

Fact sheet of reference DNA sequences of *Panax ginseng* (人參)

Summary	Information
Scientific name	<i>Panax ginseng</i> C.A. Mey
Type of reference material used for data generation	● Radix Ginseng (人參) ● Plant voucher specimen
Radix Ginseng (人參) (number of specimens / locality)	● 7 / Fusong, Jilin Province, China ● 7 / Ji'an, Jilin Province, China ● 7 / Antu, Jilin Province, China
Plant voucher specimen (number of specimens / locality)	● 1 / Fusong, Jilin Province, China ● 4 / Ji'an, Jilin Province, China ● 2 / Antu, Jilin Province, China
Total number of specimen	● 28
Specimen source	● GCMTI collection ● Hong Kong Chinese Materia Medica Standards (HKCMMS) Project
Method for data generation	● GCMTI RD-5:2020
Length of DNA barcode	● Nuclear internal transcribed spacer 2 (ITS2) is 230 bp ● Chloroplast <i>psbA-trnH</i> intergenic spacer (<i>psbA-trnH</i>) is 487 bp ● Chloroplast ribulose biphosphate carboxylase large chain (<i>rbcL</i>) is 553 bp

Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918

>RD88-A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGCGGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGCTCTCGACGTGCGCTCCGACCG

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918

>RD88-A *psbA-trnH*

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180918

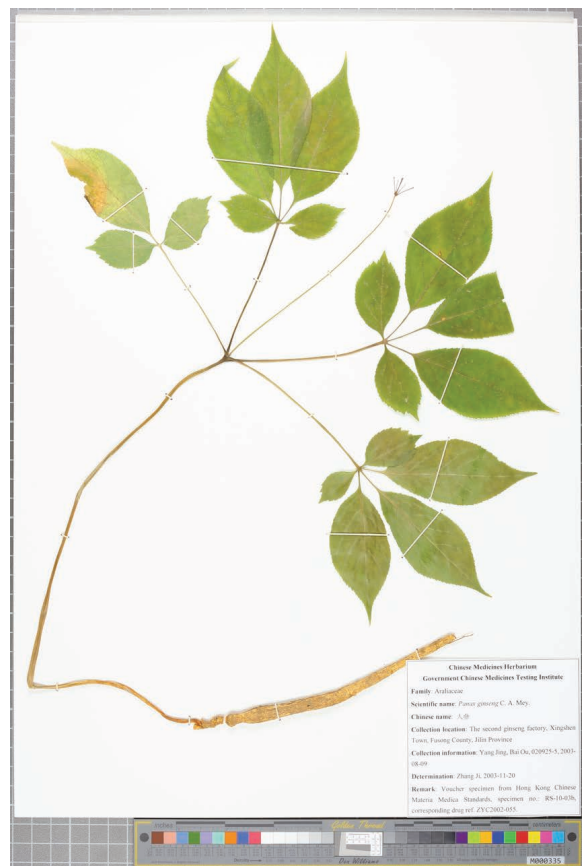
>RD88-A *rbcL*

AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCCAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey
Laboratory number	RD88
Sample mark	RD88-A
Locality	Fusong, Jilin Province, China
Corresponding CMM	RD80
Authenticated	Yes

Image



Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918

>RD89-A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCAAATGCGAGTCTTGCGGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGCTCTCGACGTGCGCTCCGACCG

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918

>RD89-A *psbA-trnH*

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180918

>RD89-A *rbcL*

AAGTGTGGATTCAAAGCTGGTGTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey
Laboratory number	RD89
Sample mark	RD89-A
Locality	Ji'an, Jilin Province, China
Corresponding CMM	RD81
Authenticated	Yes

Image



Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918

>RD90-A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGCTCTCGACGTGCGCTCCGACCC

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918

>RD90-A *psbA-trnH*

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180918

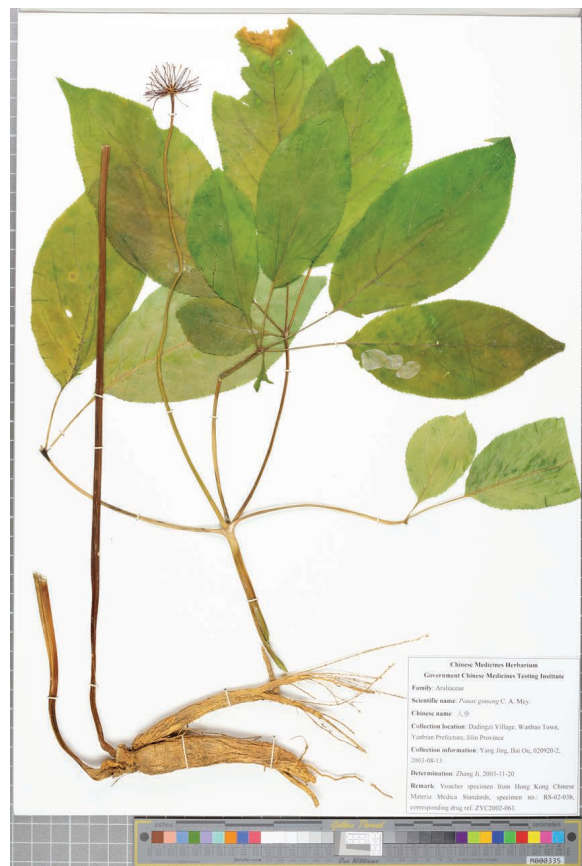
>RD90-A *rbcL*

AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAAGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey
Laboratory number	RD90
Sample mark	RD90-A
Locality	Antu, Jilin Province, China
Corresponding CMM	RD82
Authenticated	Yes

Image



Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918

>RD91-A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGCTCTCGACGTGCGCTCCGACCG

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918

>RD91-A_psbA-trnH

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTATTAGTAGTATTT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180918

>RD91-A_rbcL

AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGAACTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey
Laboratory number	RD91
Sample mark	RD91-A
Locality	Ji'an, Jilin Province, China
Corresponding CMM	RD81
Authenticated	Yes

Image



Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918-2

>RD99-A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918-2

>RD99-A *psbA-trnH*

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATAATCTAGAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180918-2

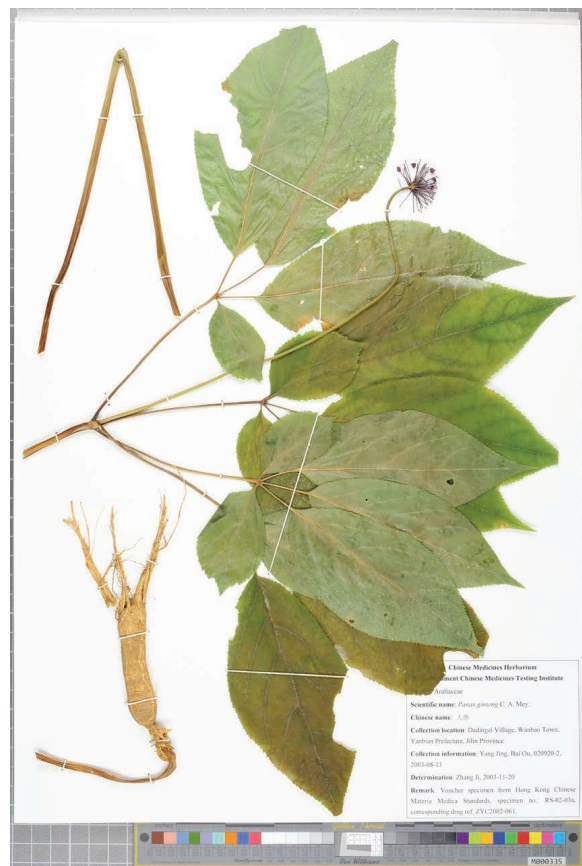
>RD99-A *rbcL*

AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey
Laboratory number	RD99
Sample mark	RD99-A
Locality	Antu, Jilin Province, China
Corresponding CMM	RD82
Authenticated	Yes

Image



Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918-2

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>RD100-A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCTTGCGGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGCTCTCGACGTGCGCTCCGACCG
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Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918-2

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>RD100-A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
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Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

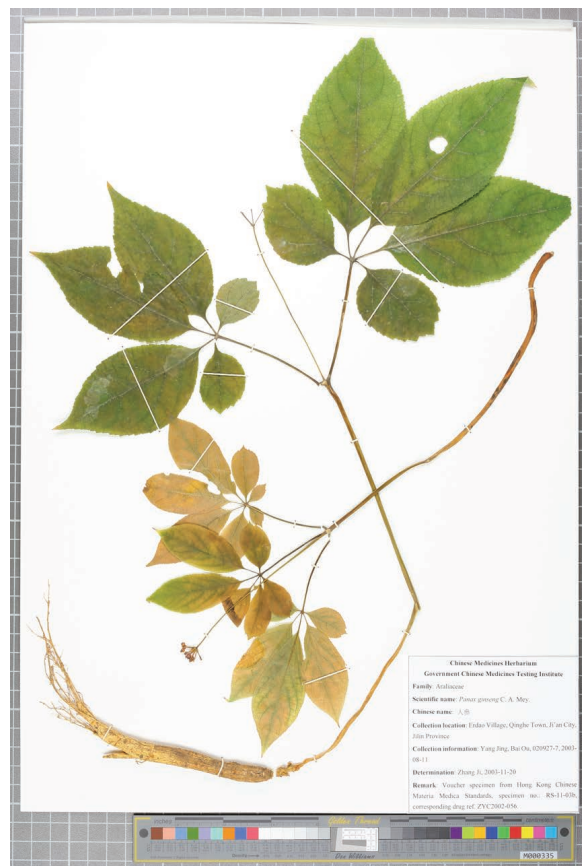
Batch ID. BI180918-2

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TCTTGGCAGCATTCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC
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Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey.
Laboratory number	RD100
Sample mark	RD100-A
Locality	Ji'an, Jilin Province, China
Corresponding CMM	RD81
Authenticated	Yes

Image



Reference DNA Sequence

Plant Specimen

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180918-2

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>RD101-A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
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Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180918-2

```
>RD101-A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180918-2

```
>RD101-A_rbcL
AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC
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Reference Detail

Description of reference material	Plant specimen
Scientific name	<i>Panax ginseng</i> C.A. Mey.
Laboratory number	RD101
Sample mark	RD101-A
Locality	Ji'an, Jilin Province, China
Corresponding CMM	RD81
Authenticated	Yes

Image



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

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>RD80-1A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCC
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Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

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>RD80-1A_psbA-trnH
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TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
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Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

```
>RD80-1A_rbcL
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TCTTGGCAGCATTCAGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
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Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-1A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

```
>RD80-2A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
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Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

```
>RD80-2A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATAATCTAGAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
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Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

```
>RD80-2A_rbcL
AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCCGCGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-2A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

```
>RD80-3A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

```
>RD80-3A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGGCTCCTTTTTTATTAGTAGTATTT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

```
>RD80-3A_rbcL
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGAYCCCAAAGATACTGATA
TCTTGGCAGCATTCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGTGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAAYAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTGAATGTCTC
```

Remarks: observations at nucleotide positions 64 and 463

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-3A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes
Remarks	<i>rbcL</i> : 64Y, 463Y

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

```
>RD80-4A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

```
>RD80-4A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGCGGATTGCTCTTTTATTTAGTAGTATTT
GACTTACCTAGTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATAATCTAGAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

```
>RD80-4A_rbcL
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGAYCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAAYAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Remarks: observations at nucleotide positions 64 and 463

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-4A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes
Remarks	<i>rbcL</i> : 64Y, 463Y

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

```
>RD80-5A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

```
>RD80-5A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

```
>RD80-5A_rbcL
AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCGGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-5A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

```
>RD80-6A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

```
>RD80-6A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTT
TTTGAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTATTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

```
>RD80-6A_rbcL
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGAYCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACGTGTGGACCGGACTGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAAA
GCCCTGCGTGCTCTACGTCGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAAYAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTGAATGTCTC
```

Remarks: observations at nucleotide positions 64 and 463

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-6A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes
Remarks	<i>rbcL</i> 64Y, 463Y

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

>RD80-7A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCC

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

>RD80-7A *psbA-trnH*

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATAATCTAGAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

>RD80-7A *rbcL*

AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCCGCGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD80
Sample mark	RD80-7A
Locality	Fusong, Jilin Province, China
Corresponding plant voucher specimen	RD88
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611-2

>RD81-1A ITS2

```
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCC
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611-2

>RD81-1A *psbA-trnH*

```
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTATTAGTAGTATTT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATAATCTAGAATTTAGCTACTTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611-2

>RD81-1A *rbcL*

```
AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCCGCGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACGTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-1A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

>RD81-2A ITS2

```
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

>RD81-2A_psbA-trnH

```
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATTT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

>RD81-2A_rbcL

```
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCCGCGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-2A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

>RD81-3A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

>RD81-3A_psbA-trnH

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAACTAGAAATTTAGCTACTCT
TCCCAATCTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

>RD81-3A_rbcL

AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCCGCGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-3A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

```
>RD81-4A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

```
>RD81-4A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

```
>RD81-4A_rbcL
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCAGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-4A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

>RD81-5A ITS2

CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCTTGCGGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

>RD81-5A *psbA-trnH*

ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTATTTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

>RD81-5A *rbcL*

AAGTGTGGATTCAAAGCTGGTGTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGAYCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGGCGGTAAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAAYAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC

Remarks: observations at nucleotide positions 64 and 463

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-5A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes
Remarks	<i>rbcL</i> : 64Y, 463Y

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

>RD81-6A ITS2

```
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCC
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

>RD81-6A *psbA-trnH*

```
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTATTTAGTAGTATT
GACTTACCTAGTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

>RD81-6A *rbcL*

```
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGAYCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Remarks: observations at nucleotide positions 64

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-6A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes
Remarks	<i>rbcL</i> : 64Y

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

>RD81-7A ITS2

```
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCTTGCGGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

>RD81-7A_psbA-trnH

```
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

>RD81-7A_rbcL

```
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD81
Sample mark	RD81-7A
Locality	Ji'an, Jilin Province, China
Corresponding plant voucher specimen	RD89, RD91, RD100 and RD101
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180611

```
>RD82-1A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180611

```
>RD82-1A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180611

```
>RD82-1A_rbcL
AAGTGTTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-1A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180612

```
>RD82-2A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180612

```
>RD82-2A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTCTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGCGGATTGCTCCTTTTTTATTTAGTAGTATTT
GACTTACCTAGTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180612

```
>RD82-2A_rbcL
AAGTGTGGATTCAAAGCTGGTGTTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-2A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180612

```
>RD82-3A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180612

```
>RD82-3A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAAATAAGAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180612

```
>RD82-3A_rbcL
AAGTGTGGATTCAAAGCTGGTGTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-3A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180612

```
>RD82-4A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180612

```
>RD82-4A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTCTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGGCGGTATTGCTCCTTTTTTTATTTAGTAGTATT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180612

```
>RD82-4A_rbcL
AAGTGTGGATTCAAAGCTGGTGTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-4A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180612

```
>RD82-5A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180612

```
>RD82-5A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGCGGTATTGCTCCTTTTTTATTAGTAGTATTT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTATCTCGAAAATAAGAAAAGATAAGAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180612

```
>RD82-5A_rbcL
AAGTGTGGATTCAAAGCTGGTGTAAAGATTACAAATTG
ACTTATTATACTCCTGACTATGATCCCAAAGATACTGATA
TCTTGGCAGCATTCCGAGTAACTCCTCAACCTGGAGTTCC
AGCTGAAGAAGCAGGGGCGCGGTAGCTGCCGAATCTTC
TACTGGTACATGGACAACCTGTGTGGACCGATGGACTTACT
AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
CCCGTTGCTGGAGAAGAACTCAATTTATTGCTTATGTAG
CTTACCCATTAGACCTTTTGAAGAAGGTTCTGTTACTAA
CATGTTTACTTCCATTGTAGGTAATGTATTTGGGTTCAA
GCCCTGCGTGCTCTACGTCTGGAAGATCTGCGAATCCCTG
TTGCTTATGTTAAACTTTCCAAGGCCCGCCTCATGGCAT
CCAAGTTGAGAGAGATAAATTGAACAAGTATGGTCGTCC
CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-5A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180612

```
>RD82-6A ITS2
CGCATCGCGTCGCCCCCAACCCATCACTCCCTTGCGGGA
GTTGAGGCGGAGGGGCGGATAATGGCCTCCCGTGTCTCA
CCGCGCGGTTGGCCCAATGCGAGTCCTTGGCGATGGAC
GTCACGACAAGTGGTGGTTGTAAAAAGCCCTCTTCTCATG
TCGTGCGGTGACCCGTCGCCAGCAAAAGCTCTCATGACCC
TGTTGCGCCGTCCTCGACGTGCGCTCCGACCG
```

Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180612

```
>RD82-6A_psbA-trnH
ATAACTTCCCTCTAGACCTAGCTGCTGTCGAAGCTCCATC
TACAAATGGATAAGACCCGGTCTTAGTGATACGAGTTTT
TTTGAAATAAAAAAGGAGCAATAACCTCTTCTTGTCTAT
CAAGAGGCGGATTGCTCCTTTTTTTATTTAGTAGTATTT
GACTTACCTAGTTTCTTTAAATAAATTTAAAAAACGTCG
TTTTATTTTTATCGGTTGGCTCATGAGTGAGTATCATGCTT
TCGTTCTGTATTAATCATTAATCTAGAATTTAGCTACTTCT
TCCCAATCTTTATCTTTTGGGAAGTGTTTTTTAAAAAGAA
AAGATAAAAAATGTTGGACTTTTTACTTAGTTAATACTTAA
TATTTTTATCTCGAAAATAAGAAAAGATAAGAAAAGAAATA
ATGATGAATGGTAAAAATTTAATCTTTTGAACGTAAGG
AAAAGAATAGTAGGGGGGCGGATGTAGCCAAGTGGATCA
AGGCAGT
```

Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180612

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AGCCTTGATCGTTACAAAGGGCGATGCTACAAAATAGAG
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CCTGTTGGGATGTACTATTAAACCTAAATTGGGGTTATCT
GCTAAAAACTACGGTAGAGCGGTTTATGAATGTCTC
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Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-6A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



Reference DNA Sequence

Chinese Materia Medica (CMM)

DNA Information

Internal transcribed spacer 2 of nuclear ribosomal RNA (ITS2)

Batch ID. BI180612

```
>RD82-7A ITS2
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Chloroplast *psbA-trnH* intergenic spacer (*psbA-trnH*)

Batch ID. BI180612

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>RD82-7A_psbA-trnH
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Chloroplast ribulose biphosphate carboxylase large chain (*rbcL*)

Batch ID. BI180612

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```

Reference Detail

Description of reference material	Radix Ginseng
Scientific name	<i>Panax ginseng</i>
Laboratory number	RD82
Sample mark	RD82-7A
Locality	Antu, Jilin Province, China
Corresponding plant voucher specimen	RD90 and RD 99
Authenticated	Yes

Image

Front view



Back view



[illegible]

Partial chloroplast ribulose biphosphate carboxylase large chain (*rbcL*) of plant voucher specimen of *Panax ginseng* and Chinese Materia Medica (CMM) Radix Ginseng

>RD88-A_rbcL

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>RD89-A_rbcL

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>RD90-A_rbcL

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>RD91-A_rbcL

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>RD100-A_rbcL

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>RD80-1A_rbcL

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>RD80-2A_rbcL

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>RD80-3A rbcL

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>RD80-4A rbcL

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>RD80-5A  rbcL
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>RD81-1A *rbcL*

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>RD81-2A *rbcL*

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>RD81-3A *rbcL*

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>RD81-4A rbcL

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>RD81-5A rbcL

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