

Electronic Supplementary Material (ESI)

Engineering *Yarrowia lipolytica* for sustainable production of the chamomile sesquiterpene (-)- α -bisabolol

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Supplementary Table 1. List of primers used in this study.

Names	Sequences (5' > 3')
A08-MrBBS-F	tactaacgcagTCTACCCTCTCCGTGTCCACTC
A08-MrBBS-R	ccgtagttggatcTTACACAATCATAGGGTGGACGAA
tHMG-F	ctaaccgcagACCCAGTCTGTGAAGGT
tHMG-R	tagttggatcCTATGACCGTATGCAAATATTC
ERG20-F	tttgagctacTAACCGCAGTCCAAGGCG
ERG20-R	tagttggatcCTACTTCTGTGCGTTGTAAATCTTGG
SQS1-up-F	aaaacgacggccagtggaattcAGCAGATGCGTGAGAGATTACCA
SQS1-up-R	cactggaagatccgggaattcATTAGCAACACGATCTACCCGAG
SQS1-dm-F	attgactggaacagcttaattaaGGACACAAACTCGCTTGTTCCACC
SQS1-dm-R	gccaaagcttggtaccttaattaaCTAATCTCTCAGAGGAAACATCTTAGA GTC
A08-2MrBBS-Cassette-F	ctgggtacgttcgatagcgctAGAGACCGGGTTGGCGGC
A08-2MrBBS-Cassette-R	ctgtcgatgccgatagcgctGACACGGGCATCTCACTTGC
IntE-MrBBS- Cassette-F	attgactggaacagcttaattaaAGAGACCGGGTTGGCGGC
IntE-MrBBS- Cassette-R	cacaagcttggtaccttaattaaGACACGGGCATCTCACTTGC
IntF-POX1-F	taagaatcattcaaggatccATGGCCAAGGAGCGAGGT
IntF-POX1-R	taactaattacatgaggatccTCACTCATCGAGATCGCAAATTT
IntF-POX2-F	taagaatcattcaaggatccATGAACCCCAACAACACTGGC
IntF-POX2-R	taactaattacatgaggatccCTATTCCTCATCAAGCTCGCAA

IntF-POX3-F	taagaatcattcaaggatccATGATCTCCCCAACCTCACA
IntF-POX3-R	taactaattacatgaggatccCTATTCTCGTCCAGCTCGCA
IntF-POX4-F	taagaatcattcaaggatccATGATCACCCCAAACCCCG
IntF-POX4-R	taactaattacatgaggatccTACTGAATATCCTCGGGCTCC
IntF-POX5-F	taagaatcattcaaggatccATGAACAACAACCCCAACCAACG
IntF-POX5-R	taactaattacatgaggatccCTACTCGTCCAGGTCGCAAATC
IntF-POX6-F	taagaatcattcaaggatccATGCTCTCTCAACAGTCCCTCAA
IntF-POX6-R	taactaattacatgaggatccCTACTCATCCTCAAGAGAGCAAATTT
IntF-MFE1-F	taagaatcattcaaggatccATGTCTGGAGAACTAAGATACGACGG
IntF-MFE1-R	taactaattacatgaggatccTTAGAGCTTAGCATCCTTGGGG
IntF-POT1-F	taagaatcattcaaggatccATGGACCGACTTAACAACCTCG
IntF-POT1-R	taactaattacatgaggatccTACTCGGCAACAACCAGAGAA

In the nucleotide sequences, the lower case bases represent the homologous parts on adjacent fragments during one-step cloning, while the upper case bases represent the gene fragment parts.

Supplementary Table 2. Synthetic gene fragment and gene sequences used in this study.

Names	Sequences (5' > 3')
<p>Codon optimized (-)-α-bisabolol synthase coding DNA (MrBBS) for <i>Yarrowia lipolytica</i> based on the sequence of (-)-α-bisabolol synthase (GenBank: KJ020282.1) from <i>Matricaria recutita</i></p>	<p>ATGTCTACCCTCTCCGTGTCCACTCCTTCTCCTCCTCCCCCTCTTCCGTGAACAAAACTCCA CCAAGCAGCACGTCACCCGAAACTCCGTGATCTTCCATGACTCTATCTGGGGCGACCAGTTCCCTCGAATA TAAAGAGAAGTTTAATGTCGCTACTGAAAAGCAGCTGATCGAGGAACTCAAGGAGGAGGTCCGAAACGAA CTCATGATCCGAGCTTGCAACGAGGCCTCCCGATACATTAAGTCACTCCAGCTGATCGACGTCGTGGAAC GACTGGGCCTCGCTTATCACTTCGAGAAGGAGATCGAAGAGTCCCTCCAACACATCTACGTCACCTACGG CCACAAGTGGACCAACTACAACAACATCGAGTCTCTCTCTCTCTGGTTTCGACTCCTCCGACAGAACGGT TTCAACGTGTCTTCCGATATCTTTGAAAACCATATCGACGAAAAGGGCAACTTTCAAGAATCTTTATGCA ACGACCCCAAGGTATGCTGGCTTTATACGAGGCCGCTACATGAGAGTCGAGGGTGGATCATTTTAGA TAAGGCCCTCGAGTTTACCAAGCTGCACCTCGGCATCATTTCTAACGACCCCTCTTGCATTCTCTCTG CGAACTGAGATCAAGCAAGCTTTAAAACAGCCTCTCCGACGAAGACTGCCTCGACTGGAGGCCGTCGGAT ATATCGCTATTTACCAGCAGAAGGCTCCCACTCTGAGGTTTTACTCAAGCTCGCTAACTGGACTTTAA CGTGCTCCAAGAAATGCACAAGGATGAGCTGTCCAGATCTGCAAATGGTGGAAAGACCTCGACATCCGA AACAAAGCTCCCTACGTCAGAGACCGACTGATTGAGGGCTACTTCTGGATTTTAGGCATCTACTTTGAGC CCCAGCACTCCCGAACCCGAATGTTTTTAATGAAGACTTGTATGTGGCTCATGTTTTAGACGACACCTT TGACAACCTACGGCACTTACGAGGAGCTGGAGATCTTACCCAAGCTGTCGAGCGATGGTCCATCACTTGT CTGGACGAGCTGCCCGAGTACATGAAGCTCATCTACCATGAGCAGTTCGAGTCCATCAAGAGATGGAGG AGTCCCTCGAAGAAAGAGGGCAAGGCCTACCAGATCCATTACATCAAAGAGATGGCCAAGGAGGGCACTCG ATCCTTATTACTGGAGGCCAAGTGGCTGAAGGAGGTTATATGCCACCCTCGACGAGTACCTCTCCAAC TCTTTAGTCACTTGTGGCTACGCTCTCATGACTGCCAGATCTTACGTCTGTCGAGACGATGGTATCGTGA CCGAGGACGCTTTCAAATGGGTGCTACTCACCCCTATCGTGAAGGCCGCTTGTAAAGATTCTCCGACT CATGGACGACATCGCCACCATAAGGAGGAGCAAGAACGAGGCCACATCGCCTCTTCTATCGAGTGTCTAC AGAAAGGAGACCGGCGCTCTGAGGAGGAGGCTTGCATGGACTTTCTCAAGCAAGTTGAAGATGGCTGGA AGGTCATTAACCAAGAATCTCTCATGCCTACCGACGTGCCCTTCCCCTTATTAATCCCGCTATCAACCT CGCCCAGTGTCCGACACTTTATATAAAGACAACGACGGCTACAATCACGCCGATAAGGAGGTGATCGGC TACATCAAGTCCCTCTTCGTCCACCTATGATTGTGTAA</p>

<p style="text-align: center;">Hydroxy-3- methylglutaryl-CoA reductase (HMG1) coding DNA (YALI0E04807g)</p>	<p>ATGACCCAGTCTGTGAAGGTGGTTGAGAAGCACGTTCTATCGTCATTGAGAAGCCCA GCGAGAAGGAGGAGGACACCTCTTCTGAAGACTCCATTGAGCTGACTGTCCGAAAGCA GCCCCAAGCCCGTGACCGAGACCCGTTCTCTGGACGACCTAGAGGCTATCATGAAGGCA GGTAAGACCAAGCTTCTGGAGGACCACGAGGTTGTCAAGCTCTCTCTCGAGGGCAAGC TTCCTTTGTATGCTCTTGAGAAGCAGCTTGGTGACAACACCCGAGCTGTTGGCATCCG ACGATCTATCATCTCCCAGCAGTCTAATACCAAGACTTTAGAGACCTCAAAGCTTCCT TACCTGCACACTACGACTACGACCGTGTTTTTGGAGCCTGTTGCCGAGAACGTTATTTGGTT ACATGCCTCTCCCCGTTGGTGTGCTGGCCCCATGAACATTGATGGCAAGAATAACCA CATTCTATGGCCACCCTGAGGGTGTCTTGTGCTCAACCATGCGAGGTTGCAAG GCCATCAACGCCGGTGGCGGTGTTACCCTGTGCTTACTCAGGACGGTATGACACGAG GTCCTTGTGTTTCCCTTCCCCTCTCTCAAGCGGGCTGGAGCCGCTAAGATCTGGCTTGA TTCCGAGGAGGGTCTCAAGTCCATGCGAAAGGCCTTCAACTCCACCTCTCGATTTGCT CGTCTCCAGTCTCTTCACTCTACCCTTGTGTAACCTGCTGTTTATTCGATTCCGAA CCACCCTGGTGTATGCCATGGGCATGAACATGATCTCCAAGGGCGTGAACACTCTCT GGCCGTCATGGTCAAGGAGTACGGCTTCCCCTGATATGGACATTGTGTCTGTCTCGGGT AACTACTGCACTGACAAGAAGCCCGCAGCGATCAACTGGATCGAAGGCCGAGGCAAGA GTGTTGTTGCCGAAGCCACCATCCCTGCTCACATTGTCAAGTCTGTTCTCAAAAGTGA GGTTGACGCTCTTGTGAGCTCAACATCAGCAAGAATCTGATCGGTAGTGCCATGGCT GGCTCTGTGGGAGGTTTCAATGCACACGCCGCAAACCTGGTGACCGCCATCTACCTTG CCACTGGCCAGGATCCTGCTCAGAATGTCGAGTCTTCCAACATGCATCACGCTGATGAG CAACGTCGACGGTAACCTGCTCATCTCCGTTTCCATGCCTTCTATCGAGGTGGTACC ATTGGTGGAGGTACTATTTTGGAGCCCCAGGGGGCTATGCTGGAGATGCTTGGCGTGC GAGGTCTCACATCGAGACCCCGGTGCCAACGCCAACAGCTTGTCTGCATCATTGC TTCTGGAGTTCTTGCAGCGGAGCTTTCGCTGTGTTCTGCTCTTGTGCTGCCGGCCATCTT GTGCAAAGTCATATGACCCACAACCGGTCCCAGGCTCCTACTCCGGCCAAGCAGTCTC AGGCCGATCTGCAGCGTCTACAAAACGGTTCGAATATTTGCATACGGTCATAG</p>
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<p>HMG1 truncated by deleting the N-terminal 500 amino acids to generate the tHMG1, coding DNA</p>	<p>ACCAGTCTGTGAAGTGGTTGAGAAGCACGTTCCATCGTCATTGAGAAGCCAGCGAGA AGGAGGAGGACACCTCTTCTGAAGACTCCATTGAGCTGACTGTCGAAAGCAGCCCAAGCC CGTGACCGAGACCCGTTCTCTGGACGACCTAGAGGCTATCATGAAGGCAGTAAGACCAAG CTTCTGGAGGACCACGAGGTTGTCAAGCTCTCTCTCGAGGGCAAGCTTCCTTTGTATGCTCTT GAGAAGCAGCTTGGTGACAACACCCGAGCTGTTGGCATCCGACGATCTATCATCTCCCAGC AGTCTAATACCAAGACTTTAGAGACCTCAAAGCTTCCTTACCTGCACTACGACTACGACCGT GTTTTTGGAGCCTGTTGCGAGAACGTTATTGGTTACATGCCTCTCCCCGTTGGTGTGCTGGC CCCATGAACATTGATGGCAAGAACTACCACATTCCATGGCCACCACTGAGGGTTGCTTGT TGCCTCAACCATGCGAGGTTGCAAGGCCATCAACGCCGGTGGCGGTGTTACCACTGTGCTTA CTCAGGACGGTATGACACGAGGTCTTGTGTTTCCCTCTCTCAAGCGGGCTGGAGCC GCTAAGATCTGGCTTGATTCCGAGGAGGTCTCAAGTCCATGCGAAAGGCCCTCAACTCCAC CTCTCGATTTGCTCGTCTCCAGTCTTCACTCTACCCTTGTGGTAACTGTGTTTATTTCGA TTCCGAACCACCACTGGTGATGCCATGGGCATGAACATGATCTCCAAGGGCGTCAACACT CTCTGGCCGTCATGGTCAAGGAGTACGGCTTCCCTGATATGGACATTGTGTCTGTCTCGGGT AACTACTGCACTGACAAGAAGCCCGCAGCGATCAACTGGATCGAAGGCCGAGGCAAGAGT GTTGTTGCCGAAGCCACCATCCCTGCTCACATTGTCAAGTCTGTTCTCAAAAGTGAGGTTGA CGCTCTGTTGAGCTCAACATCAGCAAGAATCTGATCGGTAGTGCCATGGCTGGCTCTGTGG GAGGTTTCAATGCACACGCCGCAAACCTGGTGACCGCATCTACCTTGCCACTGGCCAGGAT CCTGCTCAGAATGTCGAGTCTTCCAACCTGCATCACGCTGATGAGCAACGTCGACGGTAACT GCTCATCTCCGTTTCCATGCCTTCTATCGAGGTCGGTACCATTGGTGGAGGTAATTTTGA GCCCCAGGGGGCTATGCTGGAGATGCTTGGCGTGCAGGTCCTCACATCGAGACCCCCGGT GCCAACGCCAACAGCTTGTCTGCATCATGCTTCTGGAGTCTTGCAGCGGAGCTTTCGCT GTGTTCTGCTCTTGTGCGGCCATCTTGTGCAAAGTCATATGACCCACAACCGGTCCCAGG CTCCTACTCCGGCCAAGCAGTCTCAGGCCGATCTGCAGCGTCTACAAAACGGTTCGAATATT TGCATACGGTCATAG</p>
<p>FPP synthase (ERG20) coding DNA (YALI0E05753g)</p>	<p>ATGTCCAAGGCGAAATTCGAAAGCGTGTTCCCCGAATCTCCGAGGAGCTGGTGCAGC TGCTGCGAGACGAGGGTCTGCCCCAGGATGCCGTGCAGTGGTTTTCCGACTCACTTCA GTACAACCTGTGTGGGTGGAAAGCTCAACCGAGGCCTGTCTGTGGTGCACACCTACCAG CTACTGACCGGCAAGAAGGAGCTCGATGACGAGGAGTACTACCGACTCGCGCTGCTCG GCTGGCTGATTGAGCTGCTGCAGGCGTTTTTCTCGTGTCCGACGACATTATGGATGA GTCCAAGACCCGACGAGGCCAGCCCTGCTGGTACCTCAAGCCCAAGGTCGGCATGATT GCCATCAACGATGCTTTTCATGCTAGAGAGTGGCATCTACATTCTGCTTAAGAAGCATT TCCGACAGGAGAAGTACTACATTGACCTTGTGCGAGCTGTTCCACGACATTTTCGTTCAA GACCGAGCTGGGCCAGCTGGTGGATCTTCTGACTGCCCCGAGGATGAGGTTGATCTC AACCGGTTCTCTCTGGACAAGCACTCCTTTATGTGCGATACAAGACTGCTTACTACT CCTTCTACCTGCCCCGTTGTTCTAGCCATGTACGTGGCCGGCATTACCAACCCCAAGGA CCTGACGAGGCCATGGATGTGCTGATCCCTCTCGGAGAGTACTTCCAGGTCCAGGAC GACTACCTTGACAACCTTGGAGACCCCGAGTTCATTGGTAAGATCGGCACCGACATCC AGGACAACAAGTGCTCCTGGCTCGTTAACAAAGCCCTTCAGAAGGCCACCCCGAGCA GCGACAGATCCTCGAGGACAACCTACGGCGTCAAGGACAAGTCCAAGGAGCTCGTCATC AAGAACTGTATGATGACATGAAGATTGAGCAGGACTACCTTACTACGAGGAGGAGG TTGTTGGCGACATCAAGAAGAAGATCGAGCAGGTTGACGAGAGCCGAGGCTTCAAGAA</p>

	GGAGGTGCTCAACGCTTTTCCTCGCCAAGATTTACAAGCGACAGAAGTAG
Acyl-CoA oxidase 1 (POX1) coding DNA (YALI0E32835g)	<p>ATGGCCAAGGAGCGAGGTAAGACTCAATTCCTGTCGAGATGTGACCAACTTCCTCA ATGGTGGAGAAGAAGAGACCCAGATTGTCGAGAAGATCATGAGCAGTATTGAACGTGA TCCAGTACTGTCTGTCACTGTGACTACGACTGCAACCTTCAGCAGGCCCGAAAACAG ACCATGGAGCGGGTGGCTGCTCTGTGCGCTTATCTGGTCACCGATACTGAGAAGCTAT CTCTGTGGCGTGCGCAACTGCATGGAATGGTTGATATGTCTACTCGTACGCGGTTGTC GATCCACAACAACCTGTTTTCATTGGTTCCATCAGGGGATCTGGTACTCCTGAACAGTTC AAGTACTGGGTCAAGAAGGGAGCGGTGGCTGTTAAGCAGTTCATGATGCTTTGCCA TGACAGAGTTGGGCCATGGAAGCAACCTCAAGGGACTAGAGACAACCGCCACTTATGA CCAGGACAGTGACCAGTTCATTATCAAACTCCTCATATTGGTGCTACCAAGTGGTGG ATTGGCGGTGCAGCCACACTTCCACCCATTGTGTTTTGTTTCGCGAAACTGATGTGTC ATGGCAAGGACTATGGTACTCGAAACTTTGTGGTACCTCTCCGAAATGTCCACGATCA CAGTCTCAAGGTCGGTGTTCATTGGAGACATTGGAAGAAGATGGGCAGAGATGGT GTTGACAATGGCTGGATCCAGTTCACCAATGTTGCAATCCCCAGACAGAACATGCTAA TGAGATATGCCAAGGTGTCTGATACTGGAGTGGTAACCAACCCGCTCTTGACCAACT CACTTATGGAGCCCTCATTCGAGGTGCGAGTGTCCATGATTGCCGACTCGTTCACGTC TCCAAACGATTCTCACAATTGCTCTTCGGTACGCTTGTGTCCGACGACAGTTTGAA CCTCTGGAGACACTAAGGAGACCAAGATCATCGACTACCCCTACCACCAGCGACGATT GCTGCCTCTTCTGGCCTACTGCTACGCTATGAAGATGGGTGCTGATGAGGCTCAGAAG ACTTGGATTGAGACCACCGATCGAATTCTGGCTCTCAATCCCAACGACCCCGCCAGA AGAACGATCTGGAGAAGGCCGTCACCGACACAAAGGAGCTGTTTGTGCGTCTGCAGG AATGAAGGCATTTACCACGTGGGGATGTGCCAAAATCATTGATGAGTGCCGACAGGCC TGTGGAGGTCATGGATACTCTGGATATAACGGATTTGGCCAGGGCTACGCTGACTGGG TTGTCCAGTGTACCTGGGAAGGAGACAACAACGTTCTGTGTCTGTCAATGGGCCGAGG GCTGGTTCAGTCAGCTCTACAGATTTTGGCTGGAAAGCACGTCGGTGCTTCTATTTCAG TACGTAGGAGACAAGTCTAAAATCTCCAGAACGGCCAGGGTACCCCGAGAGACAAC TTCTGTCCCCGAGTTTCTAGTAGAAGCTTTCAGAACGGCTTCTCGAAACAACATTCT CAGAACCACCGATAAATACCAAGAGCTTGTCAAACTCTCAATCCCGACCAGGCCTTT GAGGAGCTGTCTCAGCAGAGATTCCAGTGTGCTCGAATCCACACACGACAGCATCTTA TCTCTTCATTCTATGCCCCAATTGCCACTGCCAAAGACGATATCAAGCCCCATCTGCT GAAACTGGCCAATCTGTTTGCCTCTGGTCAATTGAGGAGGACTGGAATCTTCCTG CGGGAGAACATCCTCACCCCTGGAGACATTGACCTGATCAACAGTCTTGTGGACGAGC TCTGTGTTGCAGTTCGAGATCAGGTAATTGGACTCACTGATGCCTTTGGTCTCTCTGA CTTCTTCATTAAACGCTCCCATCGGCTCCTACGATGGTAATGTTTACGAAAAGTACTTT GCCAAGGTCAACCAGCAAACCCCGCTACTAACCCCTCGTCTCCCTACTACGAGTCGA CTCTCAAGCCCTTCTTGTTCGAGAAGAGGAGGACGATGAAATTTGCGATCTCGATGA GTGA</p>

<p>Acyl-CoA oxidase 2 (POX2) coding DNA (YALI0F10857g)</p>	<p>ATGAACCCCAACAACACTGGCACCATTGAAATCAACGGTAAGGAGTACAACACCTTCA CCGAGCCCCCGTGGCCATGGCTCAGGAGCGAGCCAAGACCTCCTTCCCCGTGCGAGA GATGACCTACTTCCTCGACGGTGGCGAGAAGAACACCCTCAAAAACGAGCAGATCATG GAGGAGATTGAGCGAGACCCTCTTTTCAACAACGACAACACTACTACGATCTCAACAAGG AGCAGATCCGAGAGCTCACCATGGAGCGAGTCGCCAAGCTGTCTCTGTTTGTGCGTGA TCAGCCCGAGGACGACATCAAGAAGCGATTTGCTCTCATTGGTATCGCCGATATGGGA ACCTACACCCGACTTGGTGTCCACTACGGCCTCTTCTTTGGCGCCGTCCGAGGTACCG GAACTGCCGAGCAGTTTGGCCACTGGATCTCCAAGGGAGCCGGAGACCTGCGAAAAGTT CTACGGATGTTTCTCCATGACCAGCTGGGCCATGGCTCCAACCTGGCTGGTCTCGAG ACCACCGCCATCTACGATGAGGAGACCGACGAGTTCATCATCAACACCCCTCACATTG CCGCCACCAAGTGGTGGATTGGAGGAGCCGCCACACCGCCACCCACACTGTCGTGTT CGCCCGACTCATTGTCAAGGGCAAGGACTACGGTGTCAAGACCTTTGTTGTCCAGCTG CGAAACATCAACGACCACAGCCTCAAGGTCGGTATCTCTATTGGTGATATCGGAAAGA AGATGGGCCGAGACGGTATCGATAACGGATGGATCCAGTTCACCAACGTGCGAATCCC CCGACAGAACCTGCTCATGAAGTACACAAAGGTCGACCGAGAGGGTAACGTGACCCAG CCTCCTCTGGCTCAGCTTACCTACGGTTCCTTATCACTGGTCGAGTCTCCATGGCCT CTGATTCTCACCAGGTCGGAAGCGATTTCATCACCATTGCTCTGCGATACGCCTGCAT TCGACGACAGTTCTCCACCACCCCGGCCAGCCGAGACCAAGATCATCGACTACCCC TACCATCAGCGACGACTTCTGCCTCTTCTGGCCTATGTCTATGCTCTTAAGATGACTG CCGATGAGGTTGGAGCTCTCTTCTCCGAACCATGCTTAAGATGGACGACCTCAAGCC CGACGACAAGGCCCGCCTCAATGAGGTTGTTTCCGACGTCAAGGAGCTCTTCTCCGTC TCCGCCGGTCTCAAGGCCTTCTCCACCTGGGCTTGTGCCGACGTCATTGACAAGACCC GACAGGCTTGGGTTGGCCACGGTTACTCTGGATACAACGGTTTCGGCCAGGCCTACGC CGACTGGGTTGTCCAGTGACCTGGGAGGGTGACAACAACATTCTCACCCTTTCTGCC GGCCGAGCTTTATCCAGTCTGCCGTTGCTCTGCGAAAGGGCGAGCCTGTTGGTAACG CCGTTTCTTACCTGAAGCGATAACAAGGATCTGGCCAACGCTAAGCTCAATGGCCGATC TCTCACCGACCCCAAGGTCCTCGTCGAGGCCTGGGAGGTTGCTGCCGGTAACATCATC AACCGAGCCACCGACCAGTACGAGAAGCTCATTTGGCGAGGGTCTTAACGCCGACCAGG CCTTTGAGGTTCTGTCTCAGCAGGATTCCAGGCCGCAAGGTCCACACACGACGACA CCTCATTGCCGCTTTCTTCTCCCGAATTGACACCGAGGCTGGCGAGGCCATCAAGCAG CCCCTGCTTAACCTGGCTCTGTGTTTGGCCTGTGGTCCATCGAAGAGGACTCTGGTC TGTTCTGCGAGAGGGCTTCTCGAGCCCAAGGATATCGACACCGTACCGAGCTCGT CAACAAGTACTGCACCACTGTGCGAGAGGAGGTCATTGGCTACACCGATGCCTTCAAC CTGTCCGACTACTTCATCAACGCTCCTATTGGATGCTACGATGGTGACGCTTACCGAC ACTACTTCCAGAAGGTCAACGAGCAGAACCCTGCCCGAGACCCCGACCTCCTTACTA CGCCTTACTCTCAAGCCCTCCTTTTCCGAGAGGAGGAGGATGATGACATTTGCGAG CTTGATGAGGAATAG</p>
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<p>Acyl-CoA oxidase 3 (POX3) coding DNA (YALI0D24750g)</p>	<p>ATGATCTCCCCAACCTCACAGCTAACGTCGAGATTGACGGCAAGCAGTACAACACCT TCACAGAGCCACCCAAGGCGCTCGCCGGCGAGCGAGCCAAGGTCAAGTTCCCCATCAA GGACATGACGGAGTTTCTGCACGGTGGCGAGGAGAACGTGACCATGATCGAGCGACTG ATGACGGAGCTCGAGCGAGACCCCGTGTCAACGTGTGCGGGCGACTACGACATGCCCA AGGAGCAGCTGCGAGAGACGGCCGTGGCGCGAATTGCGGGCGTGTCCGGCCACTGGAA GAAGGACACAGAAAAGGAGGCGCTGTGCGGTCCCAGCTGCACGGCATTGTGGACATG GGCACCCGAATCCGACTCGGTGTGCACACGGGCCTGTTTCATGGGCGCCATCCGGGGTT CCGGCACCAAGGAGCAGTACGACTACTGGGTGCGAAAGGGCGCCGCGGACGTCAAGGG CTTCTACGGCTGCTTTGCTATGACCGAGCTGGGCCATGGCTCCAACGTGGCCGGTCTT GAGACCACCGCCACCTACATCCAGGACACGGACGAGTTCATCATCAACACCCCAACA CTGGAGCCACCAAGTGGTGGATTGGAGGAGCCGCCACTCGGCCACCCACACCGCCTG CTTTGCTCGTCTGCTTGTGACGGCAAGGACTACGGCGTCAAGATCTTTGTTGTCCAG CTGCGAGACGTCTTCTCACTCTCTCATGCCCGGCATCGCTCTCGGCGACATTGGAA AGAAGATGGGCCGAGACGCCATCGACAACGGCTGGATCCAGTTCACCAATGTGCGAAT CCCCGACAGAACATGCTCATGAAGTACGCCAAGGTCTCGTCTACCGGCAAGGTGTGCG CAGCCTCCTCTGGCCCAGCTCACCTACGGCGCTCTCATTGGCGGCCGAGTCACCATGA TTGCCGACTCCTTCTTTGTCTCCAGCGATTTCATCACCATTGCTCTGCGATACGCTG TGTGCGACGACAGTTTGGCACCACCCCGGCCAGCCCGAGACTAAGATCATCGACTAC CCCTACCATCAGCGACGTCTGCTGCCTTCTTGGCCTTCACCTACGCCATGAAGATGG CCGCCGACCAGTCCCAGATTAGTACGATCAGACCACCGATCTGCTGCAGACCATCGA CCCTAAGGACAAGGGCGCTCTGGGCAAGGCCATTGTGACCTCAAGGAGCTGTTTGCC TCTTCTGCTGGTCTCAAGGCCTTCACCACCTGGACCTGTGCCAACATCATTGACCAGT GCCGACAGGCCCTGCGGTGGCCACGGCTACTCTGGCTACAACGGCTTTGGCCAGGCCTA CGCCGACTGGGTTGTCCAGTGCACCTGGGAGGGTGACAACAACGTCCTGTGTCTGTCC ATGGGCCGAGGTCTCATCCAGTCGTGTCTGGGCCACCGAAAGGGTAAGCCTCTGGGCT CTTCTGTGCGGTACCTGGCTAACAAGGTCTTGAGCAGGCTACTCTGAGCGGCCGAGA CCTCAAGGACCCCAAGTTCTCATCGAGGCCTGGGAGAAGGTGCGCAACGGCGCCATC CAGCGGGCCACTGACAAATTTGTGAGCTCACCAAGGGCGGCCCTCTCTCCTGACCAGG CCTTTGAGGAGCTGTGCGAGCAGCGATTCCAGTGTGCCAAGATCCACACCCGAAAGCA CCTGGTGACTGCCTTCTACGAGCGAATCAACGCCTCTGCGAAGGCCGACGTCAAGCCT TACCTCATCAACCTCGCCAACCTCTTCACTCTGTGGTCCATTGAGGAGGACTCTGGTC TCTTCTGCGAGAGGGTTTCTGCGAGCCCAAGGACATTGACCAGGTGACTGAGCTGGT GAACCACTACTGCAAGGAGGTTGAGACCAGGTTGCCGGCTACACCGATGCCTTTGGT CTGTCTGACTGGTTCATCAACGCTCCCATTTGAAACTACGATGGTGACGTTTACAAGC ATTACTTTGCCAAGGTTAACAGCAGAACCCTGCTCAGAACCCCGACCTCCTTACTA TGAGAGCACTCTTCGACCTTTCCTGTTCCGAGAGGATGAGGATGACGACATTTGCGAG CTGGACGAGGAATAG</p>
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<p>Acyl-CoA oxidase 4 (POX4) coding DNA (YALI0E27654g)</p>	<p>ATGATCACCCCAAACCCCGCTAACGACATTGTCCATGACGGCAAGCTCTACGACACCT TCACTGAGCCCCCAAGCTGATGGCTCAGGAGCGAGCTCAGCTGGACTTCGACCCTAG AGACATCACCTACTTTCTGGATGGCTCTAAGGAGGAGACCGAGCTGCTGGAGTCGCTC ATGCTCATGTACGAGCGAGACCCTCTCTTCAACAACCAGAACGAGTACGATGAATCGT TTGAAACACTGCGAGAGCGATCTGTGAAGCGAATTTTCCAGCTGTCCAAGTCCATCGC CATGGACCCCGAGCCCATGTCTTCCGAAAGATTGGGTTCCCTGGGTATTCTTGACATG GGAACGTATGCTCGACTGGGAGTCCACTACGCGCTCTTCTGTA ACTCCATCCGGGGCC AGGGAACCCCGATCAGCTCATGTACTGGCTGGACCAGGGAGCCATGGTCATCAAGGG CTTCTACGGCTGTTTTGCCATGACCGAAATGGGCCATGGATCTAACCTGTCCGCTCTG GAAACCATCGCCACTTTCGACAAAGAGACCGACGAATTTATCATTAACAGCCCCACG TTGGAGCCACAAAGTGGTGGATTGGAGGAGCCGCCACACTGCTACTCACACACTTGC CTTTGCCCGTCTTCAAGTAGACGAAAGGACTACGGTGTGAAATCGTTTGTCTACCT CTCCGAAACCTGGACGACCATTGCTGCGTCTTGAATCGCCACAGGTGATATTGGTA AGAAGATGGGTCGAGATGCCGTTGACAACGGCTGGATTCACTTACCAACGTCGGAGT GCCCCGAAACTACATGCTCATGAAGCATAACCAAGGTTCTTCGAGACGGTACCGTCAAG CAGCCGCCTTTGGCCAACTGACTTACGGATCTCTCATCACTGGACGAGTCCAGATGA CCACTGACTCTCACAATGTGTCAAAAAGTTCTCACCATTGCCCTGAGATACGCCAC CATCCGACGACAGTTCTCGTCAACTCCAGGAGAGCCCCGAAACCCGACTAATTGACTAC CTGTACCACCAAAGACGACTCCTGCCTCTTATGGCTTACTCTTACGCCATGAACTAG CTGGAGATCACGTCCGAGAGCTGTTCTTTGCATCCAGGAGAAGGCTGAGAGCCTCAA GGAGGACGACAAAGCCGGAGTTGAGTCTTACGTCCAGGATATCAAGGAGCTCTTCTCT GTTTCTGCTGGTCTCAAGGCTGCCACTACATGGGCTTGTGCTGACATCATTGACAAGG CCCGACAGGCGTGTGGAGGCCACGGATACTCTGCCTACAACGGCTTTGGACAGGCCTT CCAGGACTGGGTTGTCCAGTGCACCTGGGAGGGTGACAATACTGTTCTGACTCTATCT GCCGGCCGAGCTCTGATCCAATCTGCTCTCGTCTACCGAAAGGAGGGCAAACCTAGGTA ACGCCACGAAGTACCTCTCTCGGTCCAAGGAGCTTGCCAACGCCAAGAGAAACGGACG ATCCCTGGAAGACCCCAAGCTGCTCGTGGAGGCATGGGAGGCTGTCTCTGCCGGTGT ATCAACGCTGCTACTGACGCTTACGAGGAGCTCTCCAAGCAGGGAGTTTCTGTGACG AGTGCTTTGAGCAGGTGTCCAGGAGCGATTCCAGGCTGCCGAATCCACACTCGACG AGCTCTTATCGAGGCCTTCTACTCACGAATCGCCACTGCTGATGAGAAGGTGAAGCCT CATCTGATCCCTCTGGCCAACCTGTTTGGCCCTGTGGTCCATTGAGGAGACTCTGCTC TGTTCCCTGGCTGAGGGCTACTTTGAGCCTGAGGATATCATTGAGGTGACTTCTCTTGT CAACAAGTACTGCGGAATTGTTGAAAGAACGTTATTGGATACACCGATGCCTTCAAC CTGTCCGACTACTTCATCAACGCTGCCATTGGACGATACGACGGAGACGTGTACAAGA ACTACTTTGAGAAGGTCAAACAGCAGTACCCTCCTGAGGGTGGCAAGCCTCACTACTA CGAGGATGTCATGAAGCCCTTCCCTGCATCGAGAGCGAATTCCCGATGTCCCCATGGAG CCCGAGGATATTCAGTAA</p>
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<p>Acyl-CoA oxidase 5 (POX5) coding DNA (YALI0C23859g)</p>	<p>ATGAACAACAACCCACCAACGTGATCCTTGGAGGCAAGGAGTACGACACCTTCACCG AGCCTCCGGCCCAGATGGAGCTGGAGCGAGCCAAGACACAATTCAAGGTCCGAGACGT GACCAACTTCCTCACAGGCAGCGAGCAGGAGACTGCTGACCGAGCGAATCATGCGG GAGATTGAGCGAGATCCCGTTCTCAACGTCGCCGGCGACTACGACGCCGATCTTCCCA CCAAGCGACGACAAGCTGTTGAGCGAATCGGGGCTCTGGCCCCGATACCTGCCCAAGGA TTCCGAGAAGGAGGCCATTTTGCAGGCCAGCTGCATGGTATTGTGGACATGGGTACC CGAACCCGAATCGCCGTTCACTACGGTCTGTTTATGGGCGCCATTTCGTGGCTCAGGAA CCAAGGAGCAGTACGATTACTGGGTCGCCAAGGGCGCCGCTACTCTGCACAAATTCTA TGGCTGCTTTGCCATGACTGAGCTGGGTCACGGATCTAACGTGGCCGGTCTCGAGACC ACCGCCACCCTTGATAAGGACACCGACGAGTTCATCATCAACACCCCAACTCGGGAG CCACAAAGTGGTGGATTGGAGGAGCTGCCCACTCTGCTACCCACACGGCTTGTCTTGC CCGACTCATTTGTGATGGCAAGGACTATGGTGTAAAGATCTTCATTGTTTCAGTGCGA GACCTCAACTCCCACTCTCTACTCAACGGTATTGCCATTGGAGATATCGGCAAGAAGA TGGGCCGAGATGCCATTGATAATGGTTGGATCCAGTTCACAGACGTCCGAATTCCCCG ACAGAACATGCTCATGCGATACGACCGGGTGTCTCGAGACGGCGAGGTTACCACCTCC GAGCTTGCCCAGCTCACCTACGGAGCACTTCTGTCTGGCCGAGTGACCATGATTGCCG AGTCTCACCTCCTGTCTGCTCGGTTCCCTCACCATTGCTCTTCGGTACGCCGTGTATCCG TCGACAGTTCGGAGCTGTGCCTGACAAGCCCAGACTAAGCTCATCGACTACCCTTAC CACCAACGACGTCTGCTGCCTCTTCTGGCCTACACCTACGCCATGAAGATGGGCGCCG ACGAGGCCCAGCAGCAGTACAACCTCCTCCTTTGGCGCTCTTCTCAAGCTCAACCCGT CAAGGACGCTGAGAAGTTTGTGTGCGCCACTGCCGACCTCAAGGCTCTGTTTGCCTCT TCTGCCGGAATGAAGGCCTTACCACCTGGGCTGCCGCCAAGATCATTGACGAGTGCC GACAGGCCCTGTGGTGGCCATGGCTACTCCGGCTACAACGGTTTCGGTCCAGGCTTACGC CGACTGGGTCGTCCAATGCACTTGGGAGGGTGACAACAACGTGCTGTGTCTGTCCATG GGTCGATCGCTCATCCAGTCGTGCATTGCCATGAGAAAGAAGAAGGGCCATGTCCGCA AGTCGGTCCAGTACCTGCAGCGACGAGACGAGCTGCAGAATGCCGAGTTGACAACAA GCCTTCACTGACCCCTGCTGTGCTCATCACTGCATGGGAGAAGGTTGCCTGCGAGGCC ATCAACAGAGCCACTGACTCCTTCATCAAGCTCACCCAGGAGGGTCTGTCTCCTGACC AGGCCTTTGAGGAGCTGTCTCAACAGAGATTTGAGTGTGCGCGAATCCACACCCGAAA GCATCTGATCACCTCGTTCTACGCTCGAATCTCCAAGGCCAAGGCCGAGTCAAGCCC CACCTTACTGTTCTTGCCAACCTCTTTGCCGCTCTGGTCCATCGAGGAGACTCTGGTC TCTTCCCTCGGGAGGGCTGCTTCGAGCCTGCCGAGATGGACGAGATACCGCTCTGGT CGACGAGCTGTGCTGCGAGGCTCGAGAGCAGGTCATTGGATTACCGACGCCCTCAAC CTGTCCGACTTCTTATTAAACCCCCATTGGCCGATTTCGACGGAGACGCCTACAAGC ACTACATGGACGAGGTCAAGGCTGCCAACAACCCCTCGTAACACCCATGCTCCTTACTA CGAGACCAAGCTGCGACCCCTCCTGTTCCGACCCGATGAGGACGAGGAGATTTGCGAC CTGGACGAGTAG</p>
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<p>Acyl-CoA oxidase 6 (POX6) coding DNA (YALI0E06567g)</p>	<p>ATGCTCTCTCAACAGTCCCTCAACACGTTTACCGAGCCCCGGTCGAAATGGCCCCGG AGCGAAACCAGACTTCCTTCAACCCGCGTCTGCTGACGTACTTTCTGGACGGAGGCGA AAAGAACACTCTGCTTATGGACCGACTGATGCAAGAGTACGAGCGAGACCCCTGTGTTT CGAAACGAGGGCGACTACGATATTACCGATGTGGCCAGTCGCGAGAGCTGGCCCTTCA AGCGAATCGCCAAGCTCATCGAGTATGTGCACACCGACGACGAGGAGACGTATCTGTA CCGATGCATGCTTCTGGGCCAAATCGATATGGGAGCCTTTGCCCGGTACGCCATCCAC CACGGAGTCTGGGGCGGTGCCATTCGAGGTGCAGGAACGCCTGAGCAGTACGAATTCT GGGTCAAGAAAGGATCTCTGTCGGTTAAGAAGTTCTATGGATCCTTCTCCATGACCGA GCTGGGCCACGGCAGTAAC TTGGTGGGTCTGGAGACCACCGCCACCCTGGACAAGAAC GCAGACGAGTTCGTGATCAACACTCCCAACGTTGCTGCCACTAAATGGTGGATCGGAG GAGCCGCCGATACCGCCACTCACACAGCTGTGTTTGCACGTCTCATTGTCGACGGAGA GGACCACGGTGTCAAGACGTTTGTGGTGCAGCTGCAGACGTGGAGACTCACAACCTG ATGCCTGGTATGCTATCGGAGACTGCGGCAAGAAGATGGGACGTCAGGGAACCGACA ACGGCTGGATCCAGTTCACCCATGTGCGAATTCGCCGACAGAACATGCTCATGCGATA CTGTACGTTGGACAGCGACGAAATGTTACCGAGCCCATGATGGCTCAGATGGCCTAC GGAGCTCTTCTGGCTGGCCGAGTCCGAATGGCCATGGACAGTTATTTACCTCGCGAA AGTTCCTTACCATTGCTCTTCGATATGCCACCATTTCGACGAGCTTTTGTGCCGGAGG AGGTCAGGAGACCAAGCTGATCGACTACCCTTACCACCAGCGACGTCTGCTCCCCCTC ATGGCCCAGACATATGCCATCAAGTGCACCGCCGATAAGGTCAGAGATCAGTTCGTCA AGGTCACCGACATGCTCCTAAACCTCGATGTTTCTGACCAAGAGGCCGTGCCAAGGC CATTGCCGAGGCTAAGGAGCTCTTCTCTGTTTCTGCTGGTGTCAAGGCTACCACAAC TGGGCTTGGCCACACACCATTGACCAGTGCAGACAGGCGTGTGGAGGCCACGGATACT CTGCTTACAACGGTTTTGGACGTGCTTACTCCGATTGGGTGATCCAGTGCACCTGGGA GGGAGACAATAACATTCTGTGCTGTGTCAGCTGGCAGAGCTCTGGTCCAGTCTAACCGA GCTGTCCGGGCTGGCAAGCCCATGGAGGTCCTACCACCCTACCTGGCTGCTCCCGCTG GTTCCCCAAGCTCGCTGGTCGAAACTTGTACGACCCCAAGGTCATGATTGGGGCCTG GGAGACTGTTTCCCGAGCTCTGATCAACCGAACCACCGATGAGTTTGAGGTGCTGGCC AAGAAGGGTCTGTCTACTGCCAGGCCTACGAGGAGCTGTCCAGCAACGATTCTGT GTACTCGAATCCACACCCGCTGTGACATGGTCAAGAACTTCTACGAGCGAATTGCCGA GGAGGGCACCGAGTTCACCAAGGAGCCTCTTACCAGACTTGCCAACCTGTACGCCTTC TGGTCCGTGCAAGAGGAGGCTGGAATCTTCTCCGAGAGGGTACATCACTCCCAGG AGCTCAAGTACATCAGTGCCGAGATCCGAAAGCAGCTCTGGAGGTGCGAAAGGACGT CATTGGCTACACCGATGCCTTCAACGTGCCTGATTTTTCTCAACTCTGCCATTGGA CGAGCTGACGGAGATGTCTACAAGAATACTTCAAGGTGGTCAACACTCAGAACCTTC CCCAAGACCCTCGACCTCCTTATTACGAGTCTGTCATTAGACCTTCTGTTCGGAAA GGACGAGGATGAGGAAATTTGCTCTCTTGAGGATGAGTAG</p>
<p>MFE1 coding DNA (YALI0E15378g)</p>	<p>ATGTCTGGAGAATAAGATACGACGGAAAGGTCGTCATTGTTACCGGTGCCGGTGGCG GTCTCGGTAAGGCATACGCCCTTTTCTACGGCTCTCGAGGAGCCTCTGTTGTTGTCAA CGATCTTGGTGGCGACTTCAAGGGCGACGGTCCCAGGCTGGCAGTGGCAAGCGAGTG AGTATCATTACAAGCGCAGCGAAGCGAAACGACCCAAAACGACACCACACAGAAGGAT AAACTAACACCAGGTTGCCGATGTTGTCGTCGACGAGATTGTTTCCAAGGGAGGCAAG GCTGTTGCTAACTACGACTCTGTCGAGAACGGTGACAAGATTGTCGAGACTGCCGTCA</p>

AGGCTTTTGGCTCCGTCCACATTGTCATCAACAACGCCGGTATTCTCCGAGATATTTCTTCAAGAAGATGACCGACAAGGACTGGGATCTTGTCTACAAGGTCCACGTTTTCCGGTGCCTACAAGGTTACCCGAGCTGCCTGGCCTTACTTCCGAAAGCAGAAGTACGGTGCAGTTATCTCTACCTCTTCCGCTGCTGGTCTTTACGGAAACTTCGGCCAGACCAACTACTCCGCTGCCAAGCTCGCCCTGGTTGGTTTCCGGTGAGACTCTCGCCAAGGAGGGTGCCAAGTACAACATTACTTCCAACGTCATCGCTCCTCTTGTCTTCCGAATGACCGAGACAGTCATGCCCCGAGGATATCCTCAAGCTCCTCAAGCCTGAGTACGTTGTTTCTCTGGTCCGCTACCTCACCACGACTCTGTCACCGAGTCTTATGGTATTTACGAGGTCCGGTCTGGTTACATGGCTAAAATCCGATGGGAGCGAGGCAACGGTGCTGTTTTCAAGGGCGACGACACTTTACCCCGTCTGCTATTCTGAAGCGATGGGATGAGGTCACCTCTTTTGAGAGCCCACCTACCCTAACGGCCCTGTGACTTCTTCAAATACGCTGAGGAGTCTGTTAAGCGACCCGAGAACCCCCAGGGACCCACCGTCTCCTTCAAGGACCAGGTTGTCATTGTCACTGGAGCCGGTCTGGCATTGGCCGAGCTTACTCTCACCTCCTTGCTAAGCTTGGTGCCAAAGGTCGTTGTTAACGATTTCCGGTAACCCTCAGAAGGTTGTCGATGAAATTAAGGCCCTCGGTGGTATCGCCGTCGCTGACAAGAACAACGTCATCCACGGTGAGAAGGTTGTTTCCAGACCGCTATCGACGCTTCCGGTGCTGTCCACGCCGTTGTCAACAACGCTGGTATTCTCCGAGACAAGTCTTTCGCCAACATGGATGATGAGATGTGGCAGCTGATCTTTGATGTCCACTCAACGGTACTTACTCCGTTACCAAGGCCGCTGGCCCCACTTCCTTAAGCAGAAGTACGGCCGTGTCATCAACACCACCTCAACTTCTGGTATCTACGGTAACTTCGGCCAGGCCAACTACTCTGCCGCAAGGCTGGTATCCTCGGTTTCTCCGAGCTCTTGCTCGAGAGGTGAGAAGTACAACATTCTTGTCAACACCATTGCCCTAACGCTGGTACTGCCATGACTGCTTCTGTCTTCACTGAGGAGATGCTCGAGCTTTCAGCCCGATTTTCATCGCACCATCACCGTCTGCTTGCTTCCGATCAGGCTCCCGTACCCGGTATCTGTTTGAGACTGGTCTGCTTGGATCGGACAGACTCGATGGCAGCGAGCTGGTGGTAAGGCCTTCAACAACAAGAAGGGTGTCAACCCCGAAATGGTTCGAGACAGCTGGGCTAAGATCGTCCGACTTCGATGATGGTAACTCCACCCATCCACCCTCCCTCCGAGTCTACTACTCAGATTCTTGAGAACATCTTCAACGTGCCTGATGAGGAGGTTGAGGAGACTGCTCTCGTTGCTGGTCCGGTGGTCCCGGTATCCTCAACAAGGAGGGCGAACCTTTGACTACACTTACTTACCAGACCTCATTTTACAACCTTGGTCTCGGTGCCAAGGCTAATGAGCTCAAGTATGTCTTCGAGGGTATGATGACTTCCAGACCGTGCCACTTTCGGTGTATCCCTTACATGGGTGGCCTCATCACTACCAACTATGGCGACTTCGTTCCTAACCTTCAACCCTATGATGCTTCTCCACGGTGAGCAGTACCTTGAATCCGACAGTGGCTATTCTTACCATGCTACATTGGAGAACAAGGCTAAGGTCATCGATGTCGTTGACAAGGGCAAGGCTGCCCTCCTGTCTACTGCTACCACCACGAACAAGGAGACTGGTGAGGAGGTTTTCTACAACGAGTCTTCTCTTTCATCCGAGGCTCTGGTGGTTTCGGTGGTAAGTCTACCGTACTGACCGTGGCGCTGCCACTGCTGCCAACAAGCCCCCTGCTCGAGCTCCTGACTTCGTTAAGGAGATCAAGATCCAGGAGGACCAGGCTGCCATTTACCGACTTCTGGTGATTACAACCTCTTACATCGACCCTGCTTTTGTGCTGTTGGTAACTTTGACCGACCTATTCTCCACGGTCTCTGCTCTTTTGGTGTCTCCGGTAAGGCTCTTTACGATCAGTTTGGTCTTTTCAAGAACGCTAAGGTCGATTTGTGGTACGCTTCCCTGGTGAGACCCTGAAGGTTGAGGGCTGGAAGGAGGGCAACAAGGTCATTTCCAGACCAAGGTTGTTGAGCGAGGTAACCGCCATCAGCAATGCCGCCATTGAGCTCTTCCCAAGGATGCTAAGCTCTAA

<p>POT1 coding DNA (YALI0E18568g)</p>	<p>ATGGACCGACTTAACAACCTCGCCACCCAGCTCGAGCAGAACCCCGCCAAGGGCCTCG ACGCTATCACCTCCAAGAACCCCGATGACGTTGTCATCACCGCCGCCTACCGAACTGC CCACACCAAGGGAGGCAAGGGTCTGTTCAAGGACACCTCTTCTCCGAGCTGCTCGCC TCTCTGCTGGAGGGCCTCGTCAAGGAGTCCAAGATCGACCCCAAGCTCATCGGTGATG TCGTCTGCGGGAACGTTCTCGCTGCCGGTGCCGGTGCCACTGAGCACCGAGCTGCCTG CCTTGTTGCCGGCATCCCCGAGACCGTTCCTTCGTGCTCTCAACCGACAGTGTCTCC TCTGGTCTGATGGCCGTCAACGACGTTGCCAACAAGATCCGAGCCGGCCAGATTGACA TTGGTATCGGCTGTGGTGTGAGTCCATGTCCAACCAGTACGGTCCCAACTCCGTAC CCCCTTCTCCAACAAGTTCAGAACAACGAGGAGGCTAAGAAGTGCCTGATCCCCATG GGTATCACTTCCGAGAACGTTGCCGCAAGTACAACGTGTCCGAAAGGCCAGGACG CCTTTGCTGCCAAGTCTACGAGAAGGCCGCGCTGCCAGGCCGCGGCAAGTTCGA CCAGGAGATCCTCCCCATCAAGACCACTGTTCTCGATGATGATAACGAGAAGGAG GTTACCGTCAACAAGGACGACGGTATCCGACCTGGTGTACCCGCCGAGAAGCTCGGCA AGCTCAAGCCTGCTTTCTCCGCCGAGGGAACCCACGCTGGTAACGCCCTCTCAGAT CTCCGACGGTGCCGGAGCCGTTCTCCTCATGCGACGATCTGTTGCCGAGAAGCTTGGC CAGCCCATCCTTGCCAAGTTTGTCCACTGCAAGACCGTCCGGTGTCCCCCGAGCTCA TGGGAATTGGCCCCGCTTACGCCATTCTGTGTCCTTGAGGACCTTGGTCTGACCGT CAACGACGTTGACGTTTTTCGAGATCAACGAGGCTTTCGCTTCCAGGCTCTGTCTCC ATCCAGCATTGTGGAATCGACGAGTCCAAGGTCAACCCCGAGGTGGTGCCATTGCTA TTGGCCACCCTCTGGGAGCCACCGGTGCTCGACAGTTTGCCACTCTGCTCTCCGAGCT TAAGGAGTCTGGCAAGAAGTCCGGTGTACCTCCATGTGCATTTGGTACCGGTATGGGT GCCGCTTCTCTGGTTGTTGCCGAGTAA</p>
<p>Ku70 coding DNA (YALI0C08701g)</p>	<p>CCTACTGCAAACCTGTAATATTGAGATTATTGAGGAAATTAAGGAAAATTCAGATCAGA TTTGAGAGCAAAGTCCAACAATACTACACAATCCCTTTCCTGTATTCTCCACCATCGTCATC GTCGTCTGTCTTCTTTCAGCTTTTTAATTTACTCCCCACAAACCAAAATTTAGCTGCATCA TTCATCAACCTCCAATTATAACTATACTCGCGACACGAACACGAAACACGAACCACGAAC CGCCGCTTTTTGAAAATGGAATGGATTTACATCTGGAGAACGATGACGATGTGCTGGAAT CGAGGACTACAAGGTGCGCAAGGACGCGTGTGATCGCCATTCAAGTAACCCAGAACGCC ATTAACAACGAACTTTCATAAGGCCTTGAGGGCAGCCTTCGATGCTGTGACTGACAGAAT CGTCATATCGCCGAAGATTACACGGCGTTATGCTGTTCCGGTGCCTCCATGCAGTCTGAGG ACGACGGTACGAGTTCGATGATGAGTACAGATACACATTTCAATCTCAAGTGGGCCTTCCT ACCGTGTCTCAGATCAAACGACTCAAACGACTGGCAGAGGACCCTGATCTGGGTGAGAGGT TCAAGGTGCAGGAAGAGCCTCACCTGATGGACGTGTTTTTCGACATGAACCGCCATTTTATC AACATGGCACCCAACCTTCGCGTCCAGACGAATCATCTATATCACAGACGACGATACCCCA CGACGAATGAGGACGATATCAACAAGACACGAGTTCGAATTGAGGATCTAAGCCATCTCAA GGTGAAGGTGCGAGCCTTTTTGATCAACCCCTCGGAAGACAAGACGTTTCGACTCTCCAAAT TCTACGCTCTTGTGTTCAACGAAGACACATCTGTGGAGCCGGTTGAGGCGATCGATTTGAAG CAGTTTATCAACAAAAGAAACGTGCTCAATCGATCACTGTTCAATGTCAAAATGGAATCG GAGAAGGTCTTGTGTCGGAGTAAGAGGATACCTTCTTTATGCGGAACAAAAGGCTACTTCA ACAACCCGAAAGGCCTGGGTTTACTGAGGTGAGAAACCCGAGATTGCCAAATAGAAT CGCAGGCCGTCCTATTGAAAGTGGCAGAAGCGTGGACAAGGCAGATCTGAGAAAGACTTT CAAGTTTGGAAATGACTATGTTCTTTCACAGAAGAACAGCTGACGCAATCCGGTACTTTG</p>

	<p>GAGAGCCAATTATTTCGAATTCTCGGCTTCCACAATTCCTCGGACTTCTCCGAGCTTTCATCC ACAGTGTCGGATCGTCAATGTTCTATATCCCAGTATGAGAAGCTTGTGGGTTCGATTGCGA GCCTTTTCAGCACTCTATCAGAGTCTCAAGAACAAGGATAAGATGGCTCTGGCCTGGGTAT TGTCGCAAGGGCGCCAAACCTATTCTGGCTCTTCTTATTCTTCAACTAAGGAGATCGAAG GTCTTCATATGGTCTTCTTGCCTTTTACAGATGATATTCGACAAGAACCAAAGACTGAACTT GTGTCTGCCGCCCTGAGCTCGTGGACGCAACCAAGAATATTTTCACTCGTCTACGCATGCC TGGCGGATTTGAGTCGCAAAGATACCCCAACCCCGTCTACAGTGGCATTACCGAGTTGTAC GAGCCATGGCCCTTCAGGAGGAGGTTCCCAAGGTACCCGAAGACAAGACGACACCAAAGTA TCGGTCTATTGATACTCGAGTTGGTGATGCCATCGAGGAATGGAACAAGGTGTTGCGAGAGC AGCTCCAAGCGACCTGCGGAGGATATCTGTAAGGCTGAGAAGAAAGTCAAGAGTTCTGACG CGGGCCCTCCGTCCAACGAGCAAATGCAAAAATATGGTTGAGAATGACATTGTCCGCAAGCT GACCGTCGCAGAACTCAGGGCTTGGGGTGCTGCTAACAAATGTTGAGCCCAATGGTAGCAAG TTGAAGAAGGACTGGGTTGAGGTGGTCAAAAAGTACTATGGGAAGTGACTAGGGAGGCAC ATCTAAACGAATAACGAATATTAATGATACCATCATATCTCAGAACATGTATGACTGCTGCT TCCAAACGATATGAGGATGAGTCTCTTTCAGATTAAGATAGAGTACAAATATATTATCTAT ATACTGGTGTCTGTGCGATGTCGTATGAGCGGTGAATCATGTGACTGTCACGTGGTTTGGCC CAAGTTACCCGTAGCTACGCCTTTCTTGACCGTCTCCATGGTCTTCTGGGCGGGTTGACAG TTTC</p>
TEF Promoter	<p>AGAGACCGGTTGGCGGCGTATTGTGTCCAAAAACAGCCCCAATTGCCCAATTGACC CCAAATTGACCCAGTAGCGGGCCCAACCCCGGCGAGAGCCCCCTCACCCACATATCAAA CCTCCCCGGTCCACACTTGCCGTTAAGGGCGTAGGGTACTGCAGTCTGGAATCTACGCT TGTTCACTTTGTACTAGTTTCTTTGTCTGGCCATCCGGGTAACCCATGCCGGACGCAAAA TAGACTACTGAAAATTTTTGTCTTTGTGGTTGGGACTTTAGCCAAGGGTATAAAAGACCAC CGTCCCCGAATTACCTTCTCTCTTTTCTCTCTCTCTCTCTCTGCAACTCACACCCGAAATCGTT AAGCATTCTCTGAGTATAAGAATCATTCAA</p>
cyc1 Terminater	<p>TCATGTAATTAGTTATGTCACGCTTACATTCACGCCCTCCCTCCACATCCGCTCTAACCGAAA AGGAAGGAGTTAGACAACCTGAAGTCTAGGTCCCTATTTATTTTTTATAGTTATGTTAGTAT TAAGAACGTTATTATATTCAAATTTTTCTTTTCTGACAGACGCGTGTACGCATGTA ACATTACTGAAAACCTTGCTTGAGAAGGTTTTGGGACGCTCGAAGGCTTTAATTTGC</p>
TEFin Promoter	<p>AGAGACCGGTTGGCGGCGCATTGTGTCCAAAAACAGCCCCAATTGCCCAATTGACC CCAAATTGACCCAGTAGCGGGCCCAACCCCGGCGAGAGCCCCCTCACCCACATATCAAA CCTCCCCGGTCCACACTTGCCGTTAAGGGCGTAGGGTACTGCAGTCTGGAATCTACGCT TGTTCACTTTGTACTAGTTTCTTTGTCTGGCCATCCGGGTAACCCATGCCGGACGCAAAA TAGACTACTGAAAATTTTTGTCTTTGTGGTTGGGACTTTAGCCAAGGGTATAAAAGACCAC CGTCCCCGAATTACCTTCTCTCTTTTCTCTCTCTCTCTCTCTGCAACTCACACCCGAAATCGTT AAGCATTCTCTGAGTATAAGAATCATTCAAATGGTGAGTTTTCAGAGGCAGCAGCAATT GCCACGGGCTTTGAGCACACGGCCGGGTGGTCCCATTCCCATCGACACAAGACGCCACG TCATCCGACCAGCACTTTTGCAGTAC</p>

xpr2 Terminater	<p>GATCCAACACTACGGAACCTGTGTTGATGTCTTTGCCCCGGCTCCGATATCATCTCTGCCTCTT ACCAGTCCGACTCTGGTACTTTGGTCTACTCCGGTACCTCCATGGCCTGTCCCCACGTTGCCG GTCTTGCCCTCTACTACCTGTCCATCAATGACGAGGTTCTCACCCCTGCCAGGTCGAGGCT CTTATTACTGAGTCCAACACCGGTGTCTTCCCACCACCAACCTCAAGGGCTCTCCCAACGC TGTTCCTACAACGGTGTGGCATTAGGCAATTAACAGATAGTTTGCCGGTGATAATTCTC TTAACCTCCCACACTCCTTTGACATAACGATTTATGTAACGAACTGAAATTTGACCAGATA TTGTTGTAATAGAAAATCTGGCTGTAGGTGGCAAAATGCGGCGTCTTTGTTCAATTC CCTCTGTGACTACTCGTCATCCCTTATGTTTCGACTGTCGTATTTCTATTTCATACATATG CAAGTGAGATGCCCGTGTC</p>
SQS1up homology arm	<p>AGCAGATGCGTGAGAGATTACCAAGAACGTGGTTTTCTCAAACAAGACAGCTTCTGGGCTT CGGAAATTCGGCGAAAGACTTGAGATGGTTCTGGATAGCGGTCATGTTGGGAATCAGCGA ACATACAATGCTGGACCAGGCCTGTACAGCGATTATCCAGATGGAAGTCTGGAAGCCT CTAATGGTGAACCCAAACGGCACCGGTGTCTCCAGGGTTTTATCATGGTATTGAAGAT CTCGTCTCGCTTATTGAGCTGCATAAGGTCCATCTTGTGTAGAAGCACAAATACCTTGGCGT CGGGCTGAACTCTCGCAGGTTCTTGATGCATTTCTGAAAGATGTCGATGTCCTTGGCGAGC TTTTTGAACCCACGTCAATACATGGATCAGAACCTCAACCATGCGAAATATGTGATCTTT TTGTGTTGAAAAATAGTTGTGCATGAAAACGTCTGACCACCACAATCCCAAGTTCAGGG TCATGTGGCCTAGAAAATCGCAAATGTGAATGCTCCACATCGATCGTGGCGCCAGACGGG TGTGTCAAAGCTGAGTAGTTGCTGAAAATGATTGATCGCATCGAGGATTGCCAGAGCCA GACCGGCCATAAGCAGCAGCTTTTTTCGAGAACTCCGGCCATTGATATCAGTTTCCTAAG AGTTGTGTGCTCGTGTGGGGTGTATGTACTGTAGTGTACTGGATGACTTTAGATTGCC ACTGATTAAGGTTGAGAGTTGGGGGAGCTATCGTACTCGCCGAGTAATACTATCTGTTACT CGAACAGTGTTCGGGGTTGACCTGATCCTCTCAGCGGCTGAGAATGGCAAAGCCTATCTGT TTTACTTCGGGGTTATGTACTGTATATGATTTTTCTTCAATTACAATTATCTATCTCGGGC ATTCTCGCCTCATTACTAAGCAACGTTACCAATCCATGAGTTTGTAGTGTCTATCAGGAT CATTCCAAAACATGAGAAAGGGTCTGGTCAAGAATCCCAGCCAAGTATTCTAATCA GAGTGAAATACGACTTACGGTAAAAAGTACATGTAAGTGAACGATACTTGTAAATTCGTATATG AACAGCCGTATATAGTCGTTCTGCTCGGGTAGATCGTGTGCTAAT</p>
SQS1 down homology arm	<p>GGACACAACTCGCTTGTTCACCAACTTCGAACCACCACTTTCAGCCACCATGGGAAAACCT ATCGAACTGCTCTTGCACCCTAGCGAACTGTCTGCTGCTATCCACTACAAGCTGTGGCGTCA GCCTCTGCATCCCCGCGATCTTCCAAGGAGTCCACTGAGCTGCGACGATGCTATGAGCTTC TAGACGTGTGCTCAGCATATTTGCAGCCGTTATTCGAGAAGTGCATCTGAGGTGCGAGAC GCTGTAATGCTGTTCTATCTGATTCTTCGTGCTCTCGACACGATTGAAGACGATATGACTCTG TCGCGTGACATCAAGATCCCAATTCTTCGAGACTTCACGAAGTGCATGAAGACACCTGGCTG GAAGTTCACCGACTCTGATCCCAACGAGCGAGATCGTGTGGTGTACAGGAGTTTCTGTGG TTATGACTGAGTTCAACAAGCTCAAGCCCAAGTACCAGGAAGTAATCTACGACATTACCGA CAGAATGGGAAACGGAATGGCCGATTACGTCATTGATGACGACTCAACAACAACGGCGTG GACACATTGCCGTTATGATCTGTACTGTTCATCATGTTGCCGGCATCGTGGGTGAGGGCCT TACCCGAATTACGATTCTCGCTGGTTTTGGAACCGACGTGTTGCACGAAAACCCCGACTTC AGGAGTCTATGGGCTGTTCTTGCAAAAGTCAACATCATCCGAGACTACAGAGAAGACAT TGACGTGAACAGAGCTTCTGGCCTCGAGAAATCTGGCACAAGTACGCCGAAGAAATGCCA GATTTCAAGGACCCGAAGTATCCAAGAAGGCCTTGCATTGCACCTCCGATCTGGTTGCAAA</p>

	<p>TGCCCTCGGACATGCCACAGACTGCCTCGATTACCTCGACAACGTCACCGATCCTTCAACCT TCACTTTCTGCGCCATTCCCAGGTCATGGCCATTGCTACCCTGGACTTGGTCTACCGAAACC CCGACGTTTTCCAGAAGAACGTCAAGTTGCGCAAGGGAAGTACTGTCAGCCTGATTCTTGAG GCCAGCAACGTTTTCTGGAGTATGTGACATTTTCACTCGATACGCCCGGAAGGTGTACAAGAA GTCCGACCCCAATGACCCCACTACTCCGAGTGTCTGTGCTCTGCGGTAAGATCGAGCAGC ATGCGGCTCTGATCAAGAGACAGCGAGGACCCCGCTAAAACCATTGCACAACCTGGAAGG TGAACGAAAAGAGATGGCCCTGTCGCTAATTGCTGTTTAGCAGTTATCTTCTCGATGCTG GACTGATGGCTTATATCGCCTACGTGCTGGATTACAGATGGTCACCCCGAGAGATTTTCGAC TCTAAGATGTTTCTCTGAGAGATTAG</p>
IntC up homology arm	<p>AGGTTGTCGATGATATGCTGGACTACTCCGAGGGCGAGTCTCATCTTGGTAAGCCCGCTGGA GCCGATCTCAAACCTGGTCTTGCCACTGCGCCCGTTCTGTTTGGCTGGGAAAAGTACCCCGA GCTCGGAGACATGATCAAGCGAAAGTTTGACGGTCCCGGCGACGTGGAGCGGGCCCGATT CTGGTTCAGCAGGCAGACGGTCTGTCGGAACCCGAGAGCTGGCCAAAAGTACTGCGACG AGGCTGTCGCCAACTTGGACCTGCTTCCCTACTCTGAGAGCAGAGAGGCTCTGAGAAACCTC ACCATGAAGATGATGAACCGAAGCAAGTAATGTATATAGAGCATAGATTGAAAAGCAGGA CAGGAGGATGGGAGAGGACGCAGCTCTACTGTAGTTACAAGACGGTGAGTACGGTACTACC ACAGTGTAGCTAGTAGAGGTTGGGTAGCATGGTGTAGAAGACGAGGACCAGTGGTGAGTTG TACTTCAACGCAAAGTAGTAACTAGGTGATAGATTGATATTATATCTACTACTGTAATTGTA CTTGTACTTTAGTGATACAGCATGCTCCTGAAATTTACTATACTCTGTCAGATCACTCGATCT ACACACTCAGGATAGGGGATAGAGCACAAGCAGATGAGTAGTTGGACATTATTTTCGAGAAA TTTCTTTACAGGATATATTCCAACAAGTTACAAAACCATTTCTGTGACTTTTCTGATTTCGC CTCCGCCATTACTAATCACCTACAAGTACACTACATCTCATTGTGCAGGCAAACCTCAGTTG TATCTGATCAACTACACTATGGTGTACCGATTGTCATCGGAGTGGGAGTCACGTTGGTGGC GTTAGGGGTGAGTAAAGACGGACAAACAACCACGACATGTGTACTAACTACAGCTGCGGG CCGGATTACGTGCGCGAGCCCGATACAGCGGGGTTCTGAGACGCTGCTCAACAGCAGGCA TTATCTGGGCGGATTCCAGCATAATATGAGTCGCAAGGAGGCGCTGTTGATCTGGGGTTG CCCGGAAACACGGCTCGGTGACGCTCAACATGCTCAAGGACAAGCATCGAAAGGTGATGAT GCTGAATCACCCGATCGAGGCGGATCACCGTTTATGGCCAAGAAAATCAACGAGGCCAAG GATATGCTGAAAAGGAGGTAATAAAGTGAAGCAGCAGAGAAATCTTCATCGGTGGACAG CCAGCATCACCATAGACGTGTTGTCCACTTTTAATTGTATATAATTTAACTATTTTATGACCTA GGAGTGGGTCTATAGATGCGGTAAGTGTGACCAAAGACACTGAGATAGGGCGTACGA GATGGGTTTTGGTATAAAAAGAGAAGGACTATGTCTCAGGAGTTGCTCT</p>
IntC down homology arm	<p>CGTGGTTCATGTCCTTCATCTGGATCGAGATCCTCTTCCAGCTGCCCTTCTTTGTTTATGGAG CCTACAAGCTGCTAACCAAGACCGCCACTCCCACGACATACCTGTGGATGCTGGTGTACGGT GTCAATGCCAGCCTAACGACTCTGGCATGTCTCGCGGAGGTGTGGGCTCGAGCCGGTCTTAC CGATGCCCTTCGATACAACCTGCTCGCTGTCTACGCCCTTTTTCTTCATTTCTGGCTACAT TGTCATTGACGTATTCCAGCGGTTGCAGGGAGAGCTGAGAAAAGTCAAGACTGATTAAGCA ACGAATTACTATAACCAAACCGCCAAACAAGTGTGCCACACGACTCACGCAGGAATGTAC CGCATACTATGTAAGTGTACTGTTCTGGCAATACCCAATGGTTCAGTTTCCAACATCCTCG ACTAAGAAGGAACTACTGTATTGAACTGTACTGGTGTGACGACTTGTGTGTTTATTGTC AATGAGATTGGACTCGGTTACTTACTCTCCGGGCACTACAAGTACCGTACCTCAAGTCTCTG TGTGATATATATTACCGTATTATGATTTCAAACCATTTACATTGTAAGTCTCTCTCAATTGA</p>

	<p>CTGATTCATATAGAACTACCAGTAGAAGCATCTCCGAAGGTGTGTTTTTTCTAGTACCGTA TGTACAGTATTCATACTAGTTAGCTACAGTACATAACGCGCGCCAGGCTAACATCATCACG GAACAACCTGTACTIONTATTAGAGCCGAAATTTGAACAGAAAACAAAAAGAATTGAATTT CCCATATTCCAGTCACTACTGGGAATCTTACCAACATAAAAAACACCCACCTTGACGTCT ATCACGTGCTTCATTCATACCGTTATTCTGGCTCTTCCCACACCCCACTTTTACATTAACC TTGATGTCCGCCAAACTCTTTTTCTGCACGCTCCCTTAACCTCGGCCGACAGATCATAGTCA TTCTTCTCTACAACACCACCACATCGAGCATGCCGTCGATCAGCCACAAACCCATCACAGCC AAGCTGGTGGCTGCCCCGGATGCCACCAAGCTCGAGCTCTCGTCTACCTGTACCAGCAGCT CTTTTCCGACAAGCCAGCCGAGCCATATGTTGCGTTTGAAGCTCCTGGAATCAAGTGGGCTC TGTATCCTGCTTCTGAGGACCGATCTCTGCCGAGTACACTTGCAAGGCCGACATTCGCCAC GTGGCAGGCAGTCTCAAAAAGTTCATGCCCGTGGTGTCTAAAACGGGTCAACCTGTACGGA TTGAGCATGCCATCGTACCGTGCCTGCCAGCCAGTACGAAAACGCTTAACACACCCGAAACA AGTGCTCAAGGCTCTCGAGCCGCAACTCGAC</p>
<p>IntE up homology arm</p>	<p>CACCTGTGGCTAATTTGGGAGATGAGCCTTAGTGGTAGCAGGAGTTGGCGAGCGAGCTACT TATAGTGGCTTGCTAGAATACGGTCCAAGTCCGGTCCGAACATGAACGAGGGGCCAGAAG AGAACAAGAAGAGATGAAGAGCATTAGACAAATGTCAGGGGAGCTTTCACTTCAAGTCAAA GCCAAAAGAATGCGGGCTAGGGCTCGGGGATCTCACACCAACACCCAGTCTTGGCAGAC GTTTGTGGGGCTAGAAACGGCCCGTATCGTGGGTGTCGTATCGGTGACACAAGTCTTCGTT CCGTGGGGGAGGGGAGCCACGAGAAAGCGGAATACGAGGACGATACGTCTGAGAATGGCG ACGGATTGACGGATTGACGGATTGACGGTTGTTGGCATAATGTGACGTTGGCGACATTTTGA CAGCTGACGGCTGGCATTGACAGGACAATGATGAAGCTGCAATGACACAACAATGAGCGAG GCTGGGGTTTACAGACGCAACAATAGAAAGACTTATCTGTATGCAAGTCCAGGTCAGATT TGTCATAGACAAGGCTCCAACACTGACGACAAACTGACGGACATTCAAGCGCGTCTCGT ACTTCACTCCTGAAAACAGAGACTGACAGGCTTGATACACGGCATCAGAGAGCCGCATTG CTCTTAAGTGAAGTCTGGAGATTCTTCACTTCTCCAGCCACACCAACAACCGTTTCTTT TTGCCACGCGAAAGCGGAGTGGACGGACCGAAAGATGATAGACAAGCTAGCGAGGAAA AGCAAAGGCAGCCGAGGACTAGACTAGATCGGGGCGGGCGAAAATTGTTTACAACAACCTCT GTCCTTGCGCGTTCAGGTTTGGACTAAATCAACCTACAAGAGTGTCTACTGGACCGTATAT ATGAAATGACATCATCGTGTGACGCTGTCAAACGTCATAAAAGCGGTTGACGTCTTCGGTAG CCGTTCCACAGACTTCTAGACGGGAAAAAAGGGGGTTAGCCGCGGTGGTATGGTGCCAA ATCGCTTGTCACTTTGACACAATGAAGATATTCGATTTCAGTCGATACCATGGCCGTCACCTT TCTTGCCGACCTCTCAACTTTGTATCTATGTCTCAGGACGGAGTGTGTTGCCATCCAGCCCC TACCAGTTCCGTGGTATGTTGAAAGGGCTATTTTTATCCAGATCAGAGGGTCACTGGAGCT TGAATAGGATCCACAAGAAGTTCAAAGGACTTTACTGGTGTCTTTTGTCCGAGAACTTCA ACAACCTCCGTCTGGTGTCTCCAAGATAGATTCTGGTGCTCTCCACGCCTATACATCTCCAAG TACTGTACACCACAAAACCTTCCGGGTGGTTGCTTACAGTTTCAATAGCGGACCGCTTGAT TTCGGCAAATCTACACCTGCCAGCTACGCATATTGCAGGAAGCAGCATCATGGAATGGACT GTATAGCCATAAGACAAGAATGCTCTGGAGAAATCGTCCGATTTGCTGCACTAAGAC</p>

<p>IntE down homology arm</p>	<p>GTGTGGATTGCGATATTGAAGTGTGACTCGAAGAGACAGCTGCCTGTCAAGTTGATTGTTA GCTCCTTGGCATAACAGATGCAAGAAATGAGAGTGGCCATACGGCGGCAGTTAGCATAAGAT ACTACTTGTAGGAGAGAGCGCTACCACCAGCTAAATTTAGGACCTGGCTGTCTATTTACA TTTTTGACCCTGTTGGCTGCCTAGCTATGCGGCCAGTCAGCCCCTGGACATGTGTTTGGC ATGTGTTTGGTGCAGGGAGAACC CGATGGTGACCGTCCAAGCAATTACCCGTTTGGACCA GAAGAGTAAAGAGCGACATTTGCAAAAAGAAACCGCTGAAAAAGCAACTCCAGCGATGAG GAACTGAGAGTCTGAAGTCTCTGGACGAGGAGTGGAGGGGGGATGCCTTCTGTGGGTGCCG TACGTGTCTACCGAGAAGTTAAACACCTCCTGTGTGATAGTCTACAAACCTGGCGTATTT CAGTTCGAAATGTCTCGGGAACAGTTGTGTGATATTACACCTAGACAATAAATGTGTG GGGGTTGTATGAGCGGAGCATTCTTCTGGAACATGTCGATCCACTAGGCACGATATACA AGTGGAATCACAGTAACCCCGCCACTCCCTCCACTCTCCAATGTAACATATGTCCGATAC CAGACACTATCGACACTCACTCGTATCGCTCTTGCACTTTCCAAACGTTACGTCTCCCTGATC ATGCTCTGGCGATCAACCTTCTCCACCCGGGAGCCATGTCACGAGAACCAGTGCATAGCCAT GGAGAAGTGACCAACTCATATGACAATACCTGTAAGCGCGACAGCGGCTAGACTTGGCCGT TTACTCTCTGTTTTAGCACCTCCAAACGCAGCTCCGAGACGTGGAATCTAGTGGGCCAAA AACAAGTCTCTGTTAGTGGGTGGTGCCTGCTGCTGCCCCGAGACCTCCTCACCTTGTCTGT ACACAGCAATTCACACCGCTCTCCTCCCGTCAGATTAGGTTGACAACTTTCATCTGCTTGTA AAATATTCAATGATCGATCTCAGCCGAACCGTGACGGAACACTACATGGTGAAATGGCTGA TCAAAAAGCGAATAAAATCCATCAAACCATCCACCACCGCCc₆GTGTAGACAACACGTGG ATGATTCGACGCAACCTGTCTCTTGTGGTCCCGAGTCTGTCTCAATCTTTTTACCTCTCG GATCCCGCGCAAGACTATGACGTAGGGCGGCTCTTGTGTACACGGTc₆GGCCCCCTCCTCCT CCTGCGTCCATGCAGCTTCTAAAATGGACATGCTCACTTGTCTGCATTTGGAGGTAAGTA TTTATGCACAAGGGGGGAGTGTGATATATCATAAAGTCTAATCTTATTTTACGCGTCA TGTGCGTCACAACAATCACCATTGTGCAAAATTTAAGAAATCAGACCCTTTCATCTGGAAAA ATGCAAAAGCGAAAAACCAGAGATAGAGAAAGGGTGA</p>
<p>IntF up homology arm</p>	<p>AGTGGTAATTCAGCAAGACCCTGGGATGTAATCTGAAACAGCTTATAAAATGCATTGTCATC CATAATGAGAAAAAGAGGTAATAAATGAGGGCTGTCCGCAATTTGCCCGAGACCCGCCGA GAGTGTAAGCTACTGGCAGATAGACATATCGGATTACTTATTAGCTATAAGACTTGTGTTA GAGGTTGTGGGATCGGCATTCAGGTGATACAGTACGAAACGAGAGTTTCTCCACATGAAA AAATAATCGAATAATAGTACAGCATGCATTTCATCGCTACAGATTCGACATGGATCTCCTCGT CTTATCTACCATGATGCAGATTGACAGCTGAAACACGCACATTATCGGATATTGGAAGCCAC TAGCGTCGCTGATGGTGCGAAGTAGTGCGAATGTAGCGCAAGTGTCTGCTCGTTTATATTC TGTGCGGTGAAAACCTTCTAAACGGCATAATTGGCAGATACTTGGTTCAACGTCTACAAGTATT ACCATCACTCATTAGTTCATGGGTACGTGTTTTTATTTTTATTTTTACATGCCCCCATCA CATGCGAGCACTTCCAACAACTCCAAGAGTGTGATTCTGTGCGCTCTTTTTCTCCACTTT TTCCCACTCATGATCAACACAGTTAGTAGCTGTCCGTAGCCTATCGCTGGCCTATGCACCC TCTTCATCCGCATCAGGCAACAGTTGGTCTAGGCTTGGTAAAAAAGGAAAGCCGTACATG CCCGGAATTCTGATAGCAACCTTCGTCCGACGAACACAACAATCAAATTAATAAAAAAAT GCGAGGACAATGCAGGGTTGGTATGAAAGAGCCCGTGCAGTTTTGTAGTCGGAGGTGCAG CTCTTGAAGAAGGCAAAAAGAGCCAAAGCTGGTAAAGTACATAAAAATATGATGTGTGCCG TTTTGTGCATGTCACGAAAACGACTGTACCAGGACCGGATGTAGGCACAGTGGGGGGTGT AAGTGAGCCGGCAGCCGAGGTTCTTTTTGAGACTGTCTGAAAGGATCAGATATGAGCTCTC</p>

	<p>ACATTTCCCGGACCCTGTACAAGCACGTTACAGGTGGTTTTGCGGATATCCACTACACTTTC GTTCTCTACCAAGTCTATTTTGTGGGTGTGTCTAGTTATCGCTCCGACAAGGTTTACAGCGG AATACGACGACTCTTGCTTCTTGTCTGCAGAATAACAGAAAAAGGGGAAATACGAAAAC TGACGGACAAGGGATGAGAAACAAGGGCGAGAGTGTGACACACATAGGAGGTGATTTGTC AACTATGGACAATGACCGTGCCACACAAAATGTGACACAATGACAGGATGCTTGTGAAAGG GAATGGTTAGTGGGAATGTGATAACTGGAGTGAGTCGTGTGAGTGGGATGGAGTAGCGAGA ATGTGAGGTATTACACAAGCAGAGACGGTACCGTTGTTGAGCATTGCACACGGCACAGTTA CAAGTAACTCTCGGGTCACGGTAAGAAGTGCTTTTCAGATTGTTCCCTTTCCGTCGATCCTA AAGATACAAATGAGCCACTTTTACGATGATCATTATACGGTATGTATTTTGTAGATGTAGCT TGGAGGGC</p>
<p>IntF homology arm</p>	<p>GCACAAGCCTCTCTATAATCTTTTCTTCATCTTCACATGCTCAAAGCGTCTGTTCTGTTGTA TTATGTTGAGACCTCTCGTGACAAACAAGCGACGAGGGGAAACATGTGCAGAGAGCCGGC AAGAAGGAACAGATATACACGAGACAGGGCGGAGATACCGGTTACGGAATAATAAATGAA GGCTGCAACCGCTTGGGGACACCCCCCATAGTCCTTTTAAAGCAATGGTGTATATTTCTTC TTGTAGCCAGCTCTTTAGCTCATCCAATTGCCCTCGACATCGCGCTCTCTGTTTCGCCCT TTTGTCTTGACAGAATAACAATTTTTTTGTCTCTCGACTGCCTACAGTAGGGTTTCAACCAGCC TTAGGTTAGAGTTGAGTGCAGGGTATGGCTGTGCATACACAAAAAGCCAGAAGTCCAGAT GGTGTGCAACTCCAGGTTTCCATGGGCTAATCTCCTTCCTGCGACACAAGCAAGCTGTCTCA GAGTCGGAATCGGGTGAACCTACTTGTAGGGTAGACATCGACTTTCGGCTTTACCGAGCTC CAGAGCGGGTCGATCGTGTTCAGAGACTGAAAAAAGGAGAAAAAAAAGACTTCCAAGG GGCCTATCCGGGAATCCGAGAGACATTGGATATGGACTTGCAACAACATCTGGGCTAAT AATGGGCCCTCAGATTTAGCGGATATTTTCGTAGCTCATTGGAACGCTACTGATAACCAAT TTCTACTGTAAAGCTGCTCTTCCTTGAAGATGTAGTCGCTTTTCGCTTGGAGGGAGAGGTAC CATGTTGGTAGTATATACACCGGCATGTAAGTGAAGCCGATGAGCCTGTCTGCTGCTCTG TCTGCACTCCAGGTTTCGTTATTGTCACTCTTCTGGCGATGATGCAACTCGTATTGAAGCCCTC AGACGCGTTCACATCAGAGTTTTGTATCACCATTATTATGCGGAGTCTCCGATTTAACGC AAATAGACTAAGTTGAGTGTGATATCCACAACGATCGACACTACCCCTCATACCAATGGC TTTTGTTTCGTGTTGTTGGATGAGGACCTGAAAGAATTCAGATGTAGATTTCCGAGAGCT GAACATACGCATCAGCTATTGTCTCGTACCAGGCACGTAAGCGAAAAATAAATGGCCAGCA TGTGCATTGCAAAAATAAGTTCATGACAGCACTAGCACTATGGGCCAGACTAGACGCTAAG TTATCATGTTCTGTGTGCTCCACGATAGGCACGGATCAGTGCATGGAGGTAGATGGATAGC TGATCCTGGCCCAATTTCCCGTCTTTGAGCTTCTGGACTACGCTGAATTGGCACACTTTGC CTCATCGTCACCACAGCTTACAGCTATACAGCGAGTGTACCAAAATAGTATATTATAAATG CACACTACGCAAAACCAAAACCTTAACTTGATTAGATAGACAGAACACCTAAAGACTGAAA ACACACACTGTGTGATAAGACCACAAAACCACGCCCTCCAATATTTAAGGAGTCACCTGGC ACCACACAACTCTTCTTCTCCTCAAAAACATCCCTTTCTTGGGATATCTAGAGTGCAGTGCTT AGCTCTAAACACTTGGTGAGTACTCGTACCTTCCGACACAAACACACGACAAAACACAAAC AGAATATGGGCCTATAACCCCTTGTGGTTTTCCGAGGGTGGTTGTCTTAGTCGTGAGTGA CGACAACTCTGTTGGCAGGGGTTTTATTTTTTCGTTAAGTTCATACACTACCCGAACCTGGC GGTGGTTGACTGATACAAAAATGGTCCCTTCTGGTCAACAGCCGTTGTCGTCT</p>

<p>SCP2 up homology arm</p>	<p>CCGACAGTCGTCTGCACCCCGCAAGTCTCGGTTCTGACCAGCACCAATGTTAGGCAGAAGCTA TACACAAGAGGGGGGACGATCACTTCGGCGTTAGGCAACTGAAGGCTATTTTCGGCTGGTA CTGTAGGGGACAGAGGAAACGCAAGTGATTAGTAAATCGGATAATAGGCTGTAGTTTAC CGAAATGGTGGGGAGGGTTCCGTGGATATCTTGAAGTTATGGAGGCTGATCGTTATTTGT GGGGATGGATATCATTGTATGGACATACTGTAGCTACTGTATAAAACAACGGATCTTACACCT GCCTCTGTATGCCATTGCTTGTATCATCTATCGTGTACTGTACATATAACAATAGATATAGG GAAGAAAAGCCGGAAGTAGAGACCATAGTCTGGCAGAAGTAACGGCCTCGGGTCGAGAGA ACTATAACAAAGTCCAACGGCGGGTCTTAGAATAGCCCAAGGATCACACAGTTCCGCAAT CCAGTTTCACATGTTCCGTTGCATGGACTTTTGCATGTCTACTGTTGCTACGATTCCCCATT GCAACCACAGTTTGGGGTTACCCCGCATTATATTAGCATGATTACGAAAAGAGATAAGTATCA TATGGAACATGTGAAGGGTAGTATGCAGGTCCGGCGGAGAAAGAGAATGACGTTTTCATTA AGCGATTTCGCTTGGCGGCTTGTGGGGGATGTGACGATACTTACGGTAAAGACCCTGTGTGA GAGCTGGTACTCGCTCGTTACTTCGCTGATCTGTTGGGCCGTCAATCGAATCTCGTGGAAC TGCATTCTTCTTAAGTGTGTCTATAACAAGACACCTAATGAAACATAACAAGCTACCGAAATCA TTTTACTCGTACTGACCGGTACGGTACTTGCACAAGTAGTGAAGTCTCCGAAAATAGCCAGC CTCATGCATCATCGCTTACCCCTTCTGTGACCTCAAAAGCATTCCAACGGTAAAAAATTA TAACGCCCAACTGGATGGTGTGACGGCGTTGACCACCAATGTGTGGGGCTGGCGGTA GGACCGAGCTTATTCGTCCAATAAGCTCTTTGGATTGATTCTTTGGGGTGTGTGGTAAAA TTCACATGGGGAAGAACACGGTGGCAGTTTGAGGCAGAGGCCAGCGTGTAGTTCCTAGGG CATGAATATAACCGAATCATGGCGAGAATTGAGCTGAATGCGCAAAAAGCTACAGGATCA ACCGCGTTAGAAATGCCGCAAATGTCCACTAATCCCGGACTGTTCCAATGATTCTGTGG GGATAAATCTCAAAGTGGGTTAGGCTTTGTACAGTTTCTTTGTGTGCTGTCGGTTCGTCGGG GCAATGTGCCACGCTTGGCTGTCTCCCTACACCTCGGTA AAAACTATCACATGCTGCCCT CTCGAGCAAGCATTAAATGCATATAGTCAATCTAACGACATATATAGGTAGGGTGCATCC TCCGGTTAGCTCCCCAGAATATCTTATTATTACACAAA</p>
<p>SCP2 down homology arm</p>	<p>CAAGTCCCCAAGGGTGTGCTGACATCCAGCTCACTCTCTCTGACGACCCTCCAGCAGC TCGTTGAGGGTAAGGCTAACGCCAGCGACTTTCATGACCGCAAGCTCAAGGTTAAGGG CAACGTCATGAAGGCTGCCGCCATTGAGGGTATCCTCAAGAAGCTCAGAACAACCTCTAA GCGCATCATTTATTGATTAATTGATGATTTACTATATTGATTTCGCAACTGTAGTGTGATTGT ATGTGATCTGGCTCGTAGGCTTACAGTAAATACTAGACGGGTATCGTACGTAGTTGTATCATA CATCGAGCCTGTGGTTACTTGTACAATAATTCGTAATGTAGAGATACCCCTTGATCCATTGC CTGTTTCTAACATAACAATGATCTCCACGCAATAATCCACTCTTGACTAAAAGTTGCTACTCT TGCACGGTTACCTCGGCATAGTCACGCCCTCTTGTCTCGTCTCGAACGCACAAAAGTCAATT GACAACGCCACTCACTCGAGTGTGCCCCAACAGGGCACCATATCGACTAATTTGAGGCCAA CTAGGGTGATTTGGATGGAATTTGATCGGAAAAAATAGCTGCAGAAATCCTGGAGAGAA AAATTGACCGCATCCACATGGTTTGACCAAAAAATCGTCTCCATCTCTGTGCTCAACTCTCC TGACGAGATATGCGCGCGCACCCACATGATGTGATTGATCTCAACAACTTCAACCCAGAC CCTTATCTTTCCGAAAACCTACTGTATAAGTGGTCGTGCGAACAGAAAGTGTGCGCACTTT AGGTTCTAGATCCGATTGTCTCGTTCTGATAATGAGCCAGCCCCGCGAGGCAATGTTTTT TACAATTGAAAACCTCGTTAACCACTCACATTACCGTTTTTGGCCCATATTTACCCTCTGGTA CACTCCCTCTTGATACACACACTGCAGTGAAGTGCCTCCGTTAGCACCCTGTGATT GGTTCAGGGCACGAGTTGGTGGTTAAGGCGCAACTACATCAATATGAAAACAGGAGACG</p>

	<p>CTGAAAAGGGGTAATATCGGACTGCTGCTATGTTGTATGTAAGTGCATGACGAATTGGTGTTA TTCAAGACCGTGGCACAGGTTGCTGCGGTACGAGACCTGGTAGCTTCTCTAAACGGCATGTC TAGGTGGACGAGTATGGAGAAGTTAGGTACAGTACGTACGTATACGAGTACGAGTACGAGT ACGTAGTACGATACAGGGTACGTAGTACGATACAGGGTACGTAGTACGATACAGGGTACGT AGTACGATACAGGGTACGTAGTACGATACAGGGTACTTGTACGAAGACAACAGTAGAGTGC AAATATCAACCAACATGGCCAGAGCGACCAGTTCAGCTTTCAGGGGGCCCTCTAGCACTTG TCACCATATGTAGCCGTGATAATTATGCAGTGATGTGATAACTACTGTACAAGTAGAAGTAA TCCGGTGGTGCTGGTACCTTGAATTGAGTCTCACTATCGGTT</p>
<p>A08 up homology arm (YALI0A08382g)</p>	<p>GAGCAGGACCGCTCCAGAAGCTTCCCACCTTTGAGGGCTTCAAGTCCACCTCCAATGTCTA TGAGAGCTTCTCTACGGATCCGACTGGAGTATGAGAGACGACTTTTTCTCCTGGTGGAGAA ACTCCAACACCTGGGGCGACTGGTGGTACGCTCGAAAGCCCGATACCCAGCCCGGAGCCTG GCCCCAGCCCAAGCCCCGGCCTGAGCAACCCGTCAGCCTATTGGAGATAACCCGACTTCTC CTGCTCCTGCTCCTGCTCCTGCTCCTGCTCCTGCCACCGAGGAGCCAGGCCCGAGACACCT GCAGCTCCCTTCTCCCGCCACCTTTCAGGAAGTTCCACCAAGAACTGGGGTCTTTTTCGA GTCTCCACAAGCAAAACTCCCGTGACCAGACCAGTACGCCATGAACAAGAACACCCTGA ACCCACTGTGCCTACATTGTTGACTCTGGTATCCGAACCTCCACCGAATGTTTCGAGGGC CGAGCCTCCTGGGGAGCCAACCTTGTGACAACCTCAATGTGGACTTTGAGGGTACATGGTAC CCACGTGGCAGGCACCGTCGGAGGAGCCGGCTTCGGTGTATCTCCCTCCACCAAGCTGATTG CCGTCAAGGTGTTCTCTGGAAAGTTTGGAAAGCTCCTCCAGATCATGCAGGGCGTGTCTGG GCCATTGATGACTACGTCAAGAAACAAGGCCAAGTATCCTCGAGCTGTGATCAACTTTCTGG TGGAGGAGACACCTCCGAGGCCGAGGACGCGCTTTTCGAAAGGCTGTTGAGATGGGCATG GTTGTGGCCGTTGCTGCTGGTAACGAGAAGTCCGACGCTTGTACGTTCCCTGCCCGAGC CGGTGCTGGCACCGCCGATTATCACTGTGCGAGCCTCCTCCGCCGACGACTCTCTCGCCT TCTGGAACGCCCAAACCAACAAGGCCTCCAATTGGGGCAGATGCATCGATGTCATTGCCCC CGGTACCGAGATTCTTTCTGCCGACTACCAAACCGACAACGGTATCCTTTCCAACCTCTGGAA CGTCCATGGCCACTCCCCACGTGGCTGGACTGGCCGCCAGCTGATGGTACTCTCGTCCGAG CTGCTTACTCCCGCCAGGTGGAGGAGCAGATCATCAACCAGAACAACGGTAAGATCACAG GAAGACTCAACGGTACCCCCAACAGCTCGCTACAACGGCTCCGGTCTGTTAGGTTGGCTA GTTGGATCACTGTGCGACGAGTTCAATCAATCAATAATAATTCTTAGTTTTGTACTGTAGC GTAGCATCAACAGGTGACAAGAATTGCAAGTGTGTAGAGTCGGGTATACGAAACTGTTCT TGTCAAAAAATGTATGACTAACCTAGTACTTTCCCTTACAATACAGTATGAAATTAACAG CTTTAAACCACCATTTCCAGCTTCAGATACGATATTTAGTCAGTCTGATAACGTTACCGACA ACAGAAATGATCACCTGCGAAATACAATATCACAACATTCTGCGGAGCCGTTTTTACAAC CCAAAAGATAACAATTTATCTGCATAAAACCCGCATACACGTGCATAATACTTGCATAACG ATAGCATATAAACTGCACGATTGCTGCACCTGACTTTATATCAAACCTCAATATCAGCACCAC CCGATTCTCTGATTATTCATCAACTATAGGAGAGAATGAGTTGGTGATAAGACATCGGTAC CAATAAAAAATCACGTGACTATTCCACAGGCCTTCTGTTATATCATCAGATGCCTTTGAACAT TCTCTTGTGCAACTGAGTCCAATTTCAACAACCTTTCCACAGTGCCCGTTAGGCCAATTA GGGTTTGGCAAAAAATCGGCAATATAAGACAGCCAGATGTGTTTCTACGATGGACAACCCG CAGCACTTACGATGAGCGAGAGTAGACACAGTAGCAAGCGTAAAAGGCGGCCGAGGCCA CCGAGAGAACAGCGTAGCAGGGCGCGTAGTACCACAGGGGACGCAGAACCAAACCAATG ACGAAGAAGAACCAAGGAGACGTTTTCAAAGCAATGCAATGAAGAGGGCAATGGAA</p>

	<p>GGATGGAGATTAGAGAACTGGAGACTGGAGTGGCGTTTTCCCGATGAACGAACAAACACGC GAAGCTATGTGGACCAACATACAACACGGACTGAACCAGGTTTTTTATGATTTTTTACTG GAAATAGGTACGTGCCAAGTTGGACCATGACACTAAACGTGTTAATTAGTAATATTCGTGT AAGCGTACATTCATTTCAAAGGTTATCTTTTCATGGCAAAGTTATAATTAATGAATGTATA TGCAGAAAAAAAAAAAAAGACAGCAAATAAAATTTATATAAAAGCCCATCGCTGCCTTGT GGAGCCTCGTTTTTTCCCAACAACAAGCTTAGCAGTAATTGGGTCCTCTATTCTCAATTGCA CGTTCCTCCCTCTCCTTACAATCACTACTCTCCCGACTATCCAACAACGCAC</p>
<p>A08 down homology arm (YALI0A08382g)</p>	<p>GGAGCCGAGTACGGCATTGATTACAGACGGCTTCTTGCTCTCGAGACCCAGCCTAAGCGAGT GGCGGTGGTTGGAGGAGGCTACATTGACGTGGAGCTGGCCGGTGTCTTCCACGGACTCAAC TCCGAAACCACCCTTTCTGTGCGAGGCCAGACGGTGTCCGAGCGTTCGACATCATGATCCA GGACACCATCACCGACTACTAACAAGAAGGGCATCAACGTGCTCAAGGGCTCTGGCGTCAA GAAAATTGTCAAGAAGGATAATGGCGAGCTCACCTACGGGCAGGATGGCGCCGAGAATGAT ATCACTCTCGATTGCTCATTGGATATTGGACGAGAGCCTCTCAAGGACACCCTCAACCTG AGCGAGTTGGCATCAAGACCAACAAGCGGGCTACATTGAGGTCTACGAGTGCCAGCAATC GTCTTCGACAACATTTATTCGCTTGGAGACGTTTGCTGCAAGGTCGAGCTGACCCACAGC TATTGCTACTGGACGAAATCTGTCCAACCGGCTGTTGGTCCCGCTGAGTTCAAGGATCAGA AGCAGGACTACACCGATGTTCTTCGGCCGATTTTCCACCCCGAGGTTGGCTCCATCGGC ATCACGGAGGCTGCCCAAGGAGCAGTATGGTGAGGACAACGTCAAGATCTACACCTCTA AGTTTGTGCGCATGTACTACGCCATGTTGCAGGAGAAAAGCCCTACCGCTACAAGCTGGTG TGTGTCGAAAGGACGAGAAGGTTGTTGGTCTGCACATTGTTGGCACCGACTCTTCCGAGAT TCTGCAGGGTTTTGGCGTGGCCGTTGCAATGGGAGCTACCAAGCCGATTCGACAATGTTG TGGCTCTTGTCCACTTCTGCCGAGGAGCTGGTGACAATGGGATATAACGGGAGCGCGGGC AGAGATTTCTGTTTGGGCTATCGATATTTAATCAACTAGACTCCACTGTTGCTGTACAG GGTCAGAGAAGATACTAGAGTACGGAAGTGCCTTCCGTTGGCTGTTTTAATCGCCAAACGG TTTGAATATGGCATAAACTAGTCTTGTCTGCTCGGTTCTTTTCCATGGGCTCTTTTCCCA CTTGTGAATGTTGATGGCGAAATGAAGACGGGCTAGAAAAGTGGAGAGACAAGAGGAAGTT GCAGAAAAGTTCGATCAGCGGGTCTTGGGTTGAGGGAAATATCCAAGATACGGTCTGGGT CGTGGGAACCTACATATAAGAGGGCTGGAGTCTGGATAGAACAAGTCGACACATTTCAAC CGGCCATCATCGTTCCGATGAACCTCAAACATCTCCAGTTTTCTACCCGAGGAGGCGTT AGAGGTGAAGGACAACCCGAGTTTGTCTCTGTCTGTAAGGAGTCTCAAGAGGAAAA AGTACTGCCGAAGCGACCCAAGAAGAAGTGTCTTAGATGGAGCACTCCGTCGCTGGAG TAGAAGTAACTGTAGCAATAACTGTTGAAGTGACAGTAACTGATCAGACATTGATCATACG TGCATCAGAACTACCCTCTGTTAACTGAATAGCACAAGATAACGTCATATCGAGGGGATGA GTTTTCTGTGATTGAAACCAGTGTGTCGGTCTATACATCTTGAAAACCTTCCAATAGGTGA GGGCTACAAGTATGTACATACTGTCTCTGAACCCTCAGTTGAACCGTGAGTACGCTCTTA AACGCCCAGGTGAAACGAAAAGAAGGAAGAGTTAGGTCCTTTGGGATCCCGGCTCATATTC TTGCTCCTAATGGCTGTCAGGTGAGCAATTCCAAACTTTCCATGTCCATATCGCAGCCCTAT GGTGTTCAGCCTCAACATTGCGTCGTGCCGACAGAACGACTACTGTCTCATCTCCATATGAG GAACATGACAGAAGAGAATGAAGAAGAAAGAGAATGTAGCCCCATTCCAGTGTGCTCTCTG TTCAGAGCGGAAAAGTCCACTTCCAAGGAATAGTTCTCAATCACATATCGGTATGTACAG</p>

Supplementary Figure 1. Flowchart of all the *Y. lipolytica* strains constructed in this study.

