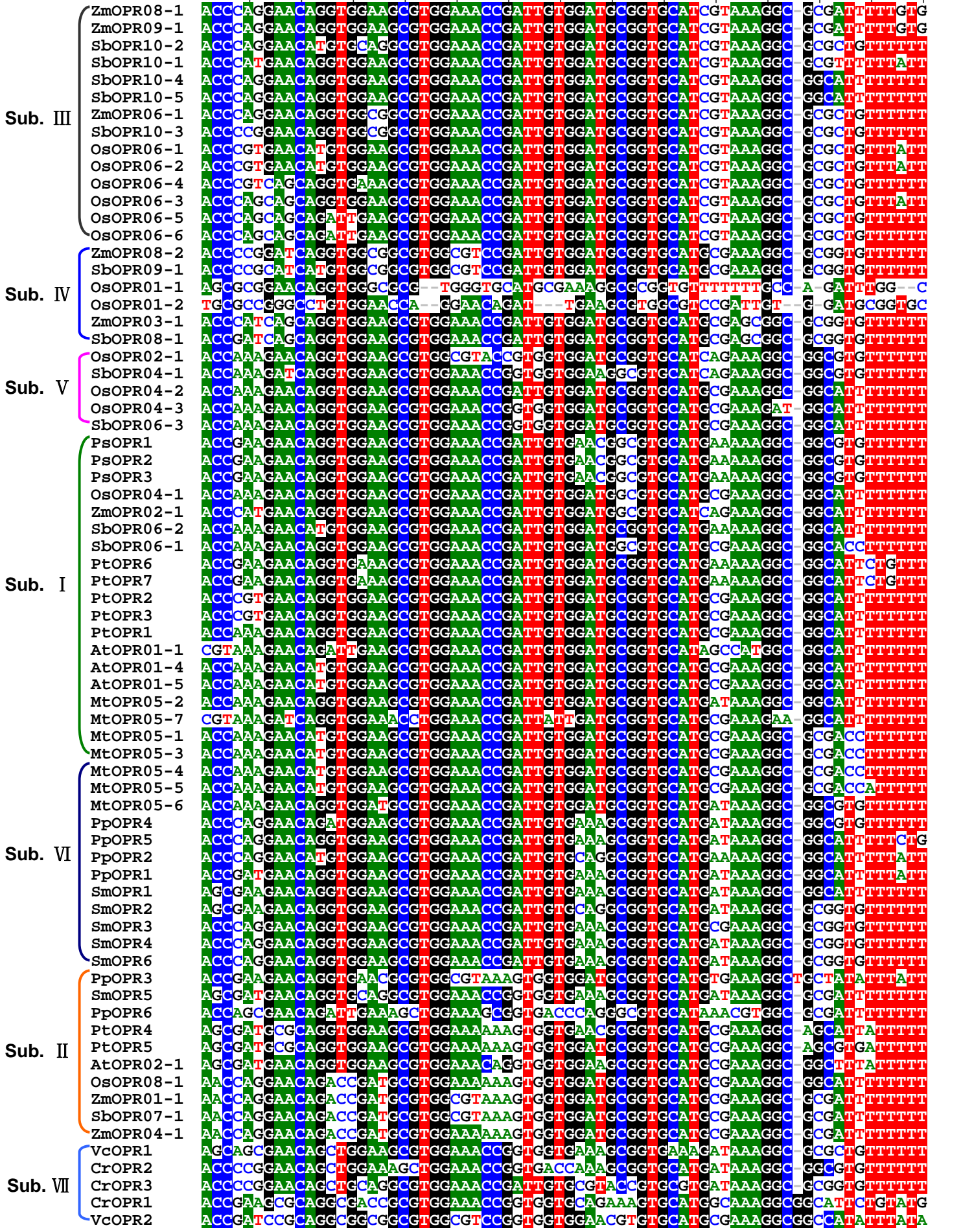


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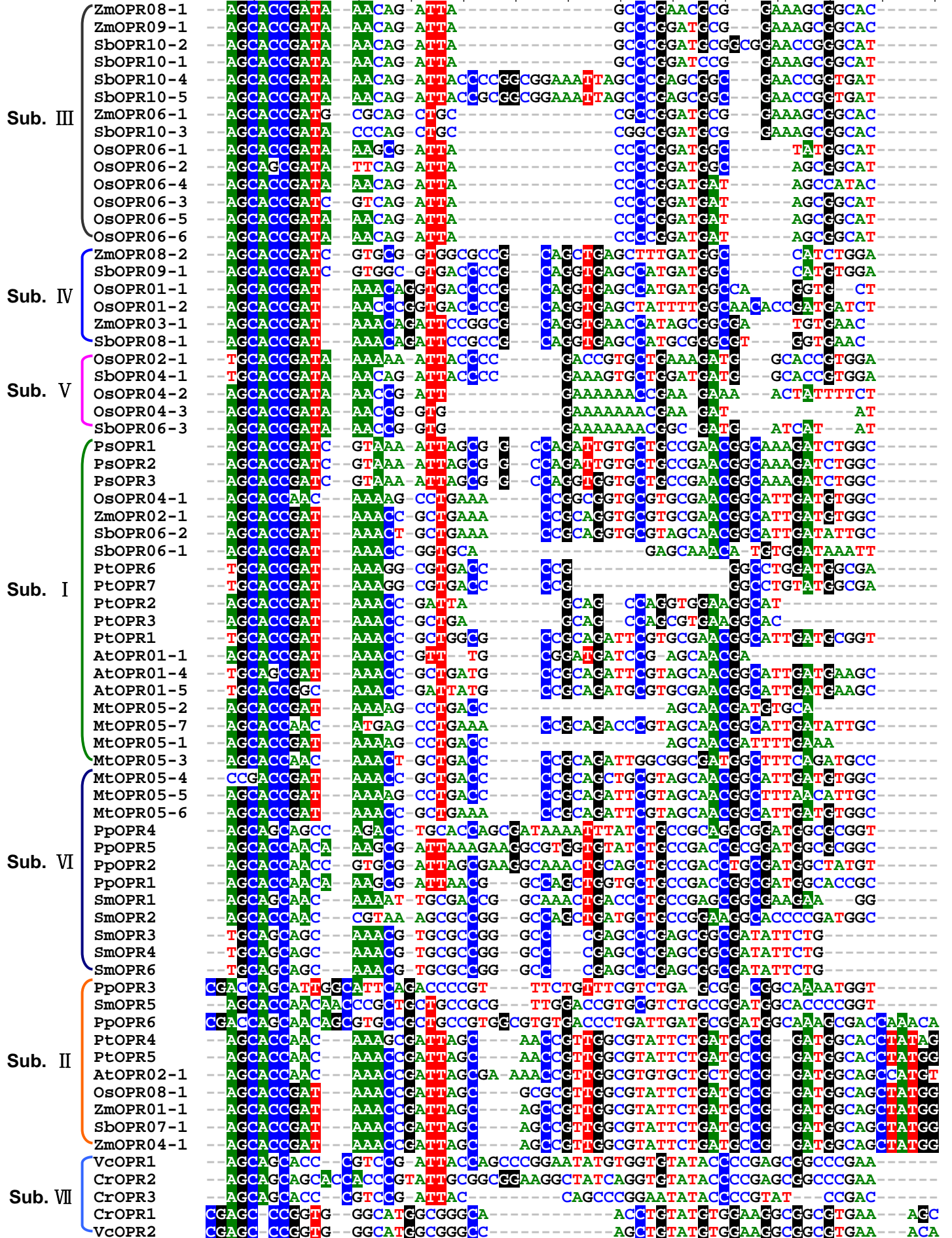
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	SbOPR10-2	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCCGTGGCGGCGCTGCTGATTG
	SbOPR10-1	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCAGCGGCGGCGCTGCTGATTG
	SbOPR10-4	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCAAAAGGCGGCGCTGCTGATTG
	SbOPR10-5	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCAAAAGGCGGCGCTGCTGATTG
	ZmOPR06-1	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	GCCGTGGCGGCGCTGCTGATTG
	SbOPR10-3	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCCGTGGCGGCGCTGCTGATTG
	OsOPR06-1	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCCGTGGCGGCGCTGCTGATTG
	OsOPR06-2	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCAGCGGCGGCGCTGCTGATTG
	OsOPR06-4	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCAACGGCGGCGCTGCTGATTG
	OsOPR06-3	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCAGCGGCGGCGCTGCTGATTG
Sub. IV	ZmOPR08-2	CCG CAG CCG	CAT GCG GCG GTG TATT ATAG CCAG CGT GCGA	CCCGTGGCGGCGCTGCTGATTG
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	OsOPR01-2	CCG CAG CCG	CATAACCTGCTGTATTATAGCCAGCGTGCGA	CCCCGGGCGGCGCTGCTGATTG
	ZmOPR03-1	CCG CAG CCG GAA	CATATGGCGGTGATTATAGCCAGCGTGCGA	CCCCGGGCGGCGCTGCTGATTG
Sub. V	SbOPR08-1	CCG CAG CCG GAA	CATATGGCGGTGATTATAGCCAGCGTGCGA	CCCCGGGCGGCGCTGCTGATTG
	OsOPR02-1	CCG CAG GAA	CATGTGCAGCTGTATTATAGCCAGCGTGCGA	CCAACGGCGGCGCTGCTGATTG
	SbOPR04-1	CCGGG CAG	CATGTGGCGGTGATTATAGCCAGCGTGCGA	GCGAAAGGCGGCGCTGCTGATTG
	OsOPR04-2	CCG CAG GAA	CATGCGATGGAAATATTATAGCCAGCGTGCGA	CCAAAAGGCGGCGCTGCTGATTG
	SbOPR06-3	CCG CAG GAA	CATGCGATGGAAATATTATAGCCAGCGTGCGA	CCAAAAGGCGGCGCTGCTGATTG
Sub. I	PtOPR6	CCG CAG CCG	CATGCGATTCTGTATTATAGCCAGCGTACCA	GCCCGGGCGGCGCTGCTGATTG
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	AtOPR01-1	CCG CAG CCG	CATGTGGCGCTGTATTATAGCCAGCGTACCA	CCCCGGGCGGCGCTGCTGATTG
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	MtOPR05-1	CCG CAG CCG	CATGCGGTGCTGTATTATAGCCAGCGTGCGA	GAAAAGGCGGCGCTGCTGATTG
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Sub. VI	MtOPR05-4	CCG CAG CCG	CATGCGATTCTGTATTATAGCCAGCGTGCGG	CCGGCAGAAAGGCGGCGCTGCTGATTG
	MtOPR05-5	CCG CAG CCG	CATGCGATTCTGTATTATAGCCAGCGTGCGA	CCGGCAGAAAGGCGGCGCTGCTGATTG
	MtOPR05-6	CCG CAG CCG	CATGCGATTCTGTATTATAGCCAGCGTGCGA	CCAAAAGGCGGCGCTGCTGATTG
	PpOPR4	CCG CAG CCG	CATGCGGCGCTGTATTATAGCCAGCGTACCA	CCCGTGGCGGCGCTGCTGATTG
	PpOPR5	CCG CAG CCG	CATGCGGCGCTGTATTATAGCCAGCGTACCA	CCCGGGCGGCGCTGCTGATTG
	PpOPR2	CCG CAG CCG	CATGCGGCGCTGTATTATAGCCAGCGTACCA	GCCCGGGCGGCGCTGCTGATTG
	PpOPR1	CCG CAG CCG	CATGCGGCGCTGTATTATAGCCAGCGTACCA	CCCATGGCGGCGCTGCTGATTG
	SmOPR1	CCG CAG CCG	CATGCGGCGACTTATTATAGCCAGCGTGCGA	CCCAGGGCGGCGCTGCTGATTG
	SmOPR2	CCG CAG CCG	CATGCGGCGATTATTATTATAGCCAGCGTGCGA	CCCAGGGCGGCGCTGCTGATTG
	SmOPR3	CCG CAG CCG	CATGCGGCGGTGTATTATAGCCAGCGTGCGA	CCCCGGGCGGCGCTGCTGATTG
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Sub. II	PpOPR3	CCG CAG GAT	CGCATG TGGAAACATTATATG CAGCGTGCGA	CCCCGGGCGGCGCTGCTGATTG
	SmOPR5	CCG CAG CCG	CGAAC TGTGTATTATAGCCAGCGTGCGA	GCCCGGGCGGCGCTGCTGATTG
	PpOPR6	GCG ACCCG	CTGATGACCGAATATTATG CAGCGTGCGA	CCGAAAGGCGGCGCTGCTGATTG
	PtOPR4	CCGGG CAG	CGC TGGTGGAAATATTATAGCCAGCGTAGCA	CCCCGGGCGGCGCTGCTGATTG
	PtOPR5	CCGGG CAG	CGC TGGCGGAATATTATAGCCAGCGTAGCA	CCCCGGGCGGCGCTGCTGATTG
	AtOPR02-1	CCG AAC CCG	CGC TGGCGGAATATTATAGCCAGCGTAGCA	CCCCGGGCGGCGCTGCTGATTG
	OsOPR08-1	CCGGG CCG	CGC TGGCGGAATATTATAGCCAGCGTAGCA	CCCAGGGCGGCGCTGCTGATTG
	ZmOPR01-1	CCGGG CCG	CGC TGGCGGAATATTATAGCCAGCGTAGCA	CCGATGGCGGCGCTGCTGATTG
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	ZmOPR04-1	CCGGG CCG	CGC TGGCGGAATATTATAGCCAGCGTAGCA	CCGAAAGGCGGCGCTGCTGATTG
	VcOPR1	CCG CAG CCG	AGCGCGGCGGTGTATTATAGCCAGCGTGCGG	TGCCGGGACCGCTGCTGATTG
	Sub. VII	CrOPR2	CAG CCG CCG	CAGGCGGCGGAATATTATAGCCAGCGTAGCG
CrOPR3		CCG CAG CCG	AGCGCGGCGACTTATTATAGCCAGCGTGCGG	TGCCGGGACCGCTGCTGATTG
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VcOPR2		CTGCC AACGAT	CTGCTGGCGCAGTATTATAGCCAGCGTGCGA	GAAAAGGCGGCGCTGCTGATTG



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	SbOPR10-2	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCAACGATTTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	SbOPR10-1	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCAACGAATTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	SbOPR10-4	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCTATGAATTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	SbOPR10-5	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCTATGAATTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	ZmOPR6-1	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCAACGATTTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	SbOPR10-3	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCAACGATTTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	OsOPR6-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCAACAAACGGCTTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	OsOPR6-2	TGCCAGCTGTGGCATGTGGGCGTGTGAGCAACAAACGATTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	OsOPR6-4	TGCCAGCTGTGGCATGTGGGCGTGTGAGCAACAAACGATTTTCAGCCGGATGGCCAGGCGCCGATTAGC
	OsOPR6-3	TGCCAGCTGTGGCATGTGGGCGTGTGAGCAACAAACGATTTTCAGCCGGATGGCCAGGCGCCGATTAGC
OsOPR6-5	CTGCAGATTTGGCATGTGGGCGTGTGAGCACCAACGATTTTTCAGCCGAACGGCCAGGCGCCGATTAGC	
OsOPR6-6	CTGCAGATTTGGCATGTGGGCGTGTGAGCACCAACGATTTTTCAGCCGAACGGCCAGGCGCCGATTAGC	
Sub. IV	ZmOPR8-2	TGCCAGCTGTGGCATGTGGGCGTGTGAGCACCAACCGCGCTGCAGCCGGGCGGCGGGCGCCGATTAGC
	SbOPR9-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCACCAACCGCGTTTCAGCCGGGCGGCGGGCGCCGATTAGC
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	OsOPR01-2	ATCCGAAAAGGCGCGCTGTGTTTTCAGCAATTTTCAGCAATTAACGGCGTGTGTTT
Sub. V	ZmOPR3-1	GCGCAGCTGTGGCATACCGGCGTGTGAGCCGAGCGAATTTTCAGCCGAACGGCCAGGCGCCGATTAGC
	SbOPR8-1	GCGCAGATTTGGCATACCGGCGTGTGAGCCGCGGAAATTTTCAGCCGAACGGCCAGGCGCCGATTAGC
	OsOPR02-1	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCAACGATTTTCAGCCGAACGGCCAGGCGCCGATTCCG
	SbOPR4-1	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCTATGATTTTCAGCCGAACGGCCAGGCGCCGATTAGC
Sub. VI	OsOPR4-2	TGCCAGATTTGGCATGTGGGCGTGTGAGCCGAGCGATATGGAAGAACTCCGATTAGC
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	SbOPR6-3	TGCCAGATTTGGCATGTGGGCGTGTGAGCCGAGCGATATGGAAGAAACCGATTAGC
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Sub. I	PtOPR2	TGCCAGATTTGGCATAGCGGCGTGTGAGCCATGTGGATTATCAGCCGAACGGCCAGGCGCCGCTGAGC
	PtOPR3	TGCCAGATTTGGCATAGCGGCGTGTGAGCCATGTGGATTATCAGCCGAACGGCCAGGCGCCGCTGAGC
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	SbOPR6-2	TGCCAGATTTGGCATGTGGGCGTGTGAGCAACAGCACCTTTTCAGCCGAACGGCCAGGCGCCGATTAGC
	SbOPR6-1	TGCCAGATTTGGCATGTGGGCGTGTGAGCAACAGCACCTTTTCAGCCGAACGGCCAGGCGCCGATTAGC
	PtOPR6	TGCCAGATTTGGCATGTGGGCGTGTGAGCACCTATGGCTTTTCAGCCGAACGGCCAGGCGCCGATTAGC
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Sub. II	AtOPR01-4	TGCCAGATTTGGCATGTGGGCGTGTGAGCAACAGCGCTTTTCAGCCGAACGGCCAGGCGCCGATTAGC
	AtOPR01-5	TGCCAGATTTGGCATGTGGGCGTGTGAGCAACAGCGCTTTTCAGCCGGTCTTCAGGCGCCGATTAGC
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Sub. VII	PpOPR1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATAACAGCTATCAGCCGGATGGCGTGTTCGCGCTGAGC
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	SmOPR2	CTGCAGATTTGGCATGTGGGCGTGTGAGCCATAACAGCTATCAGCCGAAACGGCCAGGCGCCGCTGAGC
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	PpOPR3	GC-CAGATTTGGCATGTGGGCGTGTGAGCCATAAAATATCATCAGCCGAACGGCCGCGGCGCCGCTGAGC
	SmOPR5	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATAACAGCTATTCAGCCGGTGGCCAGGCGCCGCTGAGC
	PpOPR6	CTGCAGCTGTGGCATGTGGGCGTGTGAGCCATAACAGCTATTCAGCCGGGAAAGCGGCGCCGATTAGC
	PtOPR4	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGGGCGGCGGGCGGCGATTAGC
	PtOPR5	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGGGCGGCGGGCGGCGATTAGC
	AtOPR02-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGAACGGCCGAGCCGATTAGC
Sub. III	OsOPR8-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGAACGGCCGCGGCGCCGATTAGC
	ZmOPR01-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGGGCGGCGGGCGCCGATTAGC
	SbOPR07-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGGGCGGCGGGCGCCGATTAGC
	ZmOPR04-1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCAGGTGTATCAGCCGGGCGGCGGGCGCCGATTAGC
Sub. IV	VcOPR1	TGCCAGCTGTGGCATGTGGGCGTGTGAGCCATCCGAACTGCAGCCGGGCGGCGGGCGCCGCTGAGC
	CrOPR2	TGCCAGCTGTGGCATACCGGCGTGTGAGCCATAGCATCTGCAGCCGGGAAACAGCTGCAGGATTAGC
	CrOPR3	TGCCAGCTGTGGCATACCGGCGTGTGAGCCATAACGATCTGCAGCCGATGGCACCGCCGATTAGC
	CrOPR1	CG-CAGCTGTTCATGCGGGCGTGTGAGCCATAAGCAGCTGTGGTGGGCAACCAACCGTGTGAGC
VcOPR2	TG-CAGCTGTTCATGCGGGCGTGTGAGCCATAAGCAGCTGTGGTGGGCAACCAACCGTGTGAGC	

570 580 590 600 610 620 630



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Sub. III	ZmOPR08-1	GCGCGTAAACGCGCTGGAAG	CGGGCTTTGATGCGGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
	ZmOPR09-1	GCGCGTAAACGCGATTGAGG	CGGGCTTTGATGCGGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
	SbOPR10-2	GCGCGTAAACGCGCTGGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATCTGCTGG
	SbOPR10-1	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
	SbOPR10-4	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTTATTCTGG
	SbOPR10-5	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTTATTCTGG
	ZmOPR06-1	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTCTGCTGG
	SbOPR10-3	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTCTGCTGG
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	OsOPR06-2	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATCTGCTGG
	OsOPR06-4	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
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OsOPR06-5	GCGCGTAAACGCGATTGAA	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG	
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Sub. IV	ZmOPR08-2	GCGCGTAAACGCGCTGCTGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATCTGATTG
	SbOPR09-1	GCGCGTAAACGCGATTGATG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATCTGATTG
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	OsOPR02-1	GCGCGTAACTGCATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGTTTGGCTATCTGATTG
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Sub. I	OsOPR04-3	GCGCGTAAACGCGATTGATG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTCTGCTGG
	SbOPR06-3	GCGCGTAAACGCGCTGGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTCTGCTGG
	PsoPR1	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
	PsoPR2	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
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	OsOPR04-1	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
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	PtOPR1	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
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	AtOPR01-5	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
	Sub. VI	MtOPR05-2	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT
MtOPR05-7		GCGCGTAAACGCGATTGCGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
MtOPR05-1		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
MtOPR05-3		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
MtOPR05-4		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATATTCTGG
MtOPR05-5		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
MtOPR05-6		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
PpOPR4		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTTTCTGATTG
PpOPR5		GCGCGTAAACGCGCTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
PpOPR2		GCGCGTAACTGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
PpOPR1		GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
SmOPR1		GCGCGTAAACGCGATTGCGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
Sub. II	SmOPR2	GCGCGTAAACGCGATTGCGT	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
	SmOPR3	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
	SmOPR4	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
	SmOPR6	GCGCGTAAACGCGATTGAAG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGATTG
	PpOPR3	GCGAAAACGCGATTGCGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
	SmOPR5	GCGCGTAAACGCGCTGCGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGCATGGCTATCTGCTGG
	PpOPR6	GCGAAAACGCGCTGGAAG	CGGGCTTTGATGGCTGCGAATT	CATGGCGCGCATGGCTATATTCTGG
	PtOPR4	GCGCTGAACGCGATTCTGT	CGGGCTTTGATGGCGTGAAATT	CATGGCGGCTATGGCTATCTGATTG
	PtOPR5	GCGCTGAACGCGATTCTGT	CGGGCTTTGATGGCGTGAAATT	CATGGCGGCTATGGCTATCTGATTG
	AtOPR02-1	GCGCTGAACGCGATTCTGT	CGGGCTTTGATGGCTTGAATT	CATGGCGCGCATGGCTATCTGATTG
	OsOPR08-1	GCGATTAAACGCGATTGAAG	CGGGCTTTGATGGCATGAAATT	CATGGCGCGCATGGCTATATTATTG
	ZmOPR01-1	GCGGTGAACGCGATTGAAG	CGGGCTTTGATGGCATGAAATT	CATGGCGCGCATGGCTATCTGATTG
Sub. VII	SbOPR07-1	GCGATTAAACGCGATTGAAG	CGGGCTTTGATGGCATGAAATT	CATGGCGCGCATGGCTATCTGATTG
	ZmOPR04-1	GCGATTAAACGCGATTGAAG	CGGGCTTTGATGGCATGAAATT	CATGGCGCGCATGGCTATCTGATTG
	VcOPR1	GCGAAAACGCGATTGAAGTGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATTTTATTG
	CrOPR2	GCGGTGGCGCGCTGGAAGTGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATCTGATTG
	CrOPR3	GCGGTGGCGCGCTGGAAGTGG	CGGGCTTTGATGGCGTGAAATT	CATGGCGCGAACGGCTATCTGATTG
CrOPR1	GCGCTGCGTGCATTGAGG	CGGGCTTTGATGGCATGAAATT	CATGGCGCGAACGGCTATCTGCTGC	
VcOPR2	GCGGTGCGTGCATTGAGG	CGGGCTTTGATGGCATGAAATT	CATGGCGCGAACGGCTATCTGCTGC	

780 790 800 810 820 830 840

Sub. III	ZmOPR08-1	AA CAG TTT AT GAA A GAT AG C T G C A A C G A T	CGT ACC GAT C A G T	ATGG
	ZmOPR09-1	AA CAG TTT AT GAA A GAT AG C T G C A A C G A T	CGT ACC GAT C A G T	ATGG
	SbOPR10-2	AA CAG TTT AT GAA A GAT G C C G C G A A C G A T	CGT G A T G A T G A A T	ATGG
	SbOPR10-1	AA CAG TTT AT GAA A GAT G C C A C C A A C G A T	CGT G A T G A T G A A T	ATGG
	SbOPR10-4	AA CAG TTT AT GAA A GAT A G C A G C A A C G A T	CGT ACC GAT G A A T	ATGG
	SbOPR10-5	AA CAG TTT AT GAA A GAT A G C A G C A A C G A T	CGT ACC GAT G A A T	ATGG
	ZmOPR06-1	AA CAG TTT AT GAA A GAT G C C G C G A A C G A T	CGT G C G A T G A A T	ATGG
	SbOPR10-3	AA CAG TTT AT GAA A GAT G C C G C G A A C G A T	CGT ACC GAT G A A T	ATGG
	OsOPR06-1	AA CAG TTT AT GAA A GAT A G C A G C A A C G A T	CGT ACC GAT G A A T	ATGG
	OsOPR06-2	AA CAG TTT AT GAA A GAT A G C A G C A A C G A T	CGT A C C G A T G A A T	ATGG
	OsOPR06-4	A T C A G T T T A T G A A A G A T A G C G C G A A C G G C	CGT ACC GAT C A G T	ATGG
	OsOPR06-3	AA CAG TTT AT GAA A GAT A G C C G A A C G A T	CGT A G C G A T G A A T	ATGG
OsOPR06-5	A T C A G T T T A T G A A A G A T A G C G C G A A C G A T	CGT A C C G A T G A A T	ATGG	
OsOPR06-6	AA CAG TTT AT GAA A GAT A G C G C G A A C G A T	CGT ACC GAT G A A T	ATGG	
Sub. IV	ZmOPR08-2	AA CAG TTT C T G A A A G A T A G C C G A A C G A T	CGT G A T G A T G A A T	ATGG
	SbOPR09-1	A A C A G T T T A T G A A A G A T A G C C G A A C G A T	CGT G A T G A T G A A T	ATGG
	OsOPR01-1	A T C A G T T T A T G A A A G A T A G C G T G A A C G A T	CGT ACC GAT G C G T	ATGG
	OsOPR01-2	A T C A G T T T A T G A A A G C G A G C G T G A A C G A T	CGT ACC GAT G A A T	ATGG
Sub. V	ZmOPR03-1	A T C A G T T T A T G A A A G A T A G C A C C A A C G A T	CGT G A T G A T A G C T	ATGG
	SbOPR08-1	A T C A G T T T A T G A A A G A T A G C A C C A A C G A T	CGT G A T G A T G C G T	ATGG
	OsOPR02-1	AA CAG TTT AT GAA A GAT G C C G T G A A C G A T	CGT ACC GAT A A A T	ATGG
	SbOPR04-1	AA CAG TTT AT GAA A GAT A G C G T G A A C G A T	CGT A C C G A T G A A T	ATGG
Sub. I	OsOPR04-2	A T C A G T T T A T G A A A G A T G C C G T G A A C G G	CGT G C G G A T G A A T	ATGG
	OsOPR04-3	AA CAG TTT AT GAA A GAT G C C G T G A A C G A T	CGT G C G G A T G A A T	ATGG
	SbOPR06-3	AA CAG TTT AT GAA A GAT A G C G T G A A C G A T	CGT A C C G A T A A A T	ATGG
	PpOPR1	A T C A G T T T A T G A A A G A T A G C A T T A A C A A C	CGT ACC GAT G A A T	ATGG
	PpOPR2	A T C A G T T T A T G A A A G A T A G C A T T A A C A A C	CGT ACC GAT G A A T	ATGG
	PpOPR3	A T C A G T T T A T G A A A G A T A G C A T T A A C A A C	CGT A T T G A T C A G T	ATGG
	OsOPR04-1	A T C A G T T T C T G A A A G A T C A G G T G A A C G A T	CGT A C C G A T A A A T	ATGG
	ZmOPR02-1	A T C A G T T T C T G A A A G A T G C C G T G A A C G A T	CGT ACC G A T A A A T	ATGG
	SbOPR06-2	A T C A G T T T C T G A A A G A T C A G G T G A A C G A T	CGT A C C G A T A A A T	ATGG
	SbOPR06-1	A T C A G T T T C T G A A A G A T C A T G T G A A C G A T	CGT ACC G A T A T T T	ATGG
	PtOPR6	A T C A G T T T C T G A A A G A T C A G G T G A A C G A T	CGT ACC G A T A A A T	ATGG
	PtOPR7	A T C A G T T T C T G A A A G A T C A G G T G A A C G A T	CGT A C C G A T A A C T	ATGG
Sub. VI	PtOPR2	A T C A G T T T A T G A A A G A T C A G G T G A A C A A C	CGT ACC G A T C A G T	ATGG
	PtOPR3	A T C A G T T T A T G A A A G A T C A G G T G A A C A A C	CGT ACC G A T C A G T	ATGG
	PtOPR1	A T C A G T T T A T G A A A G A T C A G G T G A A C G A T	CGT A C C G A T C A G T	ATGG
	AtOPR01-1	A T C A G T T T A T G A A A G A T A G C G T G A A C G A T	CGT ACC G A T A G C T	ATGG
	AtOPR01-4	A T C A G T T T A T G A A A G A T A C C G T G A A C G A T	CGT ACC G A T G A A T	ATGG
	AtOPR01-5	A T C A G T T T A T G A A A G A T A A A G T G A A C G A T	CGT A C C G A T G A A T	ATGG
	MtOPR05-2	AA CAG TTT AT GAA A GAT A A A A G T G A A C G A T	CGT ACC G A T G A A T	ATGG
	MtOPR05-7	AA CAG TTT AT GAA A GAT A A A A G T G A A C G A T	CGT ACC G A T A A A T	ATGG
	MtOPR05-1	AA CAG TTT AT GAA A GAT A A A A G T G A A C G A T	CGT A C C G A T G A A T	ATGG
	MtOPR05-3	AA CAG TTT AT GAA A GAT A A A G C G A A C G A T	CGT ACC G A T G A A T	ATGG
	MtOPR05-4	AA CAG TTT AT GAA A GAT C A G G T G A A C G A T	CGT ACC G A T G A A T	ATGG
	MtOPR05-5	AA CAG TTT AT GAA A GAT A A A A G T G A A C G A T	CGT A C C G A T G A A T	ATGG
MtOPR05-6	AA CAG TTT AT GAA A GAT A A A A G T G A A C G A T	CGT ACC G A T G A A T	ATGG	
Sub. II	PpOPR4	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT A G C G A T A A A T	ATGG
	PpOPR5	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT A C C G A T A A A T	ATGG
	PpOPR2	A T C A G T T T C T G A A A G A T G C C G T G A A C G A T	CGT ACC G A T G A A T	ATGG
	PpOPR1	AA CAG TTT C T G A A A A G C A G C G T G A A C G A T	CGT ACC G A T A A A T	ATGG
	SmOPR1	A T C A G T T T C T G A A A G A T G C C G T G A A C G A T	CGT A C C G A T G A A T	ATGG
	SmOPR2	A T C A G T T T T T T A A A G A T A G C A C C A A C G A T	CGT ACC G A T G A A T	ATGG
	SmOPR3	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT ACC G A T G G C T	ATGG
	SmOPR4	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT A C C G A T G G C T	ATGG
	SmOPR6	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT ACC G A T G G C T	ATGG
	PpOPR3	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT A A A G A T G A A T	ATGG
	SmOPR5	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT G A T G C G T	ATGG
	PpOPR6	A T G C G T T T A T T A A A G A T A C C A T T A A C G A T	CGT A C C G A T G C G T	ATGG
Sub. VII	PtOPR4	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT A T T G A T G A T C T G T G C C A T A C C A G C G C T A T G A T G G	ATGG
	PtOPR5	A T C A G T T T C T G A A A A C G G C A T T A A C G A T	CGT G T G G A T G A A T	ATGG
	AtOPR02-1	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT ACC G A T C A G T	ATGG
	OsOPR08-1	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT ACC G A T G A A T	ATGG
	ZmOPR01-1	A T C A G T T T C T G A A A G C C G G C A T T A A C G A T	CGT A C C G A T G A A T	ATGG
	SbOPR07-1	A T C A G T T T C T G A A A G A T G C C A T T A A C G A A	CGT ACC G A T G A A T	ATGG
	ZmOPR04-1	A T C A G T T T C T G A A A G A T G C C A T T A A C G A T	CGT G C G G A T G A A T	ATGG
	VcOPR1	A T C A G T T T A T T A A A G A T A G C G T G A A C G A T	CGT A C C G A T G A A T	ATGG
	CrOPR2	A T C A G T T T C T G A A A G A T A A C G T G A A C G A T	CGT ACC G A T G A A T	ATGG
	CrOPR3	A T C A G T T T A T T A A A G A T A A C G T G A A C G A T	CGT ACC G A T G A A T	ATGG
	CrOPR1	A G G C G T T T A T G C G C A G A A A A C C A A C C A G	CGT A C C G A T A A A T	ATGG
	VcOPR2	A G A G C T T T C T G C G A A A A A A A C C A A C C T G	CGT ACC G A T A A A T	ATGG

990 1000 1010 1020 1030 1040 1050

	ZmOPR08-1	CCGGTGGCGCTGGGCCATTATATGGTGCAGCAGC	TGAACCGTCATAGCGGCCTGCTGTATTGCCATA
	ZmOPR09-1	CCGGTGGCGCTGGGCCATTATATGGTGCAGCAGC	TGAACCGTCATAGCGGCCTGCTGTATTGCCATA
	SbOPR10-2	CCGGCGGCGCTGGCGGATTATATGGTGCCTCAGC	TGAACCGTCATGAAAGGCTTTCTGTATTGCCATA
	SbOPR10-1	CCGGCTGGCGCTGGGCCAATATATGGTGCAGCAGC	TGAACCGTCATGAAAGGCTTTCTGTATTGCCATA
	SbOPR10-4	CCGGTGGCGCTGGGCCATTATATGATTCAGCAGC	TGAACAAAACATGAAAGGCTTTCTGTATTGCCATA
	SbOPR10-5	CCGGTGGCGCTGGGCCATTATATGATTCAGCAGC	TGAACAAAACATGAAAGGCTTTCTGTATTGCCATA
Sub. III	ZmOPR06-1	CCGCTGGCGCTGGGCCATTATATGGTGGAAACAGC	TGAACCGTCATGAAAGGCTTTCTGTATTGCCATA
	SbOPR10-3	CCGATGGCGCTGGGCCAATTATATGGTGCCTCAGC	TGAACAAAACATGAAAGGCTTTCTGTATTGCCATA
	OsOPR06-1	CCGGAAGCGCTGGGCAGCTATATGGTGGAAACAGC	TGAACAAAACATGAAAGATTTTCTGTATTGCCATA
	OsOPR06-2	CCGGAAGCGCTGGGCAGCTATATGGTGGAAACAGC	TGAACAAAACATGAAAGCTTTCTGTATTGCCATA
	OsOPR06-4	CCGGAAGCGCTGGGCAGCTATATGGTGCCTCAGC	TGAACAAAACATCCGGAACTTTCTGTATTGCCATA
	OsOPR06-3	CCGGTGGCGCTGGGCAGCTATATGGTGCAGCAGC	TGAACAAAACATCCGGGCTTTCTGTATTGCCATA
	OsOPR06-5	CCGGTGGCGCTGGGCAGCTATATGGTGCAGCAGC	TGAACAAAACATCCGGGCTTTCTGTATTGCCATA
	OsOPR06-6	CCGGTGGCGCTGGGCAGCTATATGGTGCAGCAGC	TGAACAAAACATCCGGGCTTTCTGTATTGCCATA
	ZmOPR08-2	CCGGAAGCGCTGGCGGGCTATCTGGTCCGTAGCC	TGAGCG ATGTGGGCGTCTGTATTGCCATA
	SbOPR09-1	CCGGAAGCGCTGGCGGGCTATCTGGTGGAAAAAC	TGAGCG AACTGGGCGTCTGTATTGCCATA
Sub. IV	OsOPR01-1	CCGGAAGCTGCTGGCCCTGCGTGTGATTGGAACTGA	TGAACAACTG GGCCTGCTGTATTGCCATA
	OsOPR01-2	CCGGAAGAACTGGCGCTGCATCTGATTGGCGTGA	TGAACGGCCTG GGCCTGCTGTATTGCCATG
	ZmOPR03-1	CCGGAAGCGCTGGCGCTGCATCTGATTGATGAAACCT	TGAACCGCTG GGCCTGCTGTATTGCCATA
	SbOPR08-1	CCGGAAGCGCTGGGCCTGCATCTGATTGATAAAAACCT	TGAACCGCTG GGCCTGCTGTATTGCCATA
Sub. V	OsOPR02-1	CCGGATGCGCTGGGCCTGTATATGATTCAGGCCGA	TGAGCAAACCTG GGCCTGCTGTATTGCAGCA
	SbOPR04-1	CCGGATGCGCTGGGCCTGTATATGATTCATGCGCA	TGAACAAACCTG GGCCTGCTGTATTGCAGCA
	OsOPR04-2	CCGGATGCGCTGGGCCTGTATATGATTCATGCGCA	TGGGAGCCCTG GGCCTGCTGTATTGCAGCA
	OsOPR04-3	CCGGATGCGCTGGGCCTGTATATGATTCATGCGCA	TGGATCCCTGCTG GGCCTGCTGTATTGCAGCG
SbOPR06-3	CCGGATCGTCTGGGCCTGTATATGATTCATGCGCA	TGAACCGTTAT AACATTCTGTATTGCAGCG	
Sub. I	PsoPR1	CCGGAAGCGCTGGGCCTGTATATGGCGGAAGCGC	TGAACCGTTAT AACATTCTGTATGCCATT
	PsoPR2	CCGGAAGCGCTGGGCCTGTATATGGCGGAAGCGC	TGAACCGTTAT AACATTCTGTATGCCATT
	PsoPR3	CCGGAAGCGCTGGGCCTGTATATGGCGGAACCC	TGAACCGTTAT AACATTCTGTATGCCATT
	OsOPR04-1	CCGGAAGCGCTGGGCCTGTATATGGCGGAAGCGC	TGAACAAATTT GGCATTCTGTATTGCCATA
	ZmOPR02-1	CCGGAAGCGCTGGGCCTGTATATGGCGAAGCGC	TGAACAAATTT GGCATTCTGTATTGCCATA
	SbOPR06-2	CCGGAAGCGCTGGGCCTGTATATGGCGAAGCGC	TGAACAAATTT GGCATTCTGTATTGCCATA
	SbOPR06-1	CCGGAAGCGCTGGGCCTGTATATGGCGAAGCGC	TGAACAAATTT GGCATTCTGTATTGCCATG
	PtOPR6	CCGGAAGAACTGGGCCTGTATATGGCGAAGCGC	TGAACAAATTT GGCATTCTGTATTGCCATG
	PtOPR7	CCGGAAGAACTGGGCCTGTATATGGCGAAGCGC	TGAACAAATTT GGCATTCTGTATTGCCATG
	PtOPR2	CCGGAAGCGCTGGGCCTGTATATGGTGAAGAAAC	TGAACAAATAT GGCATTCTGTATTGCCATA
	PtOPR3	CCGGAAGCGCTGGGCCTGCATATGGTGAAGAAAC	TGAACAAATAT GGCATTCTGTATTGCCATA
	PtOPR1	CCGGGCGCGCTGGGCCTGTATATGGTGAAGAAAC	TGAACAAATAT GGCATTCTGTATTGCCATA
	AtOPR01-1	CCGAAACCTCTGGGCCTGTATATGGCGAAGAAAC	TGAACCGTTTT GAAATCTGTATTGCCATA
	AtOPR01-4	CCGGGCGCGCTGGGCCTGTATATGGCGAAGAAAC	TGAACAAATAT GGCATTCTGTATTGCCATG
AtOPR01-5	CCGAAACCTCTGGGCCTGTATATGGTGAAGAAAC	TGAACAAATAT GGCATTCTGTATTGCCATA	
Sub. VI	MtOPR05-2	CCGAAACGAACTGGGCCTGCATATGGTGAAGAAAC	TGAACAAATAT AACATTCTGTATTGCCATA
	MtOPR05-7	CCGGAAGAACTGGGCCTGTATATGGTGAAGCGC	TGAGCAAATAT AACATTCTGTATTGCCATA
	MtOPR05-1	CCGACCGAACTGGGCCTGTATATGGTGAAGCGC	TGAACAAATAT AACATTCTGTATTGCCATA
	MtOPR05-3	CCGACGAACTGGGCCTGTATATGGTGAAGCGC	TGAACAAATAT GGCATTCTGTATTGCCATA
	MtOPR05-4	CCGCGTGAACCTGGGCCTGTATATGGCGAAGCGC	TGAACAAATAT GGCATTCTGTATTGCCATG
	MtOPR05-5	CCGAAACGAACTGGGCCTGTATATGGTGAAGCGC	TGAACAAATAT GGCATTCTGTATTGCCATA
	MtOPR05-6	CCGAAACGAACTGGGCCTGTATATGGTGAAGCGC	TGAACAAATAT GGCATTCTGTATTGCCATA
	PpOPR4	GCGACCGGCTGAGCGTGTCTTCTGGCGAAGAAAC	TGAACCGTTAT AACCTGCTGTATCTGATGG
	PpOPR5	CCGAAACGCTGAGCGTGTATATGGCGAAGAAAC	TGAACCGTTAT AACCTGCTGTATCTGCATG
	PpOPR2	CCGACCGGCTGAGCGTGTATATGGCGAAGAAAC	TGAACAAATAT AACCTGCTGTATCTGCATG
Sub. II	PpOPR1	CCGGTGGCGCTGGGCCTGAGCATTGCGCAGGCGC	TGAACAAATAT AACCTGATGTATCTGCATT
	SmOPR1	CCGCAAGAACTGGGCCTGTATCTGATTCAGGCGC	TGAACAGCGCG AACCTGGTGTATGTGCATC
	SmOPR2	CCGCTGACCTGGGCCTGTATATGGCGAAGAAAC	TGAACCGTTTT AACATTCTGTATGCCATT
	SmOPR3	CCGATGAAACTGGCGGTGTCTTCTGGCGAAGCGC	TGAACCGTTAT AACATTCTGTATGTG
	SmOPR4	CCGATGAAACTGGCGGTGTCTTCTGGCGAAGCGC	TGAACCGTTAT AACATTCTGTATGTG
	SmOPR6	CCGATGAAACTGGCGGTGTCTTCTGGCGAAGCGC	TGAACCGTTAT AACATTCTGTATGTG
	PpOPR3	CCGGTGGCGCTGGGCCTGCATCTGGCCGTAACC	TGAGCCGTTTT AACCTGGCGTATCTGCATG
	SmOPR5	CCGGTGGCGCTGGGCCTGCATCTGGCCGCGGCT	TGGTGAACCTG GGCCTGCTGTATCTGCATG
	PpOPR6	CCGGAAGCGCTGTTTACCTATCTGCATAGCAAAC	TGGATAAATTT GGCCTGGCGTATATTCACT
	PtOPR4	CCGCTGAACCTGGGCCTGAGCGTGAATGAACGTA	TTTAAACAAACTGCAGCTGCAGGTGGGCAGCAAAC
PtOPR5	CCGCTGAACCTGGGCCTGAGCGTGAATGAACGTA	TTTAAACAAACTGCAGCTGCAGGTGGGCAGCAAAC	
Sub. VII	AtOPR02-1	CCGCTGAGCTGGGCCTGGCGGTGGTGGGCATG	CTGAACAAACTGCAGGGCTGAAACGGCAGCAAAC
	OsOPR08-1	CCGATTTAAACTGGGCATGGCGGTGGTGGAAACGTC	TGAACGCGCTGCAGCAGCAGAGCGGCCCTGCTG
	ZmOPR01-1	CCGCTGCACTGGGCCTGGCGGTGGTGGAAACGTC	TGAACGCGCTGCAGCAGGAAAGCGGCCCTGCTG
	SbOPR07-1	CCGCTGCACTGGGCCTGGCGGTGGTGGAAACGTC	TGAACGCGCTGCAGCAGGAAAGCGGCCCTGCTG
	ZmOPR04-1	CCGCTGCACTGGGCCTGGCGGTGGTGGAAACGTC	TGAACGCGCTGCAGGAAAGAAACCGGCCCTGCTG
Sub. VII	VcOPR1	CCGTATGGCAACCAACCTGTATCTGCTGGAACAGC	TGAACAAATAT GGCCTGAGCTATATTGATA
	CrOPR2	CCGTATGGCAACCAACCTGTATCTGCTGGAACAGC	TGAACAAACTG GGCCTGGCGTATGTGCATA
	CrOPR3	CCGTATGGCAACCAACCTGTATCTGCTGGAACAGC	TGAACAAATTT GGCCTGGCGTATGTGCATA
	CrOPR1	GTGAACGAAACCTTGAATATCTGGCCCGGAAC	TGAGCAAACCT AACCTGGCGTATGTGTGCC
	VcOPR2	GTGCTGAAACCTTGAATATCTGGCCCGGAAC	TGAGCAAACCT AACCTGGCGCTTTGTGACCC

1130 1140 1150 1160 1170 1180 1190

	ZmOPR08-1	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	ZmOPR09-1	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	SbOPR10-2	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTAAA	GGCACCTTTATTGCGGCG
	SbOPR10-1	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SbOPR10-4	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	SbOPR10-5	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
Sub. III	ZmOPR06-1	T CAGATTCCGCATGGCTGCTGCCGTTTAAAGCGGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SbOPR10-3	T CAGATTCCGCATGGCTGCTGCCGTTTAAAAA CCGTGTTTAGC	GGCACCTTTATTGCGGCG
	OsOPR06-1	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAACAGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR06-2	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAACAGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR06-4	T AAAAATTAAACCATGGCTGCTGCCGTTTCGTAAACAGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR06-3	T AAAAATTAAACCATGGCTGCTGCCGTTTCGTAAACAGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR06-5	T AAAAATTAAACCATGGCTGCTGCCGTTTCGTAAACAGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR06-6	T AAAAATTAAACCATGGCTGCTGCCGTTTCGTAAACAGTTTAAAC	GGCACCTTTATTGCGGCG
Sub. IV	ZmOPR08-2	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	SbOPR09-1	T CAGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	OsOPR01-1	CCGGTGGATTGCGCATGGCCGCTCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	OsOPR01-2	CGCCGAGCGTCCGCGCCGCGCGCGCGGTCGAGAAAGCGTCCGCG	GGCACCTTTATTGCGGCG
	ZmOPR03-1	CCCTGGAAATATGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
	SbOPR08-1	CCCTGACGAGATGCTGCTGCCGTTTCGTAAAGCGTTTCAT	GGCACCTTTATTGCGGCG
Sub. V	OsOPR02-1	TGCAGATTCCGCATATAAACTGTGGCATTTCGTAAAGTGTTTGCG	GGCACCTTTATTGCGGCG
	SbOPR04-1	TGCAGATTCCGCATATAAACTGTGGCATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR04-2	ATGCGTATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR04-3	TCGTATGATGATTCCGCATGGCTGCTGCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SbOPR06-3	TGAAAATTCCGCATAGCCTGCGAGAAATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
Sub. I	PpOPR1	GGCGACCAACAAAAGCCTGTTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PpOPR2	GCCGACCAACAAAAGCCTGTTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PpOPR3	GCCGACCAACAAAAGCCTGTTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	OsOPR04-1	TTTGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	ZmOPR02-1	TTTGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SbOPR06-2	ACCGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SbOPR06-1	TTTGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PtOPR6	TATGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PtOPR7	TATGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PtOPR2	CCGAAAATTTAGCGAAAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PtOPR3	ACCAAAATTTAGCGAAAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PtOPR1	TGGAAAGCCCGCATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	AtOPR01-1	TTTGAAATGCCGTGAAAGCCTGACCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	AtOPR01-4	CATGCGTGCCTGCATACCTGATGCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	AtOPR01-5	CGCGCGTGCAGCCATACCTGATGCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
MtOPR05-2	ATTGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
MtOPR05-7	GTGGAATGCCTGCATAGCCTGGTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
MtOPR05-1	ATTGAAAACCCCGATAGCCTGCTCCGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
MtOPR05-3	ACCGAATGCCATATAGCCTGGTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
MtOPR05-4	ATTGAAATGCAGCCATAGCCTGGTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
MtOPR05-5	ACCGAATGCCGATAGCCTGGTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
MtOPR05-6	ACCGAATGCCGATAGCCTGGTCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG	
Sub. VI	PpOPR4	AA GAAAAGCGGAAAAGCCTGTGGCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PpOPR5	C AGAGCGAAGAAAAGCCTGTGGCCGATGCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PpOPR2	ATTGAAAAGCAAACATAGCATTTCGCGGATTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PpOPR1	ATTGAAAAGCAAACATAGCATTTCGCGGATTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SmOPR1	ACGATGCGCA TACCTGTGGCCGATTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SmOPR2	GCGCCGGAAGCGGCGGATTTTCGCGGATTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SmOPR3	ACTGGAAA GCGAAC TGTGGCCGCTGAAACGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SmOPR4	ACTGGAAA GCGAAC TGTGGCCGCTGCGTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	SmOPR6	ACTGGAAA GCGAAC TGTGGCCGCTGCGTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PpOPR3	ACCCAGCTGAACTGCAAAAATTTTTCGTATCAG TATGAA	GGCACCTTTATTGCGGCG
Sub. II	SmOPR5	CTGGGCTTTCTGCGTGA GCGACCAAGCGGCGAGCAGC	GGCACCTTTATTGCGGCG
	PpOPR6	AAATGGGCG CCGAGTATGCGCATGACCAAAACGTTTCGTAAAC	GGCACCTTTATTGCGGCG
	PtOPR4	CGAAGATGTGGTGGCGCAGACCACCCGTACCTGGCGTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	PtOPR5	CGAAGATGAAGAAGCGCAGATGATTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	AtOPR02-1	CGATGAAAGAAGAAAGCGAAACTGATGAAAAGCCTGCGTATGCGTAAAC	GGCACCTTTATTGCGGCG
	OsOPR08-1	CGCGGAAAGAAGAAAGCGCTCTGATGCGTACCTGCGTGGCACCTATCAG	GGCACCTTTATTGCGGCG
	ZmOPR01-1	CGCGGAAAGAAGAAAGCGCTCTGATGCGTACCTGCGTGGCACCTATCAG	GGCACCTTTATTGCGGCG
SbOPR07-1	CGCGGAAAGAAGAAAGCGCTCTGATGCGTACCTGCGTGGCACCTATCAG	GGCACCTTTATTGCGGCG	
ZmOPR04-1	CGCGGAAAGAAGAAAGCGCTCTGATGCGTACCTGCGTGGCACCTATCAG	GGCACCTTTATTGCGGCG	
Sub. VII	VcOPR1	GAAAAG AGCAGCGATAGCCTGAAACCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	CrOPR2	GAATGCGCGACCGTGGATAACCTGGCGCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	CrOPR3	GAACGTCGCAACCGAAACCGTCTGCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	CrOPR1	CGGAACATTAATTTGATCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG
	VcOPR2	CGGAACATTAATTTGATCCGTTTCGTAAAGCGTTTAAAC	GGCACCTTTATTGCGGCG

1270 1280 1290 1300 1310 1320 1330

	ZmOPR08-1	TGGCGTATGGCAA	CTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGTG
	ZmOPR09-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGTG	
	SbOPR10-2	TGAGCTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGGCAGC	
	SbOPR10-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGGCAGC	
	SbOPR10-4	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	SbOPR10-5	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
Sub. III	ZmOPR06-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AG	TGGATGAA	
	SbOPR10-3	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGCG	
	OsOPR06-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGCG	
	OsOPR06-2	TGAGCTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGCG	
	OsOPR06-4	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	OsOPR06-3	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GA	TTAACCGC	
	OsOPR06-5	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGCG	
	OsOPR06-6	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGCG	
Sub. IV	ZmOPR08-2	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCGTCTGC		CGGATGCG	
	SbOPR09-1	TGAGCTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCGTCTGC		CGGATGCGGA	
	OsOPR01-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCG	TC	GTAAAGCG	
	OsOPR01-2	CGTGGTGGCTGAAATTTGCGCGGCAGCCGCTCCGGCGGGCGAAGTGCAG		GC	GGAAAGCG	
	ZmOPR03-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GA	AAAAAGCG	
	SbOPR08-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GA	AAAAAGCG	
Sub. V	OsOPR02-1	TGGCGTATGGCAA	TGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC
	SbOPR04-1	TGGCGTATGGCAA	TGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC
	OsOPR04-2	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCG	TC	TGGGCAGC	
	OsOPR04-3	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCA	GC	TGGATGCG	
	SbOPR06-3	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCA	GC	TGAAACCGC	
Sub. I	PsoPR1	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	PsoPR2	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	PsoPR3	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	OsOPR04-1	TGGCGTATGGCCGTCTGTTTCTGAGCAACCCGGATCTGCCCGT	CGTTTTGA	AA	TTGATGCG	
	ZmOPR02-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AG	TGGATGCG	
	SbOPR06-2	TGGCGTATGGCCGTCTGTTTCTGAGCAACCCGGATCTGCCCGT	CGTTTTGG	CC	TGGATGCG	
	SbOPR06-1	TGGCGTATGGCCGTCTGTTTCTGAGCAACCCGGATCTGCCCGT	CGTTTTGA	AA	TTGATGCG	
	PtOPR6	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	PtOPR7	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	PtOPR2	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGATGCG	
	PtOPR3	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGATGCG	
	PtOPR1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGGATGCG	
	AtOPR01-1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGA	AC	TGAAACCGC	
	AtOPR01-4	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCA	GG	TGGATGCG	
	AtOPR01-5	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTCA	GC	TGGATGCG	
	MtOPR05-2	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGAAACCGC	
	MtOPR05-7	TGGCGTATGGCCGTCTGTTTATTAGCAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGGATGCG	
	MtOPR05-1	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGAAACCGC	
	MtOPR05-3	TGGCGTATGGCCGTCTGTTTATTAGCAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGAAACCGC	
	MtOPR05-4	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGAAACCGC	
	MtOPR05-5	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGGATGCG	
	MtOPR05-6	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTGC	GC	TGGATGCG	
Sub. VI	PpOPR4	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTGC	GC	TGAAACCGC	
	PpOPR5	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTGC	GC	TGAAACCGC	
	PpOPR2	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTAG	CG	TGATGCG	
	PpOPR1	TGGCGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGCCCGT	CGTTTTAG	GA	GCTGCGC	
	SmOPR1	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTAA	AC	TGAAACCGC	
	SmOPR2	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTGA	AC	TGAAACCGC	
	SmOPR3	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTCA	GC	TGAAACCGC	
	SmOPR4	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTCA	GC	TGAAACCGC	
	SmOPR6	TGGTGTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTCA	GC	TGAAACCGC	
		PpOPR3	TGAGCTATGGCCGTCTGTTTCTGGCGAACCCGGATCTGGTGAAC	CGTTTTAATTTT		GATCTG
	SmOPR5	TGGCGTATGGCCGTCTGTTTATTAGCAACCCGGATCTGCCCGT	CGTTTTGCGGATG		TGGATGCG	
	PpOPR6	TGGCGTATGGCCGTACTTTATTGCGAACCCGGATCTGGTGAAC	CGTTTTGCGGAA		GATGCG	
Sub. II	PtOPR4	TGAGCTATGGCCGTGATTTTATTAGCAACCCGGATCTGGTGC	CTGCTGAA	AC	TGAAACCGC	
	PtOPR5	TGAGCTATGGCCGTCTGTTTATTAGCAACCCGGATCTGGTGC	CTGCTGAA	AC	TGAAACCGC	
	AtOPR02-1	TGAGCTATGGCCGTCTGTTTATTGCGAACCCGGATCTGGTGC	AGCCGTTTTAA	AA	TTGATGCG	
	OsOPR08-1	TGAGCTATGGCCGTCTGTTTATTAGCAACCCGGATCTGGTGC	GAAACGTTTTCG	TC	TGAAACCGC	
	ZmOPR01-1	TGAGCTATGGCCGTCTGTTTATTGCGAACCCGGATCTGGTGC	GAAACGTTTTCG	TC	GTGATGCG	
	SbOPR07-1	TGAGCTATGGCCGTCTGTTTATTGCGAACCCGGATCTGGTGC	GAAACGTTTTCG	TC	GTGATGCG	
	ZmOPR04-1	TGAGCTATGGCCGTCTGTTTATTGCGAACCCGGATCTGGTGC	GAAACGTTTTCG	TC	GTGATGCG	
Sub. VII	VcOPR1	TGGCGTATGGCCGTGGTATCTGGCGAACCCGGATCTGCATA	AACGTTTTCT	GC	TGAAACCGC	
	CrOPR2	TGGCGTATGGCCGTGGTATCTGGCGAACCCGGATTTTCATA	AACGTTTTCT	GC	TGGGCAGC	
	CrOPR3	TGGCGTATGGCCGTGGTATCTGGCGAACCCGGATTTTCATA	AACGTTTTCT	GC	TGGGCAGC	
	CrOPR1	TGGCGTATGGCCGTGGTATCTGGCGAACCCGGATTTTCATA	AACGTTTTCT	GC	TGGGCAGC	
	VcOPR2	TGCTGTATGGCGTGCATTTTATTGCGAACCCGGATCTGCCG	AACTGGTGGCGGGCGCTGAAACCGC			

1340 1350 1360 1370 1380 1390 1400

	ZmOPR08-1	...	GCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGA	TTGTGGGC
	ZmOPR09-1	---	GCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGA	TTGTGGGC
	SbOPR10-2	---	AGC	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	SbOPR10-1	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	SbOPR10-4	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	SbOPR10-5	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
Sub. III	ZmOPR06-1	---	ATT	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	SbOPR10-3	---	ACC	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGATGGGC
	OsOPR06-1	---	CCG	ATGAACAAATATGATCGTAACACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	OsOPR06-2	---	CCG	CTGAACAAATATGATCGTAACACCTTTTATA	CCAGGATCCGA	TGTGGGC
	OsOPR06-4	---	CCG	CTGAACAAATATGATGGCAGCACCTTTTATA	CCCATGATCCGG	TGGTGGGC
	OsOPR06-3	---	CCG	CTGAACAAATATAACCGTAGCACCTTTTATA	TTAGGATCCGG	TGGTGGGC
	OsOPR06-5	---	CCG	CTGAACCGTTATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	OsOPR06-6	---	CCG	CTGAACCGTTATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
Sub. IV	ZmOPR08-2	---	CCG	CTGAACAAATATGATCGTACCACCTTTTATA	CCAGGATCCGG	TGATGGGC
	SbOPR09-1	TCCG	CCG	CTGAACAAATATGATCGTAAACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	OsOPR01-1	---	GGC	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	OsOPR01-2	---	GCA	GCGAACGTCTGTGA		
	ZmOPR03-1	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	SbOPR08-1	---	GCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
Sub. V	OsOPR02-1	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGATGGGC
	SbOPR04-1	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	OsOPR04-2	---	CCG	CTGAACGGCTATGATCGTGGCACCTTTTATA	CCCGGATCCGG	TGGGGGC
	OsOPR04-3	---	CCG	CTGAACAAATATGATCGTGGCACCTTTTATA	CCCATGATCCGG	TGGTGGGC
	SbOPR06-3	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCGATGATCCGG	TGGTGGGC
Sub. I	PsoPR1	---	CCG	CTGAACAAATATGATCGTAAACACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	PsoPR2	---	CCG	CTGAACAAATATGATCGTAAACACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	PsoPR3	---	AGC	CTGAACAAATATGATCGTAAACACCTTTTATA	TTCCGGATCCGG	TGGTGGGC
	OsOPR04-1	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	TTAGCGATCCGG	TGATGGGC
	ZmOPR02-1	---	CCG	CTGAACAAATATAAACCGTGATACCTTTTATA	TTCCGGATCCGG	TGGTGGGC
	SbOPR06-2	---	CCG	CTGAACAAATATAAACCGTAGCACCTTTTATA	CCCGGATCCGG	TGATGGGC
	SbOPR06-1	---	ACC	CTGAACAAATATAAACCGGAAACCTTTTATA	CCCGGATCCGG	TGATGGGC
	PtOPR6	---	CCG	CTGAACCGTTATAAACCGTAAACACCTTTTATA	TTCCGGATCCGG	TGGTGGGC
	PtOPR7	---	CCG	CTGAACCGTTATAAACCGTAAACACCTTTTATA	TTCCGGATCCGG	TGGTGGGC
	PtOPR2	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	CCCATGATCCGG	TGGTGGGC
	PtOPR3	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	CCCATGATCCGG	TGGTGGGC
	PtOPR1	---	CCG	CTGAACAAATATGATCGTGGCACCTTTTATA	CCCGGATCCGG	TGATGGGC
	AtOPR01-1	---	CCG	CTGAACAAATAA		
	AtOPR01-4	---	CCG	CTGAACAAATATGATCGTCCGACCTTTTATA	CCAGGATCCGG	TGGTGGGC
	AtOPR01-5	---	CCG	CTGAACAAATATAAACCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC
MtOPR05-2	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	TTAGCGATCCGG	TGGTGGGC	
MtOPR05-7	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	CCAGGATCCGG	TGGTGGGC	
MtOPR05-1	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	CCAGGATCCGG	TGGTGGGC	
MtOPR05-3	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	CCAGGATCCGG	TGATGGGC	
MtOPR05-4	---	CCG	CTGAACAAATATAAACCGTGGCACCTTTTATA	CCAGGATCCGG	TGATGGGC	
MtOPR05-5	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	TTAGCGATCCGG	TGGTGGGC	
MtOPR05-6	---	CCG	CTGAACAAATATAAACCGTGAAACCTTTTATA	GTGAGCGATCCGG	TGGTGGGC	
PpOPR4	---	CCG	CTGAACGATTATAAACCGTGATACCTTTTATA	CCAGGATCCGG	TGGTGGGC	
PpOPR5	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC	
PpOPR2	---	CCG	CTGAACCACTATGATCGTAGCACCTTTTATA	TTAGGATCCGG	TGGTGGGC	
PpOPR1	---	CCG	CTGAACAAATATGATCGTAGCACCTTTTATA	CCAGGATCCGG	TGGTGGGC	
SmOPR1	---	CCG	CTGAACAAATATGATCGTCCGACCTTTTATA	TTAGGATCCGG	TGGTGGGC	
SmOPR2	---	GCG	CTGAACGTCTATGATCGTACACCTTTTATA	CCCGGATCCGG	TGGTGGGC	
SmOPR3	---	CCG	CTGAACCTGTATGATCGTAAACACCTTTTATA	CCATGATCCGG	TGGGGGC	
SmOPR4	---	CCG	CTGAACCTGTATGATCGTAAACACCTTTTATA	CCATGATCCGG	TGGGGGC	
SmOPR6	---	CCG	CTGAACCTGTATGATCGTAAACACCTTTTATA	CCATGATCCGG	TGGGGGC	
Sub. VI	PpOPR3	---	GAA	CTGAACGAATATGATCGTAGCACCTTTTATA	CCCATGATCCG	AAA
	SmOPR5	---	CAG	CTGAACCCGTATAAACCGTGGCACCTTTTATA	CCCATGATCCGG	TGGTGGGC
	PpOPR6	---	CAG	CTGAACAACCTGAAACAGCAGCACCTTTTATA	GGCGATTATACCG	CCCTGGGC
	PtOPR4	---	CCG	CTGAACAAATATATTCGTGAAACCTTTTATA	CCCATGATCCGA	TTGTGGGC
	PtOPR5	---	CCG	CTGAACAAATATATTCGTGAAACCTTTTATA	CCCATGATCCGG	TGGTGGGC
	AtOPR02-1	---	GAA	CTGAACAAATATAAACCGTAAACCTTTTATA	CCCATGATCCGG	TGGTGGGC
Sub. II	OsOPR08-1	---	GGC	CTGAACAAATATGTGCGTAAACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	ZmOPR01-1	---	CCG	CTGAACAAATATGTGCGTAAACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	SbOPR07-1	---	CCG	CTGAACAAATATGTGCGTAAACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	ZmOPR04-1	---	CCG	CTGAACCGTTATGTGCGTAAACCTTTTATA	CCCGGATCCGG	TGGTGGGC
	VcOPR1	---	CCG	CTGAACAAATATGATCGTAAACCTTTTATA	GCCGGGCA	TGGAAGGC
Sub. VII	CrOPR2	---	CCG	CTGAACCCGTATAAACCGTGATACCTTTTATA	GGGGGGCC	TGGAAGGC
	CrOPR3	---	CCG	CTGAACCCGTATAAACCGTGATACCTTTTATA	GGGGGGCC	TGCAAGGC
	CrOPR1	---	CCG	CTGAACCCGTATAAACCGTGATACCTTTTATA	GGGGGGCC	TGCAAGGC
	VcOPR2	GGG	CCG	CTGAACCCGTATAAACCGTGATACCTTTTATA	GGGGGGCC	TGCAAGGC

1410 1420 1430 1440 1450 1460 1470

Sub. III
ZmOPR08-1 TATACCGATTATCCGTTTCTTGAACA GGAA GATGGCAAAAACGAA GAATGA
ZmOPR09-1 TATACCGATTATCCGTTTCTTGA GAA GATGGCAAAAACGAA GAAAGCGTGTGA
SbOPR10-2 TATACCGATTATCCGAGCCTGGAT GATGATAAAAACGATCG GACCCGCGATGATGCGTAG
SbOPR10-1 TATACCGATTATCCGTTTCTAT GAAGATAACAACCATGTGTGA
SbOPR10-4 TATACCGATTATCCGTTTCTGGGAAGA TGGCAGCAACAACCATGATAGCACCACCCAGGCGTAA
SbOPR10-5 TATACCGATTATCCGTTTCTGGGAAGA TAACTGCGATAACGATGAAAAGCAGCAACCAAGCGTAA
ZmOPR06-1 TATACCGATTATCCGTTTCTGCGTGA TGATAGCGAAGATC TGGCGGCGCAGGTCTAA
SbOPR10-3 TATACCGATTATCCGTTTCTGAGCGA TGATAGCAAGATC TGGCGGCGCAGGATTAA
OsOPR06-1 TATACCGATTATCCGTTTCTGGATGAACATCATCATGATGATGATGATGATAGCAACCGCGGAGCGCGT
OsOPR06-2 TATACCGATTATCCGTTTCTGGATGAAGATCAGAAACAACGCG TGGCGGATGCGTAG
OsOPR06-4 TATACCGATTATCCGTTTCTGGAAAGAAAAAAAAGAGATAGCGGACCGTGATTCTGTGA
OsOPR06-3 TATACCGATTATCCGTTTCTGGATGAAAAAGATGAAG GCGCGCGACCTATGCGTAA
OsOPR06-5 TATACCGATTATCCGTTTCTGGAAAGAAATGATGAAGAAAGCACCACACCTATGCGTAA
OsOPR06-6 TATACCGATTATCCGTTTCTGGAAAGAAATGATGAAGAAAGCGTACCACCTATGCGTAA
Sub. IV
ZmOPR08-2 TATACCGATTATCCGTTTCTGGCGGATGCGGATG CCGATAAAATAA
SbOPR09-1 TATACCGATTATCCGTTTCTGCATGATGATGATGCGCGGATAAAATAA
OsOPR01-1 TATACCGATTATCCGTTTCTGGATGATCAGAACAGCGAACTGCGAGCCCGTTGA
OsOPR01-2
ZmOPR03-1 TATACCGATTATCCGTTTCTGGATCAGCTGTAG
SbOPR08-1 TATACCGATTATCCGTTTCTGGATCAGTTTLAG
Sub. V
OsOPR02-1 TATACCGATTATCCGTTTCTGAGCC CGCTGTGA
SbOPR04-1 TATACCGATTATCCGTTTCTTAGCC CGAGCGTGTGA
OsOPR04-2 TATACCGATTATCCGTTTCTGGATGATGATGCGGATGATGGCCTGGCGGCGAGCGCGGCGAGCGAGCA
OsOPR04-3 TATACCGATTATCCGTTTCTGGATGATGATCGTGA AGCGATGACCGATCATAACCGCGTGA
SbOPR06-3 TATACCGATTATCCGTTTCTGGAAAAA GCGA ACCGCTGAACAGCCTGACCCCTCGTGGCGGCAT
Sub. I
PsOPR1 TATACCGATTATCCGTTTCTGGAAATGA
PsOPR2 TATACCGATTATCCGTTTCTGGAAATGA
PsOPR3 TATACCGATTATCCGTTTCTGGAAATGA
OsOPR04-1 TATACCGATTATCCGTTTCTGCGGAGCGATGTGTAA
ZmOPR02-1 TATACCGATTATCCGTTTCTGAGCAGCGATGTGTAA
SbOPR06-2 TATACCGATTATCCGTTTCTGGAACCGGAACCGTAA
SbOPR06-1 TATACCGATTATCCGTTTCTGCGGAGCGATGTGTAA
PtOPR6 TATACCGATTATCCGTTTCTGGATGTGCTGCGGTAA
PtOPR7 TATACCGATTATCCGTTTCTGGATGTGCTGCGGTAA
PtOPR2 TATACCGATTATCCGTTTCTGGAAAGATACCGCGTAG
PtOPR3 TATACCGATTATCCGTTTCTGGAAAGATACCGCGTAG
PtOPR1 TATACCGATTATCCGTTTCTGGAAAGCACCGCGTAA
Sub. VI
AtOPR01-1
AtOPR01-4 TATACCGATTATCCGTTTCTGGAAAGCACCGCGTAA
AtOPR01-5 TATACCGATTATCCGAGCCTGGAAAGCACCGCGTAA
MtOPR05-2 TATACCGATTATCCGTTTCTGGAAATGA
MtOPR05-7 TATACCGATTATCCGTTTCTGGGCTAA
MtOPR05-1 TATACCGATTATCCGTTTCTGGAAATGA
MtOPR05-3 TATACCGATTATCCGAGCCTGGAAATAA
MtOPR05-4 TATACCGATTATCCGTTTCTGGAAATGA
MtOPR05-5 TATACCGATTATCCGTTTCTGGAAATGA
MtOPR05-6 TATACCGATTATCCGTTTCTGGAAATGA
PpOPR4 TATACCGATTATCCGTTTCTGGAAAGATGTGAAAAGCCAGCGTCTGATGCGACCAAAATATAACCCGCTGA
PpOPR5 TATACCGATTATCCGTTTCTGGGCGAAGTGCT GCAGGCGTGA
PpOPR2 TATACCGATTATCCGTTTCTGGAAAGAAAGTGCC GCCGAAAAGCGAAAAATAA
PpOPR1 TATACCGATTATCCGTTTCTGGATGAAAACCGCGTGCCAGGCGTGA
SmOPR1 TATACCGATTATCCGTTTCTGGAAAGATTAA
SmOPR2 TATACCGATTATAGCTTTCTGGAAAGTGAAGCT GCGGCGTGA
SmOPR3 TATACCGATTATCCGTTTCTGGAAAGAA ACC GTGTAA
SmOPR4 TATACCGATTATCCGTTTCTGGAAAGAA AGC ACCGCGTAA
SmOPR6 TATACCGATTATCCGTTTCTGGAAAGAA AGC ACCGCGTAA
Sub. II
PpOPR3 TATACCAACATTTGCTGAGCAATTAA
SmOPR5 TATATGATTATCCGTGCATGGATAGCCGTAA GAAGAGAA GAA GAA GAAGAA GAA GATCGTAAAAAAC
PpOPR6 TATACCGATTATCCGTTTCTGGATGAAGAAAGCGGATGCGGGCATTTGAACCGTAA
PtOPR4 TATACCGATTATCCGTTTCTGAGCAAGCGAGCGGCTGA
PtOPR5 TATACCGATTATCCGTTTCTGAGCAAGCGAAGCGGCTGCAGCTGCGCTGAGCCGCTCTGTGA
AtOPR02-1 TATACCGATTATCCGTTTCTGGCGCGCTTTAGCCGCTCTGTGA
OsOPR08-1 TATACCGATTATCCGTTTCTGGGCCAGCCGAA AAGCCGTATGTAA
ZmOPR01-1 TATACCGATTATACCTTTCTGGGCCAGCCGAA AGCGGTATGTGA
SbOPR07-1 TATACCGATTATCCGTTTCTGGGCCAGCCGAA AGCGGTATGTGA
ZmOPR04-1 TATACCGATTATCCGTTTCTGGGCCAGCCGAA AGCGGTATGTGA
Sub. VII
VcOPR1 TATATGATTATCCGACCTGGAAAGACTGCAGGGCCAGGGCGAAGATGCGAAACAGTAG
CrOPR2 TATACCGATTATCCGACCTGGAAAGACTGCAGGGCCAGGGCGAAGATGCGAAACAGTAG
CrOPR3 TATATGATTATCCGACCTGGAAAGACTGCAGGGCCAGGGCGAAGATGCGAAACAGTAG
CrOPR1 TTTACCGATTGGCCCGTGTGGATCCGGCGACCATTAAGCGTGA
VcOPR2 TTTACCGATTGGCCCGTGTGGATCCGGCGACCATTAAGCGTGA

1480 1490 1500 1510

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Sub. III

- ZmOPR08-1
- ZmOPR09-1
- SbOPR10-2
- SbOPR10-1
- SbOPR10-4
- SbOPR10-5
- ZmOPR06-1
- SbOPR10-3
- OsOPR06-1
- OsOPR06-2
- OsOPR06-4
- OsOPR06-3
- OsOPR06-5
- OsOPR06-6

AA

Sub. IV

- ZmOPR08-2
- SbOPR09-1
- OsOPR01-1
- OsOPR01-2
- ZmOPR03-1
- SbOPR08-1

Sub. V

- OsOPR02-1
- SbOPR04-1
- OsOPR04-2
- OsOPR04-3
- SbOPR06-3

GCAACAAAAGCGGCATCAGGATGGCGTCTAG

TATCAGAACAAAGGCATGATTTGA

Sub. I

- PsOPR1
- PsOPR2
- PsOPR3
- OsOPR04-1
- ZmOPR02-1
- SbOPR06-2
- SbOPR06-1
- PtOPR6
- PtOPR7
- PtOPR2
- PtOPR3
- PtOPR1
- AtOPR01-1
- AtOPR01-4
- AtOPR01-5
- MtOPR05-2
- MtOPR05-7
- MtOPR05-1
- MtOPR05-3

Sub. VI

- MtOPR05-4
- MtOPR05-5
- MtOPR05-6
- PpOPR4
- PpOPR5
- PpOPR2
- PpOPR1
- SmOPR1
- SmOPR2
- SmOPR3
- SmOPR4
- SmOPR6

ACACCAAAATTGCCGAATTTTCAGCCCGTGCCACCGTGCTGTGA

Sub. II

- PpOPR3
- SmOPR5
- PpOPR6
- PtOPR4
- PtOPR5
- AtOPR02-1
- OsOPR08-1
- ZmOPR01-1
- SbOPR07-1
- ZmOPR04-1

ATCCGAGCAACTCTAG

Sub. VII

- VcOPR1
- CrOPR2
- CrOPR3
- CrOPR1
- VcOPR2

GTGACCGATAAATAG

Additional file 4

Nucleotide sequences alignment of OPR genes from eleven species representing the six major lineages within the green plants: the green algae (*Chlamydomonas reinhardtii* and *Volvox carteri*), the mosses (*Physcomitrella patens*), the lycophytes (*Selaginella moellendorffii*), the gymnosperms (*Picea sitchensis*), the monocotyledoneous angiosperms (*Oryza sativa*, *Sorghum bicolor* and *Zea mays*) and the dicotyledoneous angiosperms (*Arabidopsis thaliana*, *Populus trichocarpa* and *Medicago truncatula*). Identical residues in the alignments are shaded and seven well-conserved OPR subfamilies are represented as Sub. I , II , III, IV, V , VI and VII at the left side of the alignment.