

Figure S1. Sequence alignment of core structure nucleotides of myxomycete S516 introns

# INTRON

	<IGS>	<<<P3>>>	<<P4>>	<<P5>	<<<P5a>>>>	
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Dniv.S516-1_HE614615	CTGGTGGACGCCAG	GTACAGATGTA	AAATTCGAGG	GACGTCTGA	AGTCACGAATACCGGT	AATAACGTCGT
Dniv.S516-2_HE614616	CTGGTGGACGCCAG	GTACAGATGTA	AAATTCGAGG	GACGTCTGA	AGTCACGAATACCGGT	AATAACGTCGT
Dniv.S516-3_HE614617	CTGGTGGACGCCAG	GTACAGATGTA	AAATTCGAGG	GACGTCTGA	AGTCACGAATACCGGT	AATAACGTCGT
Dsou.S516_MZ313549	CTGGTTGTAGGCCAG	GTACGGACGTAA	AACTGCGAG	AAACCTCTGG	AGCCTAGGCTACCGGT	AACAACGCCTA
LCru.S516_HE614619	CTGGTTGAAAGCCAG	GTACAGCCGTA	AGTTGCGGG	GAAAGCCAG	TGGGGGGGACTACCGGT	AACAAAAGCCCC
Dsp.S516*_DQ903678	CTGGTGGAAAGCCAG	GTACAGATGTA	AAATTCGAGG	GACGTCTGG	AGTCATGACTACCGGT	AATAACGTTAT
Bgra.S516_AJ555451	CTGGTTATAGGCCAG	GTACAGTTGTA	AAATTCGCGG	GAAACCCAG	TGATTGGACTACCGGT	AATAACGTCCA
Flev.S516_DQ903676	CTGGTTACAGGCCAG	GTACAGCCGTA	AAATTCGAGG	GAAACCCAG	TGACTGGGCTACCGGT	AACAATGCTCA
Fsep.S516-1_AJ584697	CTGGTAAATGCCAG	GTACAGCTGTA	AAATTCGCGG	GAAAGCCAG	TGGGAAAGCTACCGGT	AACAATGCGAT
Fsep.S516-2_MF983561	CTGGTGTATGCCAG	GTACAGCTGTA	AAATTCGCGG	GAAAGCCAG	TGGGAAAGCTACCGGT	AACAATGCGAT
Fsep.S516-3_AJ555452	CTGGTAAATGCCAG	GTACAGCTGTA	AAATTCGCGG	GAAAGCCAG	TGGGAAAGCTACCGGT	AACAATGCGAT
Ecer.S516_JQ031967	CTGGTTTATGCCAG	GTACAGCTGTA	AAATTCGCGG	GAAAGCCAG	TGGGAAAGCTACCGGT	AATACTGTTGA
Pfla.S516_AJ555453/4	CTGGTTGAAAGCCAG	GTACACGCGTA	AAATTCGCGG	GAAAGCCAG	TGGGAAAGCTACCGGT	AAAACCATGGA
Pnot.S516_JX035988	CTGGTTGGATGCCAG	GTACATTGTA	AAATTCGCGG	GAAAGCCAG	TGGGAGTGCCACCGGT	AACAGCGCAT
Psp.S516-1_JX035984	CTGGTGGACGCCAG	GTACAGCTGTA	AAATTCGCGG	GAAAGCCAG	TGGGAAAGCTACCGGT	AACAACGTCCA
Psp.S516-2_MK336180	CTGGTTGTAGGCCAG	GTACGACTGTA	AAATTCGAGG	GAAAGCCAG	TGGGCGTAGATACCGGT	GATAATGCTAC
Cana.S516_JQ031961	CTGGTTGAAAGCCCG	GTACAGCTTTAA	AACTGCAAG	GAAAGCCAG	TGAAGCGGATACCGGT	TATAACGCCGC
Cnig.S516-1_DQ903685	CTGGTGGACGCCAG	GTACAGCTGTA	AAATTCGAGG	GAAAGCCAG	TGCTGGGTGATCGACTACCGGT	AATAACGTCGG
Cnig.S516-2_AY643824	CTGGTGGACGCCAG	GTACACTTGTA	AAATTCGCGG	GAAAGCCAG	TGAGGTGGGTACCGGT	AAAAACCCCCG
Cpse.S516_DQ903673	CTGGTTGTTGCCAG	GTACAGCTGTA	AAATTCGAGG	GAAAGCCAG	TGGAGCGGATACCGGT	TATAACGCTGC
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Crob.S516_JQ031960	CTGGTTAAGGCCAG	GTACACTGTA	AAATTCGCGG	GAAAGCCAG	TGGGATCAAGCTACCGGT	AATAAGGCTTG
Dpau.S516_JQ031966	CTGGTTAGAGGCCAG	GTACAGTTGTA	AAATTCGCGG	GAAAGCCAG	TGGGATCAAGCTACCGGT	AAAAGCCTGTG
Laca.S516_JQ031968	CTGGTTAAAGGCCAG	GTACAGTTGTA	AAATTCGCGG	GAAAGCCAG	TGGGATCAAGCTACCGGT	AATAGCCTGCA
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Laen.S516-2_JQ031970	CTGGTTACAGGCCAG	GTACAGTTGTA	AAATTCGCGG	GAAAGCCAG	TGGGCAAGCTACCGGT	AATAGCTGTG
Laib.S516_JQ031971	CTGGTTGGAGGCCAG	GTACAGTTGTA	AAATTCGCGG	GAAAGCCAG	TGGGCAAGCTACCGGT	AACAGCTGTG
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Lcol.S516-4_HQ687199	CTGGTACTTCTGTG	TACCTCGTA	AAATTCGAGG	AAAAAGCCTT	AAGGAAGGACCCCGGT	AACAGGCTCT
Lcol.S516-5_HQ687197	CTGGTTATAGGCCAG	GTACCTTGTAA	AAATTCGCGG	AAAAAGCCTT	AAGGAAGGACCCCGGT	AATAATGCTGG
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Agto.S516_JX481282	CTGGTTACAGGCCAG	GTACAGTTGTA	AAATTCGAGG	GAAAGCCAG	TGGTTGAGCTACCGGT	AACAACGCTGT
Tdec.S516_FJ810499	CTGGTTATAGGCCAG	GTACAACTGTA	AAATTCGAGG	GAAAGCCAG	TGGGTGGAAGTACCGGT	AAAAACGCTAT
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Tvar.S516-2_KM495011	CTGGTTGTAGGCCAG	GTACAGCTGTA	AAATTCGAGG	GAAAGCCAG	TGGGTGGAAGTACCGGT	GACAACGCCAC
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Tvar.S516-23_KM495031	CTGGTTGTAGGCCAG	GTACAGCTGTA	AAATTCGAGG	GAAAGCCAG	TGGGTGGAAGTACCGGT	GACAACGCCAC
Tvar.S516-24_KM494995	CTGGTGGTAGGCCAG	GTACACCGTAA	ATTCGAGG	GAAAGCCAG	TGGGAGCAGATACCGGT	GATAACGCTGC
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Dniv.S516-2	GGCA	CCAGAT	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CATCTGGGCGCT	TAAGGAA	TAGTCC	ATTAGGCCAG
Dniv.S516-3	GGCA	CCAGAT	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CATCTGGGCGCT	TAAGGAA	TAGTCC	ATTAGGCCAG
Dsou.S516	TGGCC	CCAGACA	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CGTCCGGGCGCT	CAAGGAA	TAGTCC	ATTAGGCCAG
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Fsep.S516-1	CCAG	CTGGCCA	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CAGTTGGGCGCT	TAAAGGAA	TAGTCC	ACTGGGCCAG
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Cocu.S516	TTCCC	CAGGCCA	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CATGTGGGGCTT	TAAAGGAA	TAGTCC	ACTGGGCCAG
Crob.S516	GTCT	CTAGTCA	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CAGTTGGGCGCT	TAAAGTA	TAGTCC	ACTGGGCCAG
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Laen.S516-1	CCTT	CTGGTCA	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CGACTGGGTCT	TAAAGTA	TAGTCC	ACTGGGCCAG
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Lech.S516-1	CACAT	TCAGAT	AA	TCTGCA	GCCCGTT	CAGAGACTA	TAAT	CATCTGGGCGCT	TAAAGGAA	TAGTCC	CAATTGGCCAG
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Tvar.S516-18	TTTCT	CTGGTCA	AA	TCTGCA	GCCCGTT	CAGAGACTA	TAAT	CGGTTGGGCGCT	TAAAGGAA	TAGTCC	ACTGGGCCAG
Tvar.S516-19	ACTC	CTAGTCA	AA	TCTGCA	GCCCGTT	CAGAGACTA	TAAT	CAGCTGGGCGCT	TAAAGGAA	TAGTCC	ACTGGGCCAG
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Tvar.S516-25	TTTCT	CTGGTCA	AA	TCTGCA	GCCCGTT	CAGAGACTA	TAAT	CGGTTGGGCGCT	TAAAGGAA	TAGTCC	ACTGGGCCAG
Dniv.S516	GGCA	CTAGCCA	AA	TCTGCA	GCCCGTT	CAGAGACTA	TAAT	CGACTGGGCGCT	TAAAGAA	TAGTCC	ACTGGGCCAG
Ecoe.S516	CTTC	CTGGTCA	AA	TCGGCA	GCCCGTT	CAGAGACTA	TAAT	CAATTGGGCGCT	TAAAGTA	TAGTCC	ACTGGGCCAG

## Molecular phylogeny of myxomycete taxa based on SSU rDNA sequences

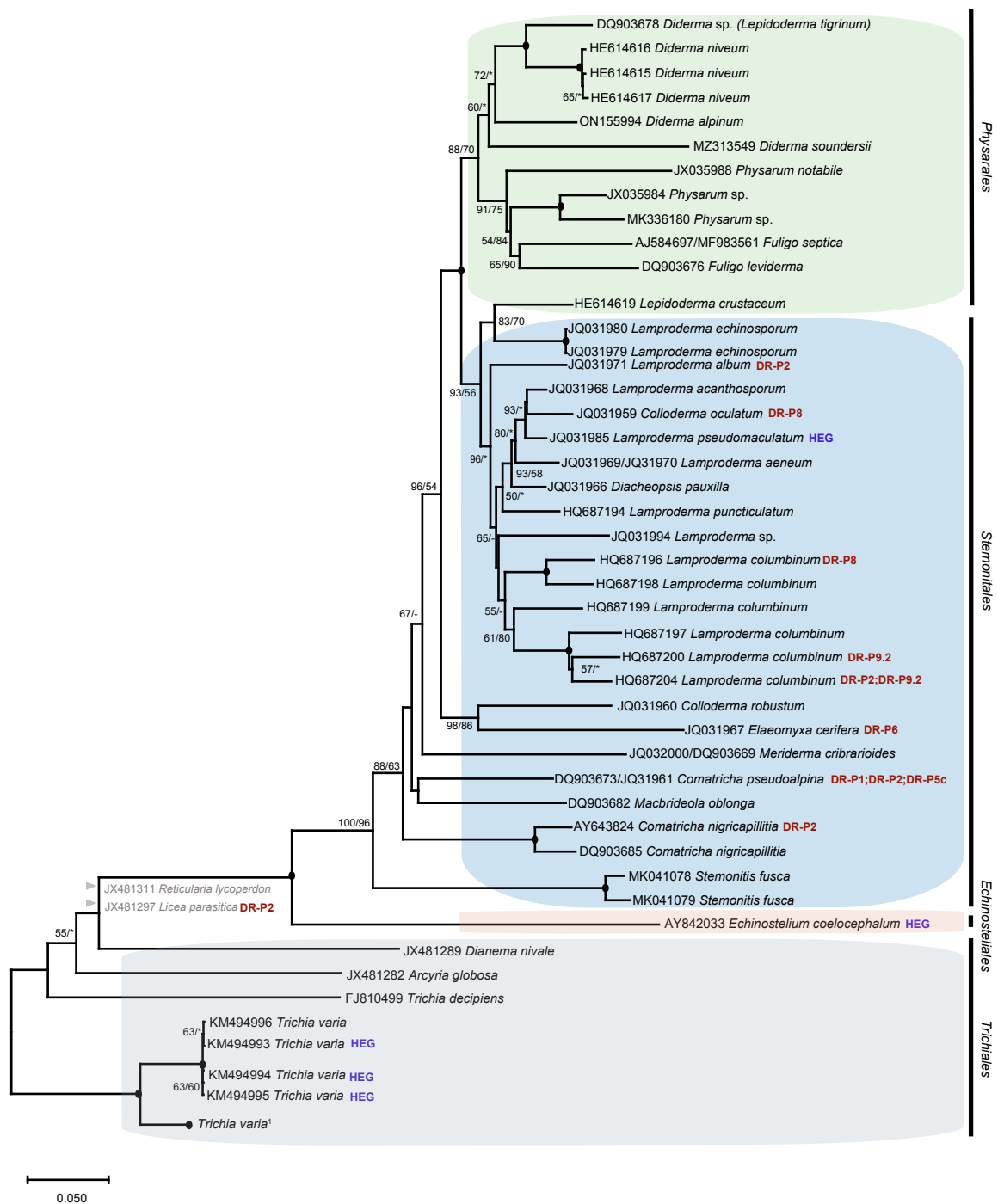


Figure S2

## Molecular phylogeny of myxomycete S516 group I introns

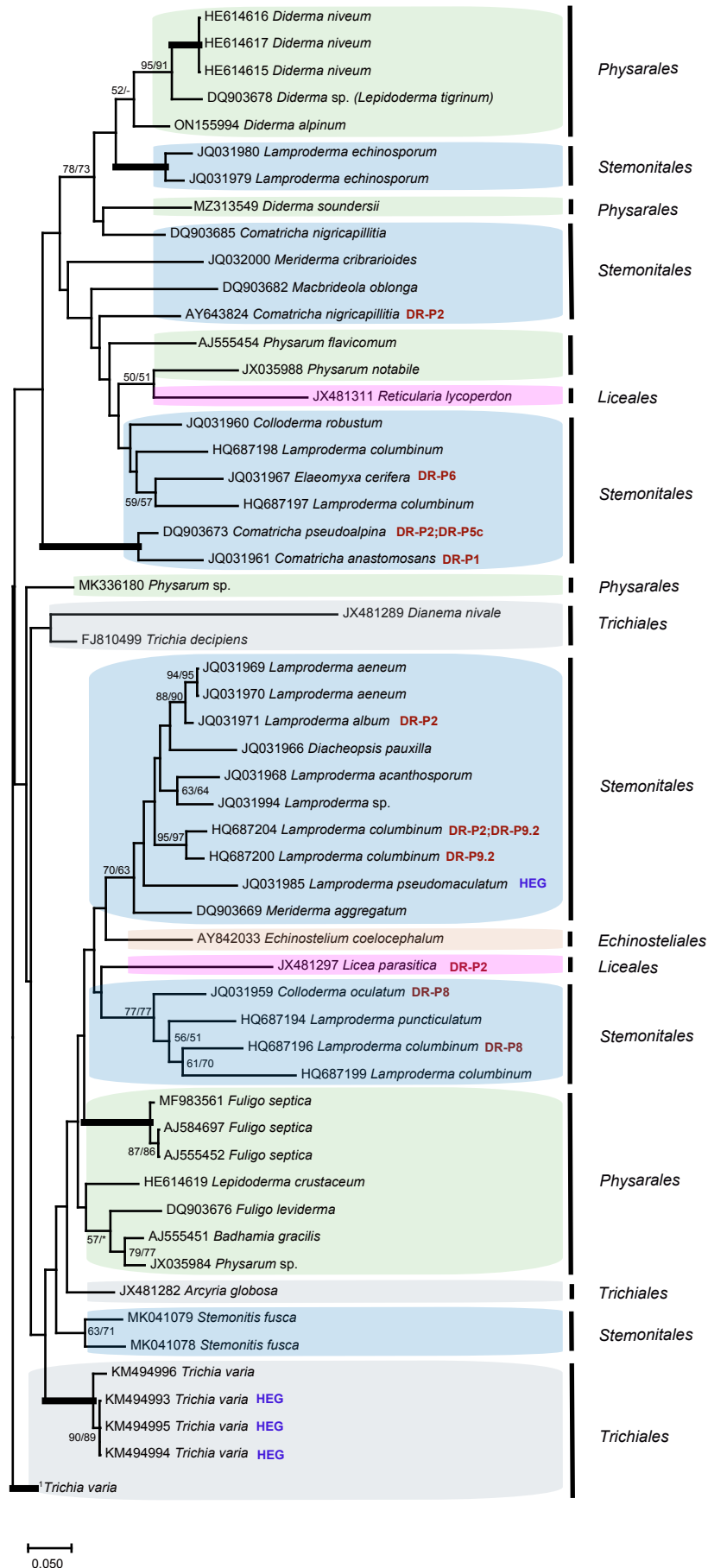
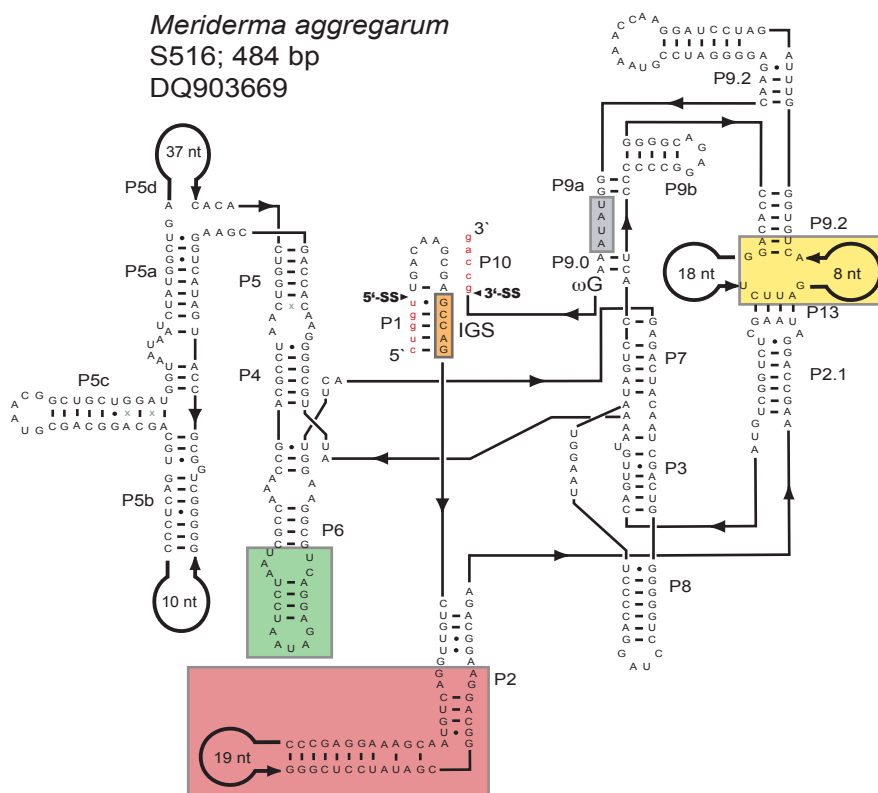


Figure S3

A



B

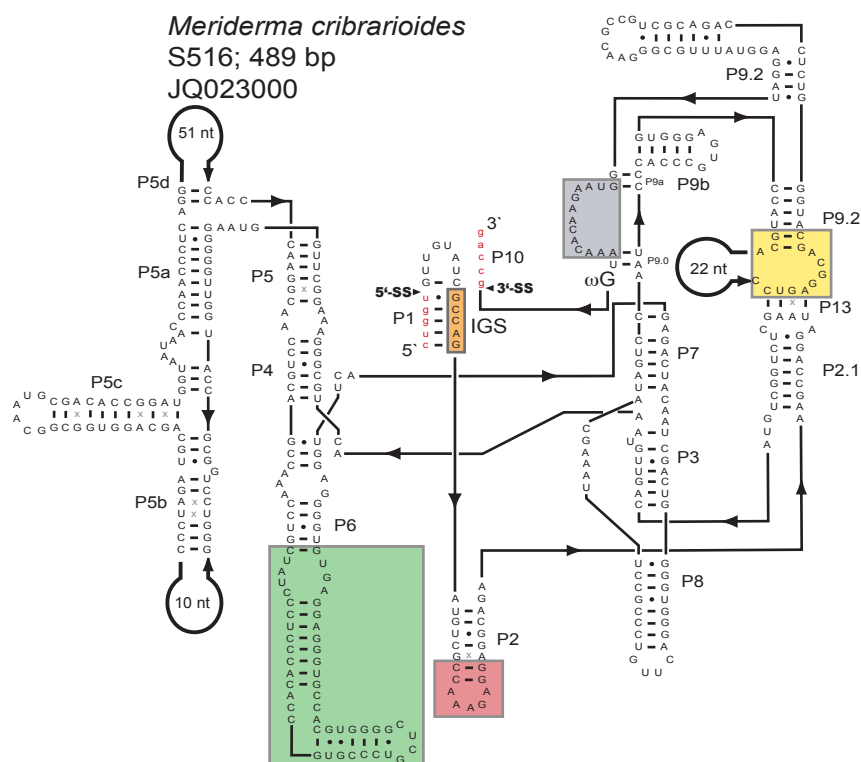
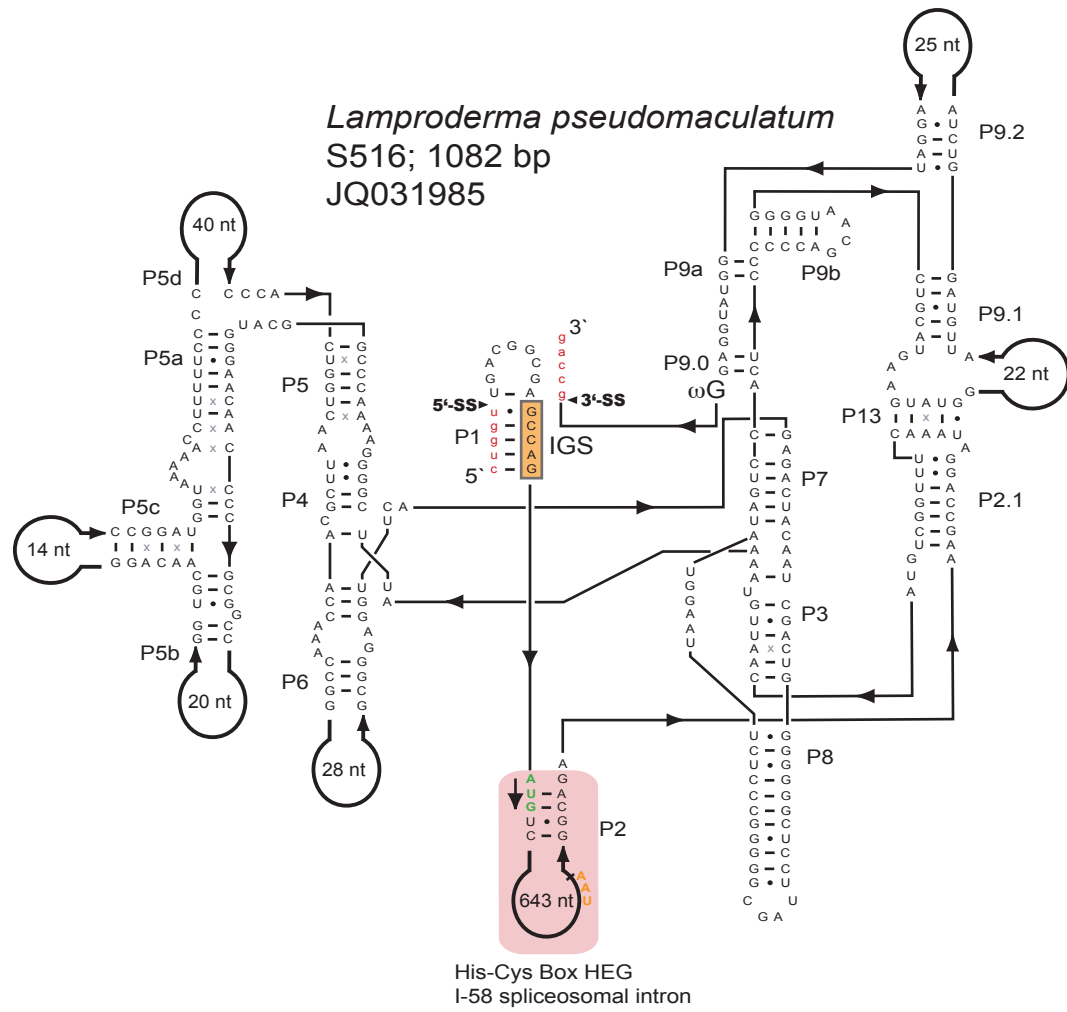


Figure S4



A



B

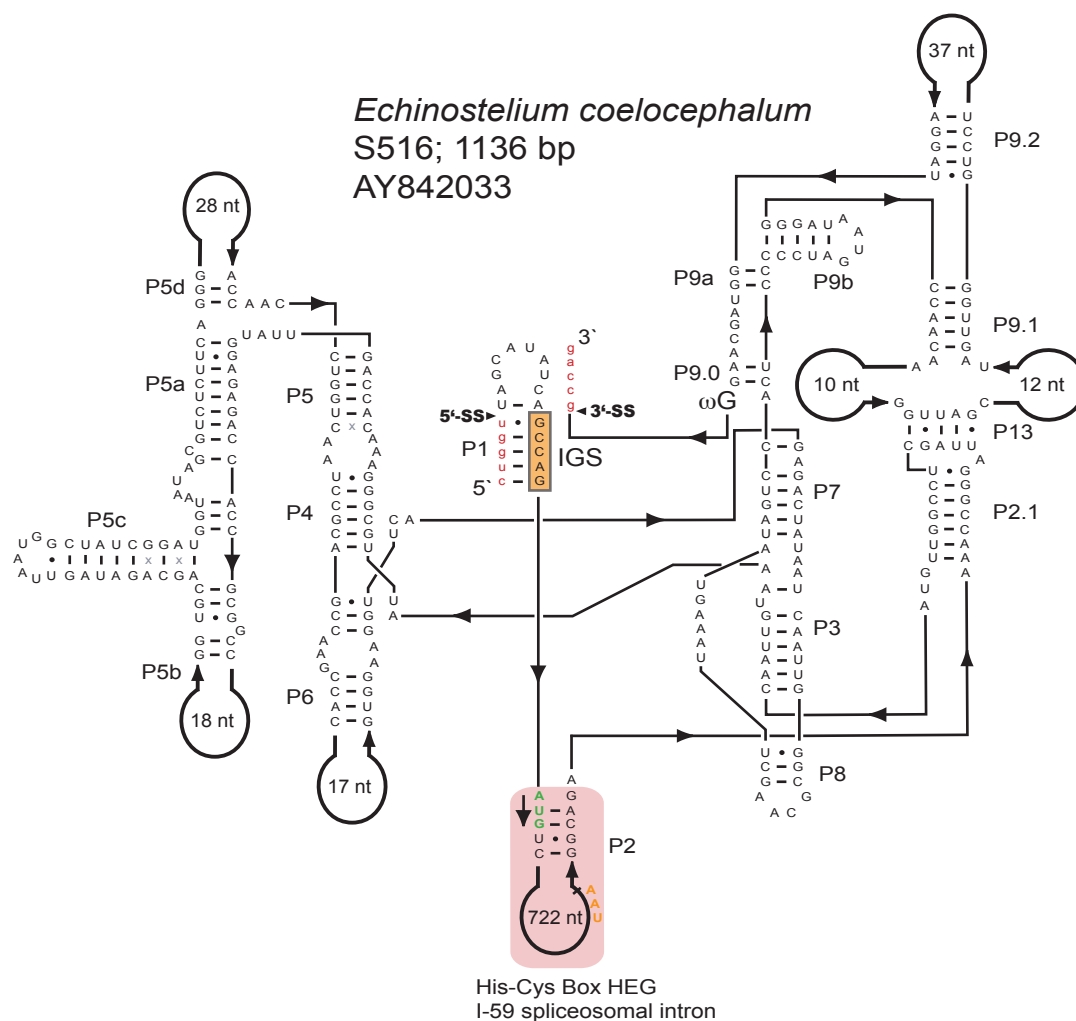
ATGTCGAACAATGAGGGAACAACCGAACGTCGAAAGCACAACAAGTCTGGGCTGACCACGCTGAGCGTACTGAAG  
TCGAGTGATGAAATGATCCTGGCGCTAGAGCCTCTCCTAAAAAGGAAGGCACGGGCAATAGGCTTCGAAGTAGTC  
AAGCGATCCAGGTGCAAAGTATGGCCGAACAAAAAGTCCAAGATCACCAAGGGCAAGGTATGGCGGGCTGAGCTG  
AACCGAAAGATCGGGCATGAACTAACCACTCGCTGCCCCAGGACGTCGGGGAGGCCATATCATGTTAGGGCATTTCA  
AGTATTCGGCCGGGAACGTTTGGGGCTGGTACCCCCGAACAAGCGCCAAGGCGACCTCGTGGTATCGCATATATG  
CGGACCCGTCACCTGCCTGAAGCGTACCCACCTGCTGCTGGAGCCAAAGTGGGTGAATGACGAACGAACCCACTG  
CCACTTTCTGCCACATTCATGGCGGCGAGGGGCAAGGATCCGGCGGAGACTGTGAAGGCTGTTAGAAAGGCGTG  
CCCTCATGAGCCTAGGTGCTTCTCGTACCTGGGCAATTTCGAACCTGATGAACGTGTAATTGTGAGGCCTGTGCC  
AGTGGTAATAAACACCATGTAA

C

MSMSNNEGTTERRKHNSGLTTLVLKSSDEMILALEPLLRKARAIGFEVVKRSRCKVWPNNKSKITKGKDVGE  
AYHVRAFQVFGRRERLGLVPPNKRQGDVVSICGTRHCLKRTHLLLEPKWVNDERTHCHFLPHSMAARGKDP AET  
VKAVRKACPHPRCFSYLGNFEPDERVIVRPVPPVINTM 187

Figure S5

A



B

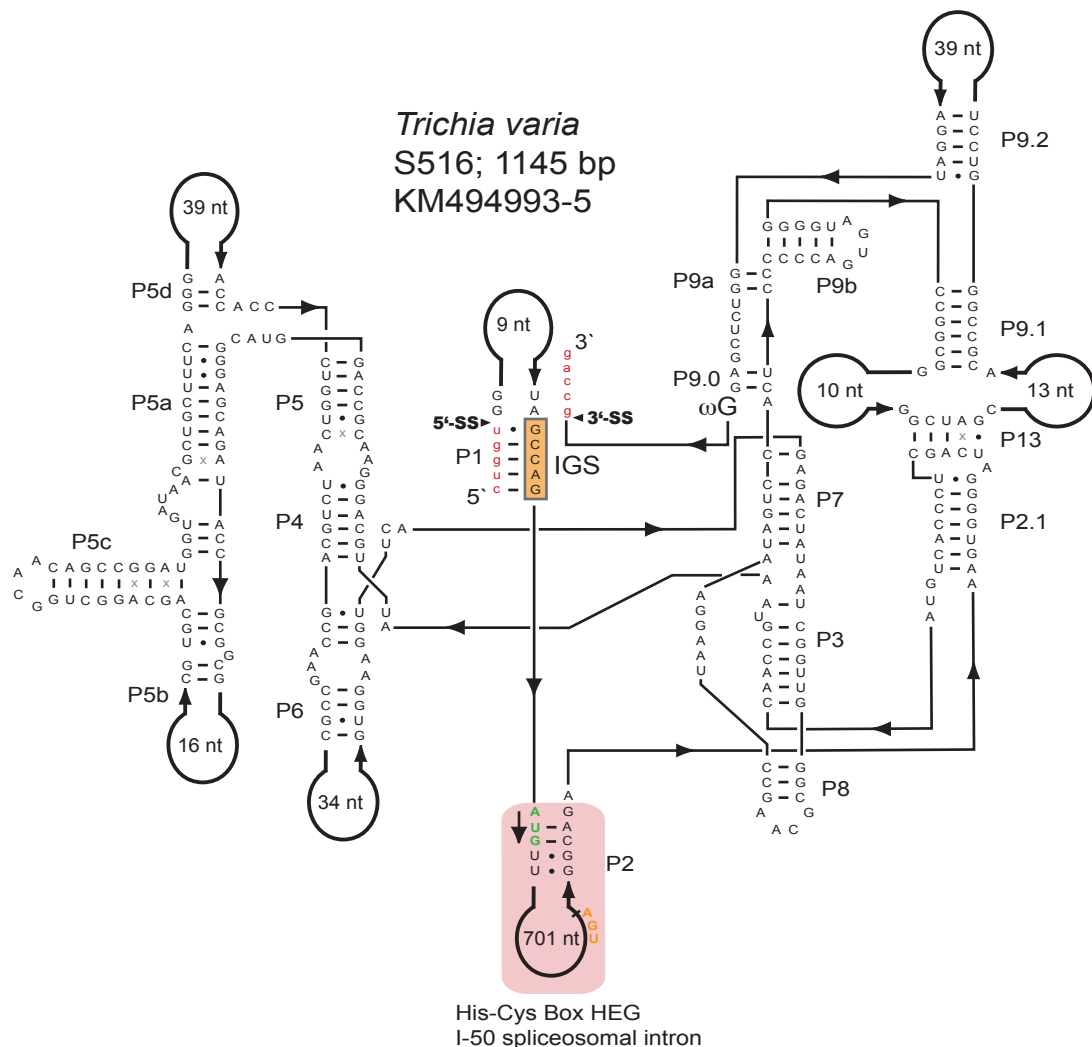
ATGCTCTGATAGGCTACACAACAAATCGGGTTTAACTGGCTTATCTTTTTTGCAGGAAGATGATACTGTCCTTGCG  
GAGTGGACGAAGACTTTGAATAGGCGGGTGAAGGACGGCAAAGAGGCGCGAAGTGCCCCAAAGGTGATTCCACAC  
TCTCGCTGTCGGCTACTTGCCAACCACAAAGGCACCTTTGGTCATGAGCTCAAAGGTATGATCATTGTTGGGATTGG  
GATTAGGGTTAACTGTATACTGATGGATTACATACAGCATGTCTGCTACGGCTACCAACTACGTGCTTTGGAGG  
TGTTCCGAAGGGATAGGATGGCCCAGGTTCCCTCCCAACAAGGCTGGAGACTCCCTTTTGATATCGCATGTCTGTG  
GTACTCGGAAGTCTGCCGACGCACGCACCTTGTGATTGAGCCGAAGCACATCAATGATGAGCGGGTGCCTGCTGCC  
ACATGGTCCGCGCACTGGATGTGGAAGAAGTCAAAGCGCTACGGCAAACGGATGGCAAAGGTTAGGGCGGCAGTCC  
AGCTTGCTTGCCCTCACGAGCCAAAGTGTCTTACAAGTGTACGGGATCTGGATGTTAAAGACCGCTTTGTAGAGT  
CCAAGCCGAGTAATGCAATAAAATATGATTAA

C

MSDRLHNKSGLTGLSFLQEDDTVLAEWTKTLNRRVKDGKEARSAPKVIIPHSRCLLLANHKGTLVMSSKHVCYGYQ  
LRALEVFGRDRMAQVPPNKGDSLILISVCGTRNCCRTHLVIEPKHINDERVHCHMVAHWMWKKSKRYGKRMK  
VRAAVQLACPHEPKCLTSVRDLVDKDRFVESKPSNAIKYD 190

Figure S6

A



B

ATGTTTCACACGAGAAAGGCCCAACAAGTCCAACAAAAGCCACCTATCGTTCCTAGACGAGCCGGAGGCACAC  
CTTATAGAATATATAAGGGAGCTGAAGGTGTGTGGCCGAGTAATTGGGAGTGTAGTGGGGCGGTGGCTTTGCGAG  
GTGCGTGGTACTAACAACCCCGTCCAGGCTCGCCTTGTGGATGGACATATCATGCGGGCCTTTGCCAAGGCTCGC  
CCTGTGAGATGCTGCGGTCCCTGAAAGGCAGGCTGATGACTACTCGGTTCGCGGGACCACAAGCCAAGCGTGGACA  
TCGCTTATGGGTATCAGTTGATAGCCCTGGAGAAGTTTGGGATCGGAATTATGCGGGAGGTTGCGCCGCTAAGG  
ACAGGGACTCGATTACAATATCACATTTGTGCGGGACCCTGCTCTGCTGCAGTGGGATCACCTGGTGTGGAAAC  
CCAAATGGCTGAACGACGAGCGGACTTGCTGCCACTTCGTACTGCTTAGTGCTTTTAAAGCACGGCGGGTTAGAGG  
CAGTGACCGCCGTTTCTGGAGGCCGGCGGGTGCCCGCATACACCTCAGTGTGGCTCCATTGCTGTTAATAAGATAG  
TACGCTTCCCACCACATGCTCTGTACCCCGATATAGCCCTACCTCCCCGACGGAGGAGGAGAAATAAAAAATATC  
AATAC**TGA**

C

MMFHTRKAHNKSNKSHLSFLDEPEAHLIEYIRELKVCGRVIGSARLVDGTYHAGLCQGSPCEMLRSLKGRMLMTTR  
LRDHKPSVDIAYGYQLIALEKFGIGIMREVAPSKDRDSITIS**HL**CGTLL**CC**SAD**HL**VLEPKWL**ND**ERTC**CH**FVLL  
SAFKHGGLAETAVLEAGG**CP**HT**PQ**CGSIAVNKIVRFPPHALYPDIALPPPTTEENKKYQY 210

Figure S7



## Supplementary Figure S8

Direct repeat features in S516 intron segments

### P1:

*Comatricha anastomosans* - JQ031961

```
1: AGGGGCAGATGGGAAGCGAGCGGGG----ATTTCATGGTCCCC--GCTTGAAAGCGGCAAGGAAGC-GGGGAGGAA
2: AGGGGTGGACGGGAAGCGAGCGGGG----ATTTCATGGTCCCC--GCTTGAAAGCGGCAAGGAAGCAGGGGAGGAA
3: --GGGTGGACGGGAAGCGAGCGGGGGGGGATCTCACGGTCCCCCCCCGCTTGAAAGCGGCAAGGAAACAGGGGGGGAA
4: AGGGGTGGACAAAAAGCGAGCGGGG---ATCTCATGTTCTCCC---GCTTGAAAGCGGCAAGGAAGCAGGGGGGGAA
```

```
1: TCTCCCC-GC-TTCCCCACTGCGTTCCAGATGCCCTG
2: TCTCCCCTGCCTTCCCCACTGCGTTCCAGATGCCCTG
3: TCTTCCCTGCCTTCC-TACTGCGTTCCAGATGCCCTG
4: TCTCCCCTGCCTTCCCCACTGCGTTCTCGGACACCCCTG
```

Copy no: 4  
Motif size: 107 nt – 114 nt

*Comatricha pseudoalpina* - DQ903673

```
1: AGGGGGCGGATGGGAAGCGGGCGGGG--ATTTCATGATCCCC--GCTTGAAAGCGGCAAGGAAGCGTGGGG--TCA
2: AGGGG--CGGACGGGAAGCGGGCGGGGGGATCTCATGTTCTCCCGCTTGAAAGCGGCAAGGAAGCGACGGG-GCCA
3: GGGGG--TGGACGGGAAGCGGGCGGGG--ATTTCATGTTCCCCCGCTCGAAAGCGGCAAGGAAGCGAGGGG-CCCA
4: AGGGG--TGGACGAGAAGCGGGCGGGG--ATTTCATGTCCCC--GCTTGAAAGCGGCAAGGAAGCGGGGGGGTAA
```

```
1: TTCCCC-----GCTTCCCCACTGCGTTCCAGATGTCCAG
2: TTCCCC-----TAGCTTCCCCACTGCGTTCCAGATG-CCTCT
3: TTACCCC-----TGCTTCCCCACTGCGTTCCCGATACCCCTG
4: TCTCCCCCCTGCCTTCCCCACTGCCTTCTCGGACGCCCTG
```

Copy no: 4  
Motif size: 109 nt – 114 nt

### P2:

*Comatricha nigricapillitia* - AY643824

```
1: ACAA
2: ACAA
3: ACAA
4: ACAA
```

Copy no: 4  
Motif size: 4 nt

### *Lamproderma album* - JQ031971

1: ACCGATCTCACGCCAACGAACCAAGCATCCTCGGGGAGATGATGGTTGCCACACGGAACGACGCACCCTGGTCA  
2: ACCGATCTCGCGCCAACGAACCAAGCATCCTCGGGGAGATGATGGTCGCCACATGGAACGACGCACCCTGGTCA  
  
1: GGTGCCGAGTTCCGGGCTCGATGC-----GATCTCTG-CCCTCGGGGTGGCAGGGAACGCGCTTGTGGATCGACA  
2: GGTGCCGAGTTCCAGGCTCGATGCACAGCGATCTCTGGCCCTCGGGGTGGCAGGGAACCCGCTCGTGGGTCGACG  
  
1: GAAGGCGTGGGGGAGTCATGAAGCGGAACGAGCCCTCGGGGCGGCTCTGGAGGCGGACGGGCAAGGTGT-GCAGG  
2: GAAGGCGTGGGGAGAACCATAAGCGGAACGAGCCCTCGGGGTGGCTCTGGAAGCGGACGGGCGAGGTGTTGCAGG

Copy no: 2  
Motif size: 219 and 226 nt

### *Lamproderma columbinum* - HQ687204

Motif I:  
1: GACCAATCGTGATTCTTGTT  
2: GACCAATCGTGATTCTTGTT  
3: GACCAATCGTGATTCTTGTT  
4: GACCA-TCGTGATTCTTGTT  
5: GACCAATCGTGATTCTTGTT

Copy no: 5  
Motif size: 19 and 20 nt

Motif II:  
1: GACTAAAAGGGAGGGGTAAAT  
2: GACTAAA-GGAAGGG--TAAAT  
3: GACTAAA-GGGAGGGGTAA-T

Copy no: 3  
Motif size: 19 - 22 nt

### *Licea parasitica* - JX481297

1: GGAGGGATACCTTTTCCGCGGCA	I
2: GGAGGGATACCTTTTCCGCGGCA	I
3: GGAGGGATACCTTTTCCGCGGCA	I
4: GGAGGGATACCTTTTCCGCGGCA	I
5: GGAGAGGCACCTTTTCCGCGGCA	II
6: GGAGGGACACCTTTTCCGCGGCA	III
7: GGAGGGACACCTCTTCCGCGGCA	IV
8: GGAGAGGCACCTTTTCCGCGGCA	II
9: GGAGAGGCACCTTTTCCGCGGCA	II
10: GGAGGGATACCTTTTCCGCGGCA	I
11: GGAGGGGACCTCTTCCGCGGCA	V
12: GGAGAGGCACCTCTTCCGCGGCA	VI
13: GGAGAGGCACCTTTTCCGCGGCA	II
14: GGAGAGGCACCTTTTCCGCGGCA	II
15: GGAGGGATACCTTTTCCGCGGCA	I
16: GGAGGGACACCTCTTCCGCGGCA	IV
17: GGAGGGACACCTCTTCCGCGGCA	IV
18: GGAGGGACACCTCTTCCGCGGCA	IV
19: GGAGGGACACCTCTTCCGCGGCA	IV
20: GGAGGGACACCTCTTCCGCGGCA	IV
21: GGAGGGACACCTCTTCCGCGGCA	IV
22: GGAGGGACACCTCTTCCGCGGCA	IV
23: GGAGGGACACCTCTTCCGCGGCA	IV
24: GGAGGGACACCTCTTCCGCGGCA	IV
25: GGAGAGGTACCTCTTCCGCGGCT	VII

Copy no: 25  
Motif size: 23 nt

*Trichia varia* – KM494996

1: AAAGGCCCGCCTTT  
2: AAAGGCCCGCCTAT

Copy no: 2  
Motif size: 14 nt

**P5:**

*Comatricha pseudoalpina* - DQ903673

1: GGGTGAGATCGATAAAGGTTTGGGCTATTAACGCCTGCGTGCCTGCTTCTTTCAA-GCCA  
2: GGGCGAGATCGATAAAGGTTTGGGCTATTAACGCCTGCGTACCTGCTTCTTTCAAAGCCA

Copy no: 2  
Motif size: 59 and 60 nt

**P6:**

*Elaeomyxa cerifera* - JQ031967

Motif I:  
1: TAGGGTTACGC  
2: TAGAGTTACGT  
3: TAGGGTTACGC  
4: CAGGTTTACGC

Copy no: 4  
Motif size: 11 nt

Motif II:  
1: TAACCCTAGA  
2: TAACCCTAGA  
3: TAACCCTAGG  
4: AAACCTTAGC  
5: TGACCCTAGG  
6: TAACCCTAGG

Copy no: 6  
Motif size: 10 nt

Motif III:  
1: CAACCCTATGCAAAATCTTATGTTTCGGTGCCTCTAGGCCCCCGCGGTGAAAACCATGGTGGTTTGGTAAAAATCGAAGC  
2: CAACC-TATGCAAAACCTTATGTTTCGGTGCCTCTGGGCCACAGTGGTGAAAACCTATAGTGGTTTGGTAAAAATCGAAGC

Copy no: 2  
Motif size: 79 and 80 nt

**P8:**

*Colloderma oculatum* - JQ031959

1: CCCCCCGCGTCGACCCTTGGCCCCCCTCGTCATGAGGGGGGGGTCTCGGCGAGGGTAGGGGTCTGCCCCGTCG  
2: TCCTGCCCCGTCGACCCTTGGCCTGCCCTCGTCATGAGGGGGGGGTCTCGGCGAGGGT----GTCTGCCCTGTCG

1: ACCCTTGGCCCGCCCTCGTCATGAGGGGGTGTCTCGGCGAGGG-TGGGG  
2: ACCCTTGGCCTGCCCTCGTCGTGAGGGGGGGTCTCGGCGAGGGGTGGGG

Copy no: 2  
Motif size: 120 and 123 nt

### *Lamproderma columbinum* HQ687196

Motif I:  
1: CTTT-AAAGGAACTG  
2: CTTT-AAGGGA-CTC  
3: CTTT-AAGGGA-CTG  
4: CTTT-AAGGGA--TC  
5: CTTTGAAGAGT-CAG

Copy no: 5  
Motif size: 11 - 14 nt

Motif II:  
GGCTTTAGTC  
GGTTTTAGTC

Copy no: 2  
Motif size: 10 nt

## **P9:**

### *Lamproderma columbinum* - HQ687204

1: AAAGCAGTCAAACCAGTTAAAAGCAGTC  
2: AATCCAGTCAAACCAGTTAAAAGCAGGC

Copy no: 2  
Motif size: 28 nt

### *Lamproderma columbinum* - HQ687200

1: AAACCAAGTT  
2: AAACCAAGTC  
3: AAACCTACGC

Copy no: 3  
Motif size: 9 nt

***Trichia varia* S516 Group I intron with and without HEG**

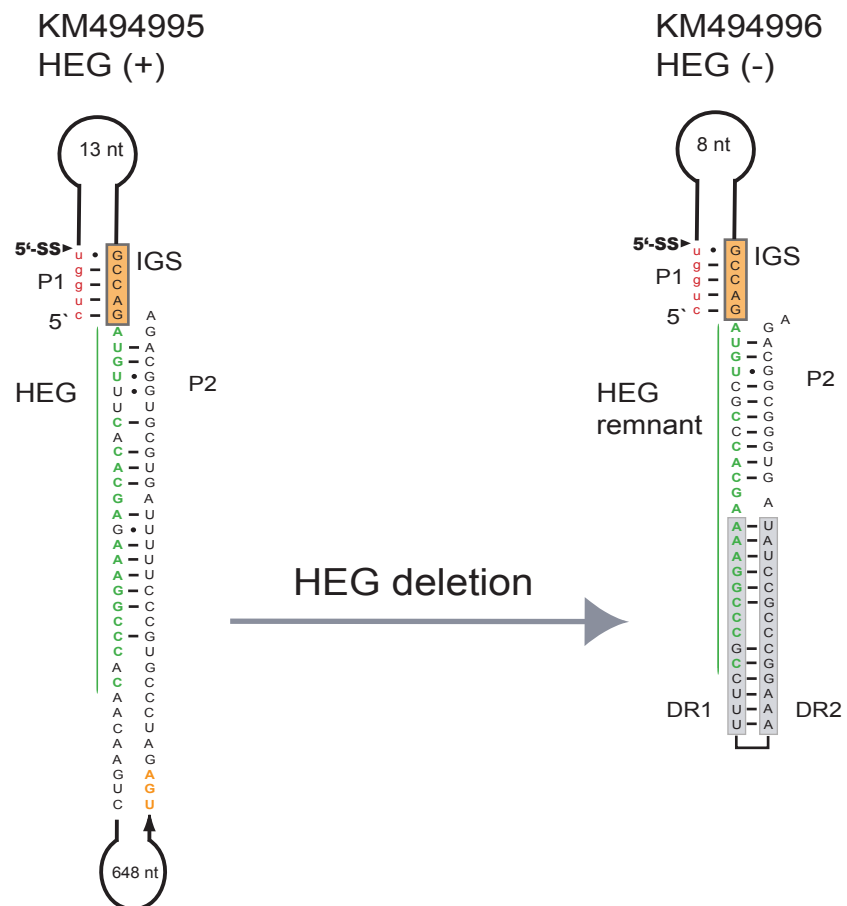


Figure S9

**Table S1**

Key features of 75 nucleolar group I introns at position S516 in myxomycetes.

Host species	Strain/ isolate	S516	Acc. Number	Insert
<b>Myxomycetes</b>				
<b>Order: Physarales; Family: Didymiceae</b>				
<i>Diderma alpinum</i>	Fr-K12	534 bp	ON155994	-
<i>Diderma niveum</i>	Fr-K10	496 bp	HE614615	-
<i>Diderma niveum</i>	It-K66	496 bp	HE614616	-
<i>Diderma niveum</i>	Uk-K79	496 bp	HE614617	-
<i>Diderma soundersii</i>	Mx-K30	482 bp	MZ313549	-
<i>Lepidoderma crustaceum</i>	It-K62	474 bp	HE614619	-
<i>Lepidoderma tigrinum</i>	AMFD192	501 bp	DQ903678	-
<b>Order: Physarales; Family: Physarceae</b>				
<i>Badhamia gracilis</i>	Az4-1	428 bp	AJ555451	-
<i>Fuligo leviderma</i>	AMFD130	402 bp	DQ903676	-
<i>Fuligo septica</i>	NY-1	534 bp	AJ584697	-
<i>Fuligo septica</i>	HMJAU1009	538 bp	MF983561	-
<i>Fuligo septica</i>	unknown	534bp	AJ555452	-
<i>Physarum flavicomum</i>	UFF6	>493 bp	AJ555453/4	-
<i>Physarum notabile</i>	LE47491	574 bp	JX035988	-
<i>Physarum</i> sp.	LE255721	441 bp	JX035984	-
<i>Physarum</i> sp.	AMFD-2018a	445 bp	MK336180	-
<b>Order: Stemonitales; Family: Stemonitaceae</b>				
<i>Comatricha anastomosans</i>	Now12905	1411 bp	JQ031961	DR-P1
<i>Comatricha nigricapillitia</i>	MM21077	489 bp	DQ903685	-
<i>Comatricha nigricapillitia</i>	Isolate 3	564 bp	AY643824	DR-P2
<i>Comatricha pseudoalpina</i>	MM23892	1471 bp	DQ903673	DR-P1; DR-P5c
<i>Colloderma oculatum</i>	HS2885	719 bp	JQ031959	DR-P8
<i>Colloderma robustum</i>	AMFD270	510 bp	JQ031960	-
<i>Diacheopsis pauxilla</i>	MM29883	516 bp	JQ031966	-
<i>Elaeomyxa cerifera</i>	MM24498	725 bp	JQ031967	DR-P6
<i>Lamproderma acanthosporum</i>	MM36058	536 bp	JQ031968	-
<i>Lamproderma aeneum</i>	MM36255	497 bp	JQ031969	-
<i>Lamproderma aeneum</i>	AK06013	>490 bp	JQ031970	-
<i>Lamproderma album</i>	MM37151	993 bp	JQ031971	DR-P2
<i>Lamproderma columbinum</i>	Isolate F2	821 bp	HQ687204	DR-P2; DR-P9.2
<i>Lamproderma columbinum</i>	Isolate 106	885 bp	HQ687196	DR-P8
<i>Lamproderma columbinum</i>	Isolate 90	699 bp	HQ687198	-
<i>Lamproderma columbinum</i>	Isolate 94	650 bp	HQ687199	-
<i>Lamproderma columbinum</i>	Isolate 63b	594 bp	HQ687197	-
<i>Lamproderma columbinum</i>	Isolate 132	650 bp	HQ687200	DR-P9.2
<i>Lamproderma echinosporum</i>	AMFD136	510 bp	JQ031980	-
<i>Lamproderma echinosporum</i>	AK06016	509 bp	JQ031979	-
<i>Lamproderma pseudomaculatum</i>	MM37354	1082 bp	JQ031985	HEG-P2; I-58
<i>Lamproderma puncticulatum</i>	Isolate 172	623 bp	HQ687194	-
<i>Lamproderma</i> sp.	AMFD-2011a	449 bp	JQ031994	-
<i>Macbrideola oblonga</i>	unknown	462 bp	DQ903682	-
<i>Meriderma aggregarum</i>	AMFD135	484 bp	DQ903669	-
<i>Meriderma cribrarioides</i>	MM37106	489 bp	JQ032000	-
<i>Stemonitis fusca</i>	MM39482	460 bp	MK041079	-
<i>Stemonitis fusca</i>	AMFD519	482 bp	MK041078	-
<b>Order: Liceales; Family: Liceaceae</b>				
<i>Licea parasitica</i>	AMFD341	1149 bp	JX481297	DR-P2
<b>Order: Liceales; Family: Reticulariaceae</b>				
<i>Reticularia lycoperdon</i>	AMFD262	494 bp	JX481311	-



**Order: Trichiales; Family: Trichiaceae**

<i>Arcyria globosa</i>	AMFD252	459 bp	JX481282	-
<i>Trichia decipiens</i>	unknown	457 bp	FJ810499	-
<i>Trichia varia</i>	LE254838	443 bp	KM495030	-
<i>Trichia varia</i>	MdH-FR1210005	443 bp	KM495011	-
<i>Trichia varia</i>	sc22520	443 bp	KM495025	-
<i>Trichia varia</i>	sc27667c2	443 bp	KM495027	-
<i>Trichia varia</i>	sc27556c1	443 bp	KM495026	-
<i>Trichia varia</i>	sc27860c4	443 bp	KM495022	-
<i>Trichia varia</i>	sc27839	443 bp	KM495010	-
<i>Trichia varia</i>	sc27742	443 bp	KM495009	-
<i>Trichia varia</i>	sc22409	443 bp	KM494999	-
<i>Trichia varia</i>	AMDF451	443 bp	KM495017	-
<i>Trichia varia</i>	sc27664c1	443 bp	KM495008	-
<i>Trichia varia</i>	JVR848	482 bp	KM494996	DR-P2
<i>Trichia varia</i>	sc27850c2	443 bp	KM495029	-
<i>Trichia varia</i>	sc27507	443 bp	KM495023	-
<i>Trichia varia</i>	sc27745	443 bp	KM495012	-
<i>Trichia varia</i>	sc27648c1	443 bp	KM495024	-
<i>Trichia varia</i>	sc27850c1	443 bp	KM495021	-
<i>Trichia varia</i>	sc22370	1145 bp	KM494993	HEG-P2; I-50
<i>Trichia varia</i>	sc27772c3	443 bp	KM495013	-
<i>Trichia varia</i>	sc22556	443 bp	KM495007	-
<i>Trichia varia</i>	sc27697	443 bp	KM495006	-
<i>Trichia varia</i>	sc22517	443 bp	KM495005	-
<i>Trichia varia</i>	LE256579	443 bp	KM495031	-
<i>Trichia varia</i>	LE259461	1145 bp	KM494995	HEG-P2; I-50
<i>Trichia varia</i>	LE259268	1145 bp	KM494994	HEG-P2; I-50

**Order: Trichiales; Family: Dianemataceae**

<i>Dianema nivale</i>	MM29888	538 bp	JX481289	-
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**Order: Echinosteliales; Family: Echinosteliaceae**

<i>Echinostelium coelocephalum</i>	ATCC MYA-2984	1136 bp	AY842033	HEG-P2; I-59
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**Table S2**

Key features of direct repeat arrays in myxomycete S516 introns.

DR region	S516 intron <sup>1</sup>	Motif <sup>2</sup>	Copy no	Heterogeneity <sup>2</sup>
P1	<i>Comatracha anastomosans</i> - JQ031961	ca 110 nt	4	+
	<i>Comatracha pseudoalpina</i> - DQ903673	ca 110 nt	4	+
P2	<i>Comatracha nigricapillitia</i> - AY643824	4 nt	4	-
	<i>Lamproderma album</i> - JQ031971	ca 220 nt	2	+
	<i>Lamproderma columbinum</i> - HQ687204	ca 20 nt	5	+
		ca 40 nt	3	+
		23 nt	25	+
	<i>Licea parasitica</i> - JX481297	14 nt	2	+
	<i>Trichia varia</i> - KM494996			
P5	<i>Comatracha pseudoalpina</i> - DQ903673	ca 60 nt	2	+
P6	<i>Elaeomyxa cerifera</i> - JQ031967	11 nt	4	+
		10 nt	6	+
		Ca 80 nt	2	+
P8	<i>Colloderma oculatum</i> - JQ031959	ca 120 nt	2	+
	<i>Lamproderma columbinum</i> - HQ687196	ca 12 nt	5	+
		10 nt	2	+
P9	<i>Lamproderma columbinum</i> - HQ687204	28 nt	2	+
	<i>Lamproderma columbinum</i> - HQ687200	9	3	+

Notes:

<sup>1)</sup> More detailed information about the S516 introns is provided in Tabel S1.<sup>2)</sup> Motif sequences and heterogeneity are presented in Figure S8.