

Table S7. Gene specific primers. Primers used for A) 5' and 3' RACE or to amplify full-length genes from B) Lodgepole pine and C) Jack pine cDNA or cDNA library. For In Fusion cloning into pET28b(+), the start codon ATG was removed, and the sequence (5' AAATGGGTCGGGATCCG 3') was added to the 5' end of all forward primers and the sequence (5'CCGCAAGCTTGTCGAC 3') was added at the 5' end of all reverse primers.

A) Primers used in 5' and 3' RACE

Species	Gene	5'RACE primers (5'-3')	3'RACE primers (5'-3')
Lodgepole pine (<i>Pinus contorta</i>)	<i>PcTPS-(-)βpin</i>	TGAGCTCCTCAACTGTTCCGAAGAG	Not required
		CGCAGACATTTTCATTTACGGTGTTGTAAACCAT	Not required
	<i>PcTPS-(-)βphell</i>	GGTGAGAGATTGTAACCTCCTTTTGTAAACGAGTG	Not required
		ATATGTCGGGTGAATGACAGTTGGGGGAAC	Not required
Jack pine (<i>Pinus banksiana</i>)	<i>PbTPS-(-)αpin</i>	TCTCAGCACGTTCCCGATAAGAAGGTTCC	AGGCGAGGAAAGGGACTGTATCAA
	<i>PbTPS-aterp</i>	GTCCATCGAGAGGATTGGTTGTAACA	Not required
	<i>PbTPS-monoTPS1/2</i>	TCCATTTGGCTTCTTGCATATGCGCAT	Not required

B) Gene specific sequence of primers used to amplify candidate monoterpene synthases from lodgepole pine

Gene	Forward primer (5'-3')	Reverse primer (5'-3')
<i>PcTPS-(+)αpin1</i>	ATGGCTCTGGTTTCTGCTGTCCC	TTACAAAGGCACAGTTTCAACCAC
<i>PcTPS-(-)αpin1</i>	ATGTCTCCTGTTTCTGTGATCTCGTT	TTATAAAGTGACAGGATCAATGACGGT
<i>PcTPS-(-)βpin1</i>	ATGGATTTAATATCTGTCTTACCGTCGAC	TTATAAAGGCACAGGTTCAAGGAG
<i>PcTPS-3car1</i>	ATGTCTCTTATTTCCGCTGTGCCGT	TTACATTAGCACGGGTTTCGAGA
<i>PcTPS-(-)camp/(+)αpin1</i>	ATGGCTCTGGTTTCTGTTGCACCGTT	TTACAGAGGCACAGGTTCAAGG
<i>PcTPS-(-)βphell1</i>	ATGGCTCTGGCTCTGGTTTCTGTTGC	TTACAGAGGCACAGGTTCAAGG
<i>PcTPS-(-)βphell2</i>	ATGGCTCTGGTTTCTGTTGCACCGTT	TTACAGAGGCACAGGTTCAAGG
<i>PcTPS-αterp</i>	ATGGCTCTACTTTCTGTCGCGCCCTTG	TTACAGAGGCACAGGTTCAAGAACAG

C) Gene specific sequence of primers used to amplify candidate monoterpene synthases from jack pine cDNA or cDNA library.

Gene	Forward primer (5'-3')	Reverse primer (5'-3')
<i>PbTPS-(-)α/βpin1</i>	ATGGATTTAATATCT	TTATAAAGGCACAGG
<i>PbTPS-(+)αpin1</i>	ATGGCTCTGTTTCT	TTACAAAGGCACAGT
<i>PbTPS-(-)αpin1</i>	ATGTCTCCTGTTTCTGTGATCTCGTTG	TTATAAAGTGACAGGATCAATGACGG
<i>PbTPS-(-)βpin1</i>	ATGGATTTAATATCTGTCTTACCGTCGGC	TTACAGAGGCACAGGTTCAAG
<i>PbTPS-(-)βpin2</i>	ATGGATTTAATATCTGTCTTACCGTCGG	TTATAAAGGCACAGGCTCAAG
<i>PbTPS-3car1</i>	ATGTCTCTTATTTC	TTACATCAGCACAGG
<i>PbTPS-(+)3car2</i>	ATGTCTCTTATTTCCGCTGTGCCGT	TTACATTAGCACGGGTTTCGAGA
<i>PbTPS-(-)βphell1</i>	ATGGCTCTGGCTCTGTTTCTG	TTACAGAGGCACAGGTTCAAG
<i>PbTPS-αterp</i>	ATGGCTCTACTTTCTGTGCGC	TTACAGAGGCACAGGTTCAAG
<i>PbTPS-mono1,2</i>	ATGGCTTTSGTTTCCGCTGTC	TTACAAAGGCACAGTTTCAACAAC