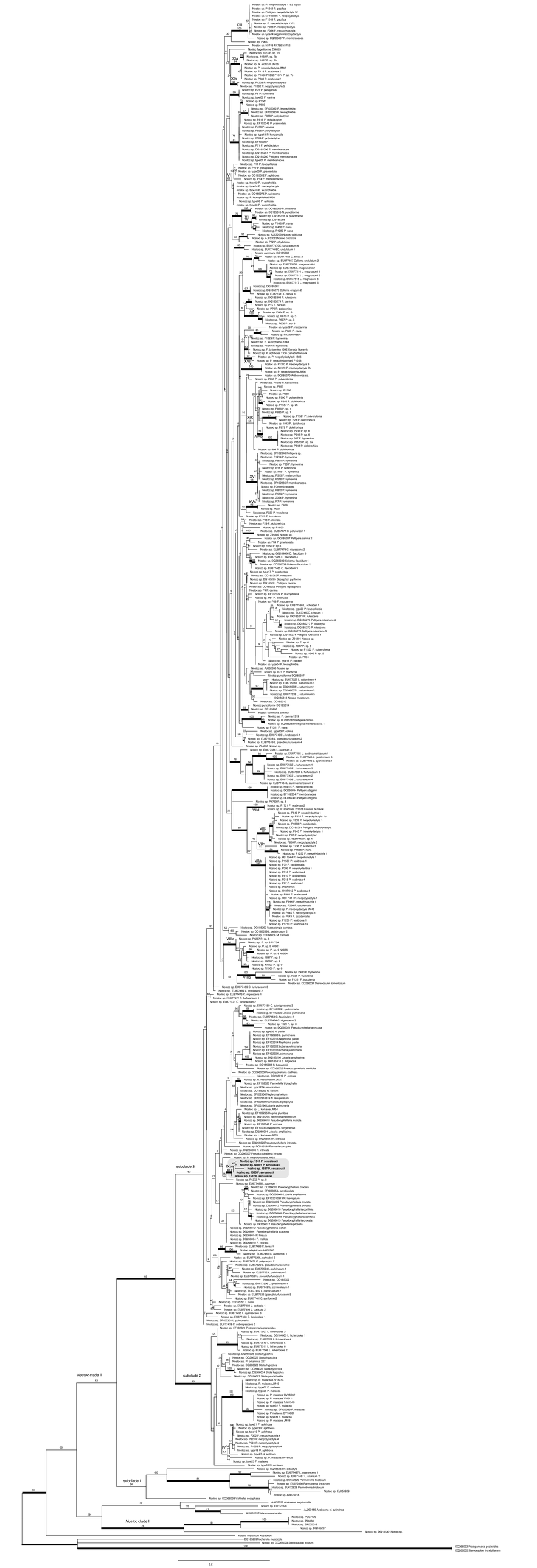
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Nostoc sp. P1662 P1672 P1674 P. sp. 7c
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Nostoc sp. P9 P. vulcanicola
Nostoc sp. P1240 P. scabrosa
Nostoc sp. P1061
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Nostoc sp. EF102330 P. leucophlebia
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Nostoc sp. DQ185260 Peltigera membranacea
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Nostoc sp. P17 P. leucophlebia
Nostoc sp. P77 P. polygonina
Nostoc sp. type03 P. praetervisita
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Nostoc sp. P1240 P. nexopolysacha
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Nostoc sp. P. leucophlebia1 M58
Nostoc sp. type08 P. aphthosa
Nostoc sp. type30 P. leucophlebia
Nostoc sp. DQ185269 P. didactyla
Nostoc sp. DQ185315 N. punctiformis
Nostoc sp. DQ185316 N. punctiformis
Nostoc sp. DQ185266
Nostoc sp. P1665 P. nana
Nostoc sp. P416 P. nana
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Nostoc commune Peltigera caledonia
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Nostoc sp. P72 P. phyllidiosa
Nostoc sp. EU871479C. furfuraceum 4
Nostoc sp. EU871486C. undulatum 1
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Nostoc sp. EU877482 C. lanaz 2
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Nostoc sp. EU877515 L. magnusonii 4
Nostoc sp. EU877511 L. magnusonii 2
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Nostoc sp. EU877512 L. magnusonii 3
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Nostoc sp. DQ185279 P. canina
Nostoc sp. P13 P. neckeri
Nostoc sp. P76 P. patagonica
Nostoc sp. P604 P. sp. 3
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Nostoc sp. P. leucophlebia 1343
Nostoc sp. P1247 P. hymenina
Nostoc sp. P. britannica 1342 Canada Nunavik
Nostoc sp. P. britannica 1341 Canada Nunavik
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Nostoc sp. N1939 P. nexopolysacha 2b
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Nostoc sp. DQ185270 Anthraconis sp.
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Nostoc sp. P897
Nostoc sp. P1266
Nostoc sp. P969 P. pulverulenta
Nostoc sp. P203 P. dolichorhiza
Nostoc sp. P1 P. sp. 2b
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Nostoc sp. P28 P. dolichorhiza
Nostoc sp. 1042 P. dolichorhiza
Nostoc sp. P679 P. dolichorhiza
Nostoc sp. P606 P. sp. 6
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Nostoc sp. P1214 P. hymenina
Nostoc sp. P871 P. hymenina
Nostoc sp. P1240 P. hymenina
Nostoc sp. P19 P. britannica
Nostoc sp. P851 P. hymenina
Nostoc sp. P515 P. meloxantha
Nostoc sp. P516 P. hymenina
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Nostoc sp. P3membranacea
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Nostoc sp. P539 P. hymenina
Nostoc sp. 2054 P. hymenina
Nostoc sp. P77 P. hymenina
Nostoc sp. P928
Nostoc sp. P907
Nostoc sp. P330 P. truculenta
Nostoc sp. P309 P. truculenta
Nostoc sp. P43 P. ulcerata
Nostoc sp. P1240 P. scabrosa
Nostoc sp. P1550
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Nostoc sp. 2N489 Nostoc sp.
Nostoc sp. DQ185287 Peltigera canina 2
Nostoc sp. P84 P. praetervisita
Nostoc sp. 1750 P. sp. 6
Nostoc sp. EU877473 C. nigrescens 2
Nostoc sp. DQ184906 C. flaccidum 3
Nostoc sp. EU877466 C. flaccidum 4
Nostoc sp. DQ266040 Collema flaccidum 1
Nostoc sp. DQ266039 Collema flaccidum 2
Nostoc sp. EU877465 C. flaccidum 3
Nostoc sp. type17 P. praetervisita
Nostoc sp. P1240 P. hymenina
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Nostoc sp. DQ185281 Peltigera canina
Nostoc sp. DQ185305 Peltigera leptophylla
Nostoc sp. P4 P. canina
Nostoc sp. ET102329 P. leucophlebia
Nostoc sp. P81 P. extenuata
Nostoc sp. P68 P. neocarina
Nostoc sp. EU877526 L. schraderi 1
Nostoc sp. type20 P. leucophlebia
Nostoc sp. EU877480C. crispum 1
Nostoc sp. DQ185271 P. rufescens
Nostoc sp. DQ185278 Peltigera rufescens 4
Nostoc sp. DQ185277 P. didactyla
Nostoc sp. DQ185273 P. rufescens
Nostoc sp. DQ185276 Peltigera rufescens 3
Nostoc sp. DQ185274 Peltigera rufescens 1
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Nostoc sp. P1022 P. pulverulenta
Nostoc sp. 1045 P. sp. 5
Nostoc sp. P884
Nostoc sp. type16 P. neckeri
Nostoc sp. type04 P. leucophlebia
Nostoc sp. AJ630200 Nostoc sp.
Nostoc sp. P737 P. monticola
Nostoc punctiformis DQ185317
Nostoc sp. EU877527 L. saturninum 4
Nostoc sp. EU877526 L. saturninum 3
Nostoc sp. DQ666081 L. saturninum 1
Nostoc sp. DQ666071 L. saturninum 2
Nostoc sp. EU877524 L. saturninum 5
DQ185313 Nostoc muscorum
Nostoc sp. DQ185310
Nostoc punctiformis DQ185314
Nostoc sp. DQ185296
Nostoc commune Z94892
Nostoc sp. P. canina 1319
Nostoc sp. DQ185283 Peltigera canina
Nostoc sp. DQ185280 Peltigera membranacea 1
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Nostoc sp. type17 P. collina
Nostoc sp. EU877481 L. bretissonii 1
Nostoc sp. EU877519 L. pseudofurfuraceum 2
Nostoc sp. EU877518 L. pseudofurfuraceum 4
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Nostoc sp. EU877485 L. saturnum 3
Nostoc sp. EU877485 L. austromarcianum 1
Nostoc sp. EU877486 L. cyaneoscens 2
Nostoc sp. EU877522 L. furfuraceum 1
Nostoc sp. EU877488 L. furfuraceum 5
Nostoc sp. EU877524 L. furfuraceum 3
Nostoc sp. EU877525 L. furfuraceum 2
Nostoc sp. EU877523 L. furfuraceum 6
Nostoc sp. EU877484 L. austromarcianum 2
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Nostoc sp. DQ266034 Peltigera degenii
Nostoc sp. EF102334 P. membranacea
Nostoc sp. DQ185303 Peltigera degenii
Nostoc sp. P1733 P. sp. 5
Nostoc sp. P. sp. 6 P. scabrosa 2
Nostoc sp. P. scabrosa 2 1339 Canada Nunavik
Nostoc sp. P840 P. nexopolysacha 1
Nostoc sp. P325 P. nexopolysacha 1b
Nostoc sp. 1209 P. nexopolysacha 1
Nostoc sp. P1508 P. occidentalis
Nostoc sp. DQ185281 Peltigera nexopolysacha
Nostoc sp. P1242 P. nexopolysacha 1
Nostoc sp. P67 P. nexopolysacha 1
Nostoc sp. 1534?NQ P. sp. 4
Nostoc sp. P859 P. nexopolysacha 3
Nostoc sp. 1256 P. scabrosa 3
Nostoc sp. P1666 P. nana
Nostoc sp. P1252 P. nexopolysacha 1
Nostoc sp. H81184 P. nexopolysacha 1
Nostoc sp. P1539 P. scabrosa 1
Nostoc sp. P1538 P. scabrosa 2
Nostoc sp. P359 P. nexopolysacha 1
Nostoc sp. P318 P. scabrosa 4
Nostoc sp. P419 P. occidentalis
Nostoc sp. P313 P. scabrosa 4
Nostoc sp. P97 P. scabrosa 1
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Nostoc sp. P1537 P. scabrosa 4
Nostoc sp. P865 P. scabrosa 4
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Nostoc sp. P844 P. nexopolysacha 1
Nostoc sp. P299 P. occidentalis
Nostoc sp. P. nexopolysacha JM43
Nostoc sp. P843 P. nexopolysacha 1
Nostoc sp. P1243 P. occidentalis
Nostoc sp. P1252 P. scabrosa 1
Nostoc sp. P1537 P. scabrosa 1a
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Nostoc sp. DQ185289 L. galactinicum 2
Nostoc sp. DQ266036 M. carnosa
Nostoc sp. P1237 P. sp. 8
Nostoc sp. P. sp. 8 N1754
Nostoc sp. P. sp. 8 N1931
Nostoc sp. P. sp. 8 N1936
Nostoc sp. P. sp. 8 N1924
Nostoc sp. 1807 P. sp. 8
Nostoc sp. 1906 P. sp. 8
Nostoc sp. N1933 P. sp. 9
Nostoc sp. N1930 P. sp. 8
Nostoc sp. P430 P. hymenina
Nostoc sp. P1531 P. truculenta
Nostoc sp. P1241 P. truculenta
Nostoc sp. DQ266031 Stereocaulon tomentosum
Nostoc sp. EU877488 C. furfuraceum 3
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Nostoc sp. EU877473 C. nigrescens 1
Nostoc sp. EU877472 C. furfuraceum 1
Nostoc sp. EU877471 C. furfuraceum 2
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Nostoc sp. EF102295 Lobaria pulmonaria
Nostoc sp. EU877494 C. flaccidum 2
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Nostoc sp. EF102314 Nephroma parile
Nostoc sp. EF102315 Nephroma parile
Nostoc sp. EF102314 Nephroma parile
Nostoc sp. EF102300 Lobaria pulmonaria
Nostoc sp. EF102303 Lobaria pulmonaria
Nostoc sp. EF102304Lpulmonaria
Nostoc sp. DQ185290 Lobaria amplissima
Nostoc sp. DQ185291 L. pulmonaria
Nostoc sp. DQ185286 S. tavaresiae
Nostoc sp. DQ266022 Pseudocyphellaria conflicta
DQ266003 Pseudocyphellaria dissimilis
Nostoc sp. DQ266019 P. crocata
Nostoc sp. N. neuphrium JA67
Nostoc sp. EF102333 Parmeliella triptophylla
Nostoc sp. DQ185276 N. sphaericum
Nostoc sp. EF102305 Nephroma bellum
Nostoc sp. EF102318318 N. resupinatum
Nostoc sp. EF102322 Parmeliella triptophylla
Nostoc sp. EF102299 Lobaria pulmonaria
Nostoc sp. L. kurkiae JM64
Nostoc sp. EF102292 Degelia plumbea
Nostoc sp. DQ185294 Nephroma helveticum
Nostoc sp. DQ266023 Pseudocyphellaria mallotia
Nostoc sp. EF102347 P. crocata
Nostoc sp. EF102320 Nephroma tangerinense
Nostoc sp. DQ266001 Lobaria amplissima
Nostoc sp. L. kurkiae JM78
Nostoc sp. DQ266013 P. intricata
Nostoc sp. DQ266020Pseudocyphellaria intricata
Nostoc sp. DQ266025 Nephroma conspicua
Nostoc sp. DQ266004 P. intricata
Nostoc sp. DQ266007 Pseudocyphellaria hirsuta
Nostoc sp. P. nexopolysacha JM62
Nostoc sp. 1547 P. sorediosa5
Nostoc sp. 1800? P. sorediosa4
Nostoc sp. 1537 P. sorediosa3
Nostoc sp. 1535 P. sorediosa6
Nostoc sp. 1532 P. sorediosa5
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Nostoc sp. EF102300 L. scrobiculata
Nostoc sp. DQ266005 Lobaria amplissima
Nostoc sp. EF102312318 N. laevigatum
Nostoc sp. DQ266009 Pseudocyphellaria crocata
Nostoc sp. DQ266010 Pseudocyphellaria crocata
Nostoc sp. DQ266015 Pseudocyphellaria conflicta
Nostoc sp. DQ266008 Pseudocyphellaria scabrosa
Nostoc sp. DQ266000 Pseudocyphellaria conflicta
Nostoc sp. DQ266011 Pseudocyphellaria crocata
Nostoc sp. DQ266017 Pseudocyphellaria pityoella
Nostoc sp. DQ266042 Pseudocyphellaria lechleri
Nostoc sp. DQ266041 Pseudocyphellaria scabrosa
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Nostoc sp. DQ266004 P. mallotia
Nostoc sp. DQ266012 P. crocata
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Nostoc sp. EU877599 L. galactinicum 1
Nostoc sp. EU877479 L. corniculatum 1
Nostoc sp. EU877520 L. pulvinatum 3
Nostoc sp. EU877522 Lpseudofurf. 5
Nostoc sp. EU877461C. aurifome 2
Nostoc sp. DQ185291 L. halli
Nostoc sp. EU877493 L. corticola 1
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Nostoc sp. EU877495 L. cyaneoscens 3
Nostoc sp. EU877496 L. flaccidum 1
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Nostoc sp. EU877478 C. subnigrescens 2
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Nostoc sp. EU877507 L. lichenoides 3
Nostoc sp. DQ184905 L. lichenoides 1
Nostoc sp. EU877509 L. lichenoides 4
Nostoc sp. EU877511 L. lichenoides 5
Nostoc sp. EU877510 L. lichenoides 6
Nostoc sp. EU877512 L. lichenoides 2
Nostoc sp. DQ266028 Sticta hypochra
Nostoc sp. DQ266025 Sticta hypochra
Nostoc sp. P. britannica 227
Nostoc sp. DQ266026 Sticta hypochra
Nostoc sp. DQ266023 Sticta hypochra
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Nostoc sp. P. malacea JM49
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Nostoc sp. P. malacea DY16062
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Nostoc sp. P. malacea DY16061
Nostoc sp. type02 P. malacea
Nostoc sp. EF102333 P. malacea
Nostoc sp. P. malacea DY16067
Nostoc sp. type09 P. malacea
Nostoc sp. P. malacea JM48
Nostoc sp. type01 P. aphthosa
Nostoc sp. type23 P. aphthosa
Nostoc sp. type19 P. aphthosa
Nostoc sp. P321 P. nexopolysacha 4
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Nostoc sp. P591 P. nexopolysacha 4
Nostoc sp. P1668 P. nexopolysacha 4
Nostoc sp. type18 P. aphthosa
Nostoc sp. type27 N. arcticum
Nostoc sp. P. malacea DY16029
Nostoc sp. type25 P. aphthosa
Nostoc sp. type26 N. arcticum
Nostoc sp. DQ185264 P. didactyla
Nostoc sp. EU877487 L. cyaneoscens 1
Nostoc sp. EU877487 L. azureum 2
Nostoc sp. EU853829 Parmotrema tinctorum
Nostoc sp. EU853830 Parmotrema tinctorum
Nostoc sp. EU872828 Parmotrema tinctorum
Nostoc sp. EU111929
Nostoc sp. AB079916
Nostoc sp. DQ266033 Vahliellal eucosphaera
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Nostoc sp. EU111926
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AJ250165 Anabaena cf. cylindrica
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Nostoc ellipsoicum AJ630266
DQ185286Tuchaella muscicola
Nostoc sp. DQ266029 Stereocaulon evolutum
DQ266032 Protoparmeria peccodes
DQ266030 Stereocaulon frondulitherum
0.2
XIII
XIIa
XIb
V
VI
XII
XI
X
XX
XVIII
XVII
XIX
XVI
XV
XIV
VIIIa
VIIIb
VIIIc
VIIId
VIIIe
VIIIf
VIIIg
IX
subclade 3
subclade 2
subclade 1
Nostoc clade II
Nostoc clade I