Supplementary data

Table S1. Primers in this study

Primer name	Sequence (5' - 3')	Remark
G.L_pyrG_seq_F	GCAAAACTGGAAAACAGCGCG	pyrG gene sequencing
G.L_pyrG_seq_R	ACTGTGCTACTATACCCGTCTC	
G.L_pyrG_gRNA2	TAATACGACTCACTATAGGTTCAGGATTGTGGACATCGTGTTTTAGAGCTAGAAATAGCAAGT	synthesis gRNA2 of pyrG
gRNA-R	AAAAAAgcaccgactcggtgcca	
G.L_mip-F	GAATGCTCGCCCGGGTG	mip sequencing
G.L_mip-R	GATGGCACGATCAAAGAGGTAGG	
G.L_pyrG_Up_F	GCGAGCGTCTTCAAATGGATG	Tf31 pyrG sequencing
G.L_pyrG_Dn_R	CAGGTTCTTCAAGATGCTAGCC	

Table S2. Origins of the insert DNAs

No.	Inserted DNA size (bp)	Origin of the insert DNA	Inserted DNA Sequence
1	502	*9:1187485-1187628, 30:129758-129896 12:826662-826766, 7:1965253-1965345	TGTTATAGCCGGGTCGTGCTTGTAGCCGGGTCGCATGGGCGGCATAACTAAACTCGGGCGGGTA TGCAGCGTTCATCACTAGTACTCTCAGGCGATCTTGCCCGGTTTCTCGTCCGACGTGTTCGCGT GGGCCAATCATGCGCCTCTCTGTCTTATTCCTGTCCCCCTCCCCCTCATCTCGACTTCTCCCTG CTCTCGTCGCTGCCTGACGGGCAGGCCAGCCCATGCAGTTCGCGTACAGAGTAATTCACTCTGG CTCTACGACTGCACCAATGGGTACCATCTGGATATGACTCTCGTGCACGCGCGGGGCGTCCGGG GCGTCGGCTGCGGCGGCGACTGAGGAGGGGAAGGAGAACACGCCGGAGCCGGGGGCGGACGAGG AGAATGAGAAAGAGGAGGCAACTTCGACATTTCCCTAGCGTCGTCTAACGAGTAGTGAGTCATG TGTGCAGACTATCTCGTAAACGTTTACTCACGTCCCATGCCTCTGCAGCGCGTA
5	108	21:699229-699331	GCCGATCATTGAGATGCCTGTCCCTTGTCTTGACCACCCACTGCACAGTATTCTTGAAATCCAA CATGAGCCTCTGGCCGACAACCATCGATTTCCGCGTTCGGAGCT
6	378	5:1270291-1520218, mtDNA, 14:646678-646679	ACCCGGTGTACAAAGGCTACTATGAACTCCCTGACATGATCAAGGCCAAGGGCTCAGCATCTGG CACTCGACTACGTGCTATGGACGAAGAAAATTATTATAAACTTTGATTGTTTTTATTTGTTCTA CAATTTTACTTAAAAAACAAGTTGAGTATTCGATATCAAAATATGGAAAAGACTCGTACCAGCG CACCCACTCCTGTGTTGCCACCAAGGAAATGATCGGAAAGCGTTAAATCTAGGGATAGTCACAG GCCTATGTGGATGTCGAATTGACAGGGTTCAGAAATGTTGTCGATTTTGAATTGCGAAAGCCTT GCAACCATCTGGGGACACTGACAAGAGGAAACCATTTAGGGAATACGTTTTTGGTTGG
7	540	32:54644-54812, 6:1597390-1599980 15:775042-774945, 17:497829-497928 4:1550725-1550633, 8:1500509-1500539	CAACGAGCTGCTCGCGCGCCTGACGGGCCAGCCGGTGCGCGACCACACGCAGACGAACTCGACG CTGGAGATGCATACAAGCAAGAGGACGAGGCAGCCGAGGTTCGTGAATCCTCGCATGGAGAACA CGTGACCGTTTCCCTTCCCCTTCTCCTTCGTAGTATCCCCCCGACTCCCCTTCATCCCACTCGT CCTCCTCTTCTTCGCCCTGAAGGACATCTCCAAGGGCCAAAAGTAAACTTGTCGTGCGGGGAGA CCGGATCGTCAGTACTTCGTCCTGACTTGAGTCCCAAATCCAAGCCCCCGTCATCCGATCGTCC GCCTGCCAATCCAGCCCCATCTCGCTCAGAAAGTCAATATGTTGGAATAGGGGTGTTACTCACT GCGAAACTGTTGTCGCACTTTCTCCGGCTGCAGCCAAACGGGCCCAGGGACTCCAAAGGCAGGT GGTACGAAGCCCGTCTCCCGCCCACCTCGCCACTTCGATGAGGAGCTCGCGTTTCTTGTCGACA CCTGCCATCGAACGGAGCTCATAGAGCG
8	342	unidentified	CGATCGCTCACCCTTAGAATTAACACGTCGAGATGGCGTCCCCTCGCACCTCCGACTCAGTAAA GAACTCTCGCCCTGTCGACGCGCGAAAGTCCCAATGCCGCACACCCGCCATAAACCCAGCCAAG GCCACGAAGCTAGCAGATCCAGCCGCGAAGGCTGCTGAGCAGGCACAGACCGAGGAGGCGTCGG ACTACGGCAGCGACACCTACGTTGAGATAGACAACACTGAGCGGCTTCCTGCGAAGAAGGCCAA GACAATGCCGCCAGCGCGCCGGTCGTCCTACAATGTCATCGCCGGTTGCATTCTGTCCCACGCC GAACCGATTGCTCGGTGCTCGC
10	312	mtDNA	ATTACCTTCTTTAGGTTTAATTAAATTTTGAGAATAGCTTAATTTAGCTTCTAATATTTCATCG CTATTTATTCTATAGAAAAATATTAATTCTTTAATAATAAAATCTCTATTATCAAAATATTAGG ATACTCATTTCCCACTAAATTAAATTTAGATAGCTGGGGAATGGATATAATTTCGTATATTTTT TTCTTATTATGTCCTGTCTAAGATCATCTTTAATTATATTAATTTTTTCTATTACTTTTGATAG GAGAGTGTCTGTTTGATGAGTTAAATCTTTGGCCACATGACTTTTATCTTGATAGT
11	102	8:1428154-1428255	GGTCAGACCGATCTTGAGCGGGATGCGGAAGCCAGTCGCGCGGCGGACGGGAGTCCAGCCGGCA GGGACGAAGCTGCGAGACTCGTGGAGGACCCGGGGCGA
12	502	9:1187485-1187628, 12:826766-826662, 30:129758-129896	TGTTATAGCCGGGTCGTGCTTGTAGCCGGGTCGCATGGGCGGCATAACTAAACTCGGGCGGGTA TGCAGCGTTCATCACTAGTACTCTCAGGCGATCTTGCCCGGTTTCTCGTCCGACGTGTTCGCGT GGGCCAATCATGCGCCTCTCTGTCTTATTCCTGTCCCCCTCCCCCTCATCTCGACTTCTCCCTG CTCTCGTCGCTGCCTGACGGGCAGGCCAGCCCATGCAGTTCGCGTACAGAGTAATTCACTCTGG CTCTACGACTGCACCAATGGGTACCATCTGGATATGACTCTCGTGCACGCGCGGGGCGTCCGGG GCGTCGGCTGCGGCGGCGACTGAGGAGGGGAAGGAGAACACGCCGGAGCCGGGGGCGGACGAGG AGAATGAGAAAGAGGAGGCAACTTCGACATTTCCCTAGCGTCGTCTAACGAGTAGTGAGTCATG TGTGCAGACTATCTCGTAAACGTTTACTCACGTCCCATGCCTCTGCAGCGCGTA
13	365	1:526924-527218	ATCACGCTATCGCTATCACTACGATTCTCGAGTGGTTCGACTCGGAGCGCATACCCTCCACCCG CAATGGGACCCCATCGCATCCCGGTGGGTTGTCGGAGATTGCGCGTCAGAGGCTCGAAGAGCGC AGGAGAGCGCGAGAAGGTATCACCGCCAAGAACCAACCTCGTGAAGACGGACCGCGCGGCCTCG GTGACTTCCAACGACGACTGAATCGGGATCAGCCCTACGACAGGCGAAGAGACGGAGATCGCGG CCGGCGCGAATGGGACGCAACACCACGCTCGGAGCGCAGTCGCCGCGGAGAGGATGCGCCGAGT GTGCGCATACCGAACGCCTCTTGGGACGCCACGCCAAGACGACCC
15	1		G
17	65	14:109789-109725	CATATCGTCAACATGACCGTGATCGTAATGGATCCTTCTCGGGCGCGGAGGCGACGCAATGTCA T

18	396	1:2357208–4663166, 4:1677796–1780190, 22:178337–178283 18:45380–45346, 24:228890–228970	GGACCGATGTTGTACTGGTGACTCGTGTACTACCAAAGATTTTGCTACCCTCCCTCCTCCGACA CCAGCTCCACGCTCCAAACTCAAGTTAGCGCAAACGCACACAGAAACTAGCGCGAGTGCCGTAA CACTCCCAAACTAACACCGACGTTCTCGTCACCTAACCCTCGCCCGCCGTGGATGTGTTTGAGT TGCCCCAGCGTAACGCTGTGATAACCGACAACATTTCTCGATCCCAAATCTCGTACCCTTTTTG TGCGGGCGTTAAGGAATGTGATAGGAAGGCAATAGGTTTCCATAGTCCGTTCTGACACTGCGAG AGCTCAGCTCCAATCGCAAAGTTCGAGGCATCGCATTCAACTTTAAAGTGCGGTCGACTACCTC GAGGAGGGCCTG
20	91	13:889321-889231	TCGGAGTCCTATGGCCGTGGATACTAACACACAAGTTAATTGGCATATAACCCGGCCTTTCTAA CCTGCCCTAAATCAGATACCTTTGATG
21	280	29:103501–103778	TCCGACGCGCCTGCGCACCACCTCTTCGTCCTCCTCCCGCCCCTCGCCGCAGACGAGACGCACC TCCCCGAGCCCCTCGTCGTCCTCCAAGTCGCGCTCGAGGGCAGCATCTCGCGCCAAGCGATCAT GGACGGCCTGAGCCGCGGCTTCCGCGCGGGCGGCGATATGATCCCCTGGCTCGTCGCGCAGCAG TTCCAGGAGAGCAAGTTTGCGATGCTGTCGGGTGCACGCGTGGTGCGGATCGCGACACATCCGG ACTACGCGAACATGGGATACGGGG
22	58	41:122909–131308	TTCTCTCCGATGCAGACAACCTTCGTAGCGATATCGCTCTACCCTAAGGTTCAAAGCC
24	177	mtDNA	TCTTCAGTTTACACTTAGCTGGGGTATCTTCTTTCTAAATATACTTTATA TTATGGTTTAAATTCAGATTTTATGTTCTCCATCATTATTTAATCTATGA TAACTTTTGACCGTAAATCGGGGAGAAACCACATTCATAGAATATAATCC TAAATTAGTTAATGTAATATTTAAATA
25	115	mtDNA	TCGTTAGTGGAATTAACCTAATGTTTAACAACATCGCGCGAAGGGTGGCCTAAGCGGCGGCTAC TTCCGCTTGGATGGTACGATGACGATCAACAAGCGGCAGAAGTTGGTCGACC
26	71	17:125095–193621	TCGACCCCTGCACTCTCCAACGTCGCCACCAACGTCGCCTGCACGTTCTGTGGTCGCCCCAACC ACTCAGA
27	351	31:92358–92364, 9:1486283–1486321	GACCTAGCGCTGCGAGCGGGCGTGGCATAAGTAGTTGGCCACCTGCCCGAAATGGTAAGTATAA GCGCTCGTATGTCAAGCATGTACAGCATTGGCCTCCAGACAAACGCGGTGACCATAATTTTGGC ATCGGTGTGCATGCTGAATGTATATACACCTATCCACATTTTGAAAAGGCTCCTCAAACTCCCC AAGACGTGGTACATAGAACCAGCTGCAGCCAAACGCCTAGGCGCTAACTGAGAATCGGCGCTTA GTGCATGCAATCCTGCCTATCCCGCATGAGTCCCGCATGCCGATGCGCCCTGCGATACATGAGC AAAGCGTAGTCTGGTTGGCACGCACCTCAGG
30	743	14:173743–173691, 7:698848–698809 10:317802–1406807, 15:351658–351762, 1:3494927–3495000, *E. coli* DNA, 13:4955–5023	CGGCTTCCGTAACAGCCTTCACATGGACAAGCTCGAGCGAATCGCAGCTCCGAGTCCGAATCGT CGATGCCCTTATGAGCCGAGGGTTCATCCTTGAGTACGCGAAGAAGGCCGCGTTCTACGTGTTC CACGTCGCGCCCGAGTTCCTCTCCGCCGCGGTGCTCATGGCGCTCAACGCGCGCCGGGGTGCAT GGAGTTAATGGACTCCGAGAGCTCGGAGCTGCTCGACTTGTCGATGCAGCATGAGTCGATCCAG AGGTAGCGATAGCCGTTCTCTCGCGCGACACGGCAAGCTTCGCGGATCTTGGGAGAAAGCTTCG GATCGTGCCTGAACCAGCATTGGTAATTTCGACATCGTCAGCAGGAAGTGGTGCACTCACTTCG TCGCTGCTTCCATAAACGACTGCAAGAAACGTGTTAGCTTGCTGCAGGCAATCGGCAAAGAAAT ACACTTACGGCGCGAAGAAGAGGCGCAGGAAGACGCCGCCAATGCCCAATATGGGCCGTAATAG GGCGCAGATACGGGTCTACTTTCTGGCTTAAATCGCCAGGCAGGAAGCCCAGTTTCTCACCGGC TTCGACCACTGCGCAGTTTTCAAAGCATCATTCAGTTTACATCGGACGTACACAATTTCTAGGC AACGGATAACAACTCACGCCCATGTTGCTGTAGACAATGTCCTTGTGGTCCTGCTATTTATGCT CACCCGATGGGTTTTCAGCCGAGAAAGTGCGTCCGAGGA
4	226	17:916595–916710, 16:754081–754183 56:27619–27719, 20:303312–303352 7:57089–57050	AGGGCGAGTCGTTGAAGGATAATGCTATGCAGGGCCGATCCCCTGTTGGTGGCAAGCGGGTCAT CGGGAAGGCAGTCGCCAAGGGAGGCATGTTGCTCAAGGGTCGGAATCCACAGGCTGTGAGCTGA AACTCCCTGCAAGATGCAAGAAGCGGACGCGGAGTCACAGAACGCGGCAGAGAACCAGGACCAG GACCAGAAACCACACGTGCGCCGGACTCGGCCGCCCGATCTCCATGCGGAAGCGTACGCCCTTC GCGGCGGCGAGGAAGCCGTCCTCGTCGCGCTCCCGCCAGTCCGCGAGCGCGCAATGTCCAGTCG AGGATGACAGCAACACCCCATGTACAAGTGGGATGACTGGCAGTCCCTGGACCGAGCCATAGAT
	384	40:172409–204900, 36:227614–227502	GATGGCCTTCCTCTCATCTCTGCCCGAGAATAAACCCATCCGCACGGCCTCGAGCAATCCCGCC CGCTCGACGTCCAGGCTGAAGCCGAAGCACTGTTGATGCGTGGCCGTCTCTCAGCGGCCAACCT TCGTTCCTCTTTGCCTACCACACGTAACCTCTCCACATCGCAGCAACGATATCGATACATATCG CCCTTATACTTTCACTCCACACTTACAAGCACAT
19	84	18:714262–714179	GGGCCCGTCTCTCCGCGGGCCCCTCAAGAGTCGGAGGAACCGCACGCTGCTACCTTCGCGACTG TCGTAAAGCGCATGGATGCA
	449	mtDNA	CGCCGCCGGCTAACGGCCGTCGGCGACCAGACCGGTCCACACCTCCTCTATACCTGTTATTTTC GCTAAGATGTTGAACTATTCCTCAAATAAGATTGAATTGTACATATATAAATTAAATATGGCTT CTTTTAAAAATAATTTTTTAACCAAATAAAAAGGTTAACTAAAGAACTTTCACAATTATGTGAG ATTTTAAAAAACAAATTCAATCTTACAGTAACAATACACTCAGGAGGAAAAAATAAAGGATATA CTTTATTAAAACAGCAAAATTATCTTGCCCATATTTTAACAATGCTTGTATAATAGGCATATTT TTATTTCTTTTGTTTTTTAAAAAAGTAGTGTTTAAATAATTTCTTACTTTTTTTAAAAGAATAA CAAAAAAAAAAGATTAAATATTATGTTTATCAATTCATTAAGTGCAAGAAACTATGAAATGGTA G

*location of the insert DNA sequence in the genomic DNA of *Ganoderma lucidum* 260125-1 deposited in Mycocosm (mycocosm.jgi.doe.gov/Ganluc1/Ganluc1.home.html).