

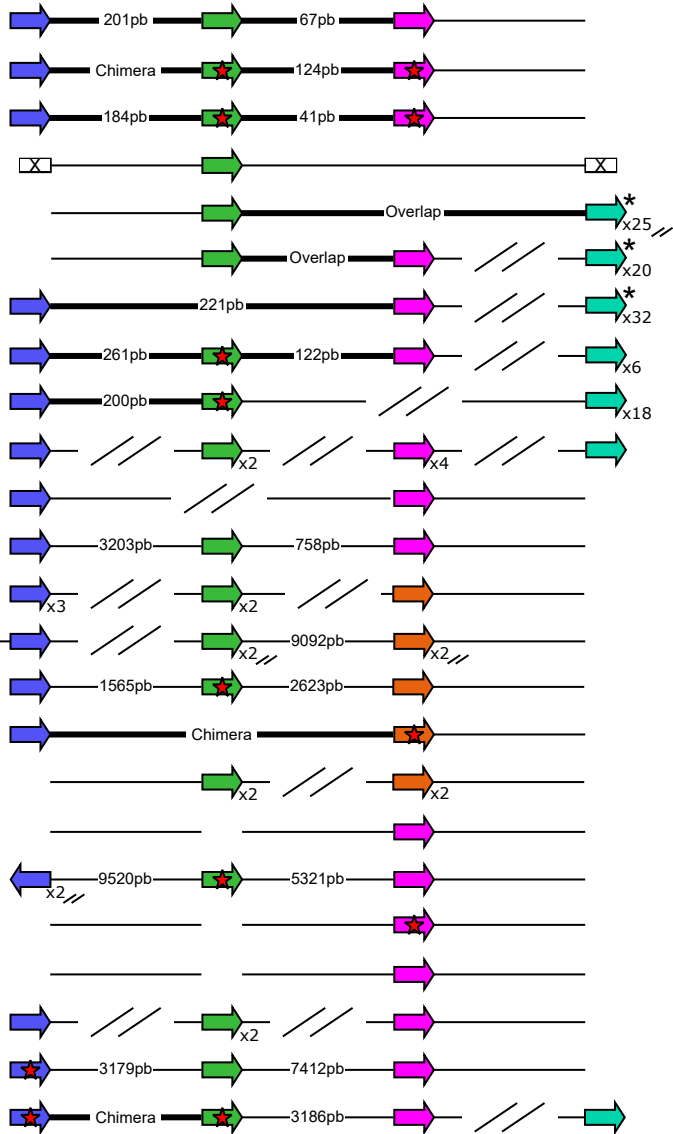
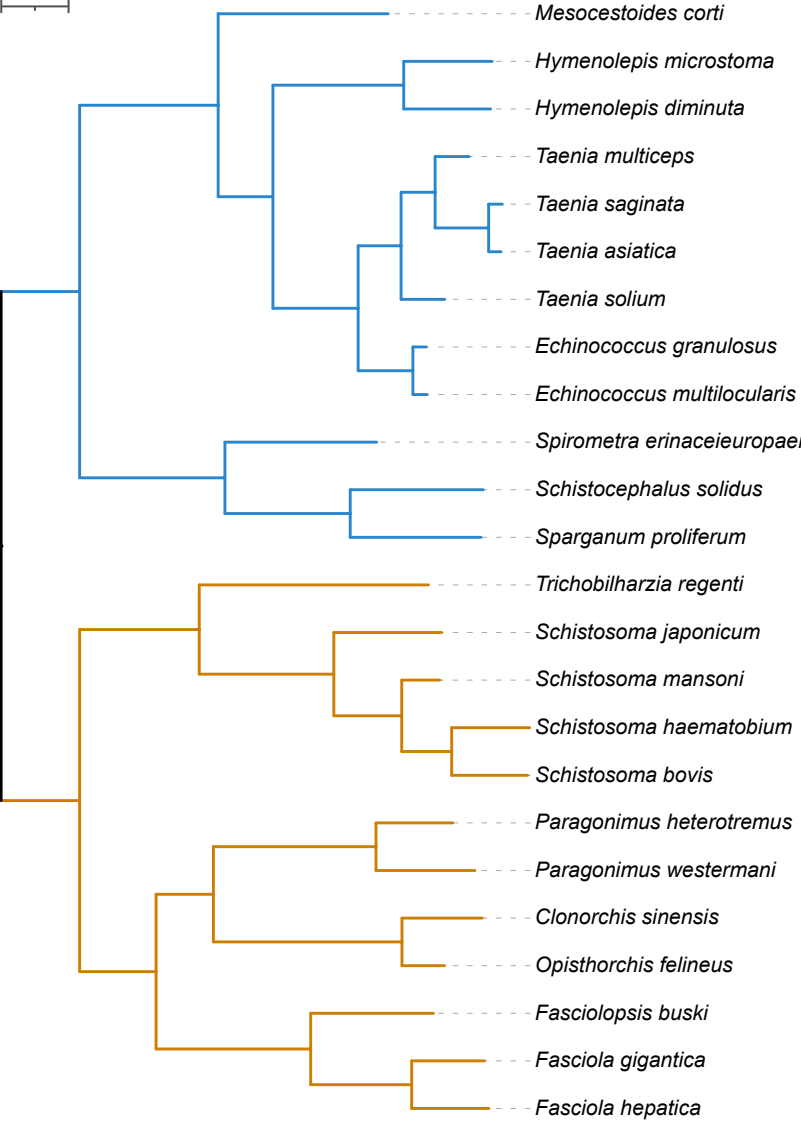
**Supplementary File 6:** Sketches for the manually analyzed operon candidates that were selected based on their HOG pairs exclusiveness for Cestodes or Trematodes; and/or their association with one with the HOGs selected by their expression level.

**Index:**

Pag. 2: Op1	Pag. 25: Op24
Pag. 3: Op2	Pag. 26: Op25
Pag. 4: Op3	Pag. 27: Op26
Pag. 5: Op4	
Pag. 6: Op5	
Pag. 7: Op6	
Pag. 8: Op7	
Pag. 9: Op8	
Pag. 10: Op9	
Pag. 11: Op10	
Pag. 12: Op11	
Pag. 13: Op12	
Pag. 14: Op13	
Pag. 15: Op14	
Pag. 16: Op15	
Pag. 17: Op16	
Pag. 18: Op17	
Pag. 19: Op18	
Pag. 20: Op19	
Pag. 21: Op20	
Pag. 22: Op21	
Pag. 23: Op22	
Pag. 24: Op23	

# Op1

Tree scale: 0.1

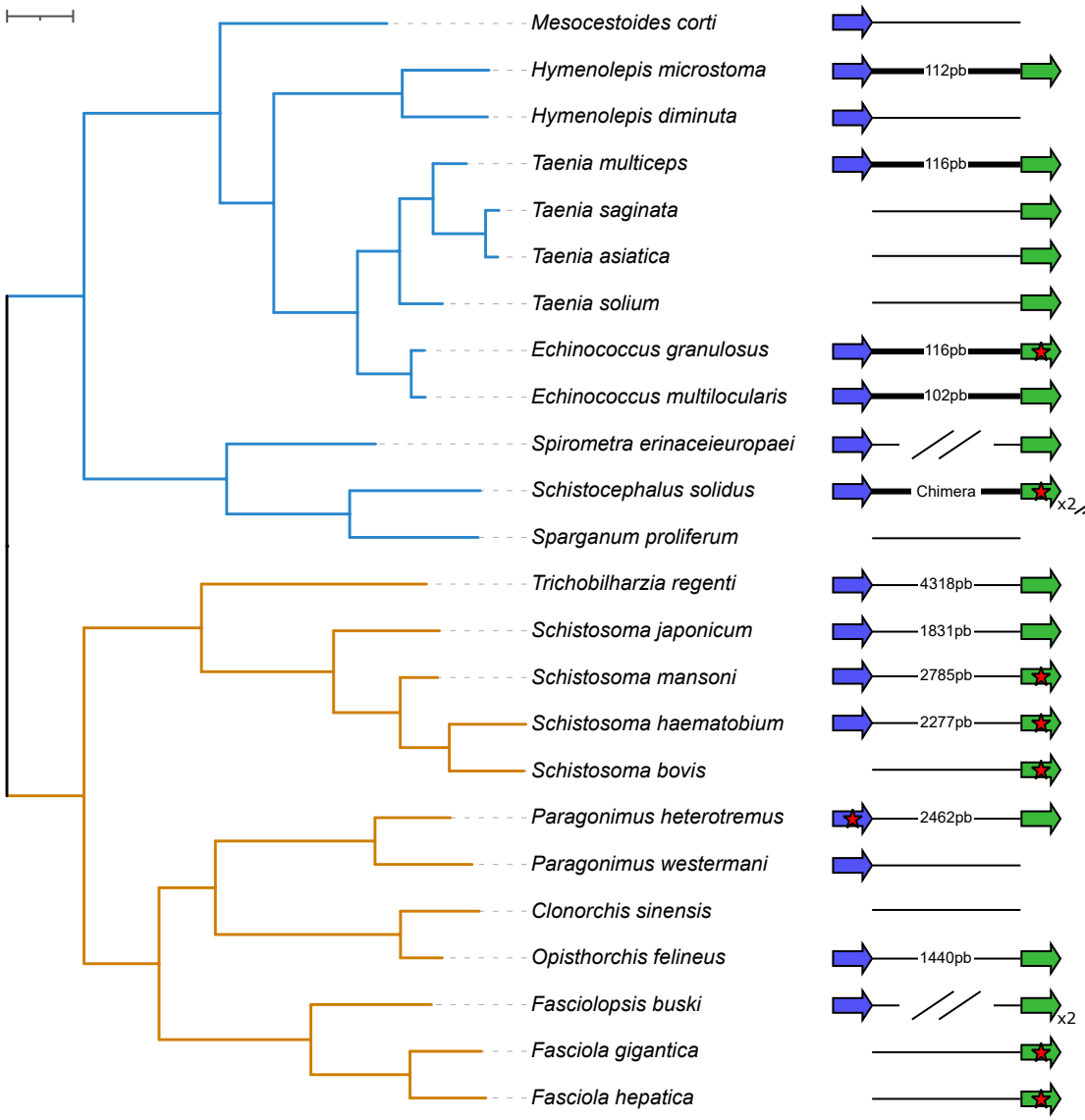


- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0003427
- ➡ N0.HOG0003428
- ➡ N0.HOG0008150
- ➡ N0.HOG0008149
- ➡ N0.HOG0000049
- ☒ Omitted information

Omitted data: There are 8 representatives of N0.HOG0000049 in the same contig than N0.HOG0003428 (gene Tm1G005423), plus another 14 in other contigs. The closer of the eight is at ~3955kb

# Op2

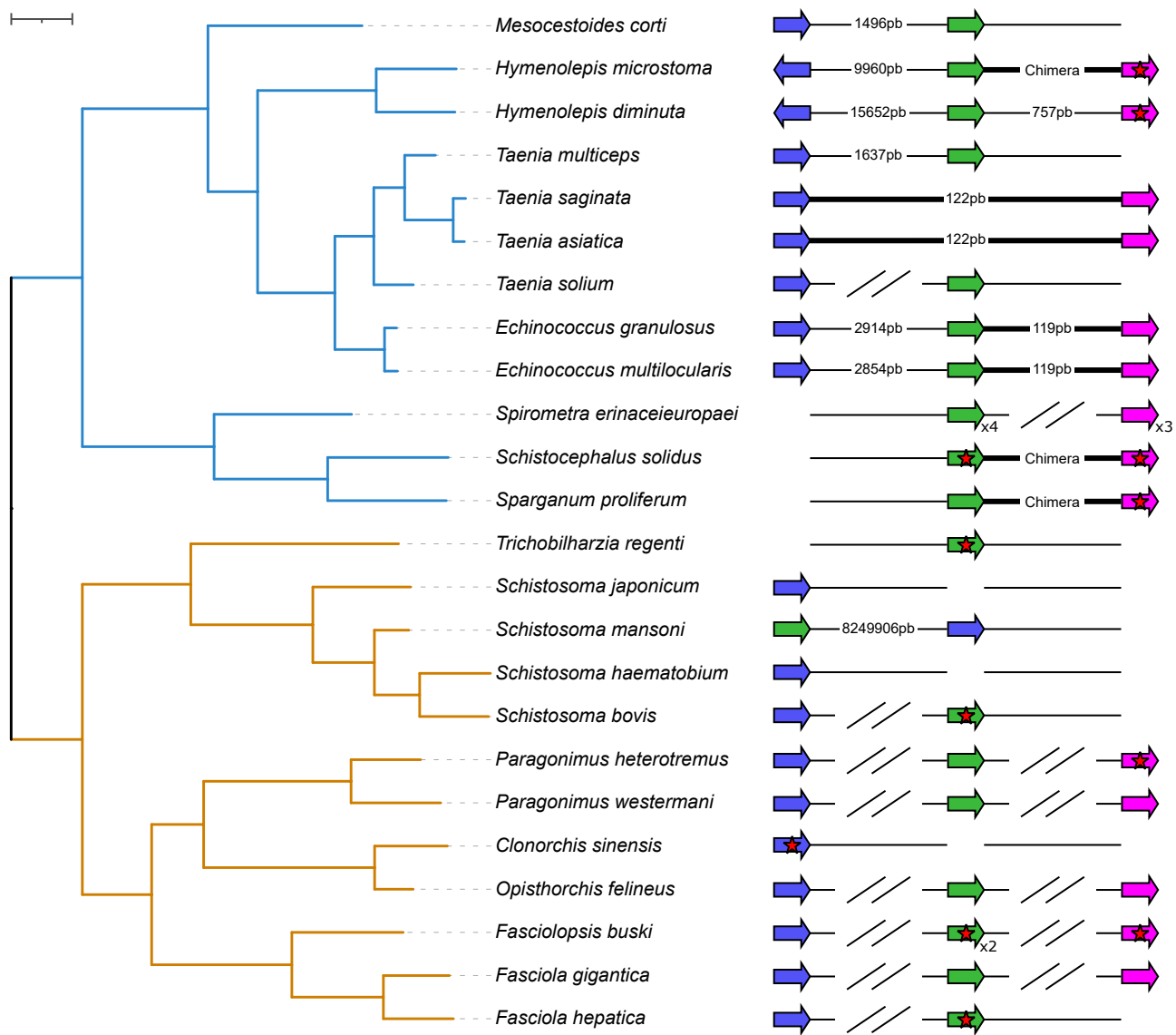
Tree scale: 0.1



- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0005057
- ➡ N0.HOG0005058

Op3

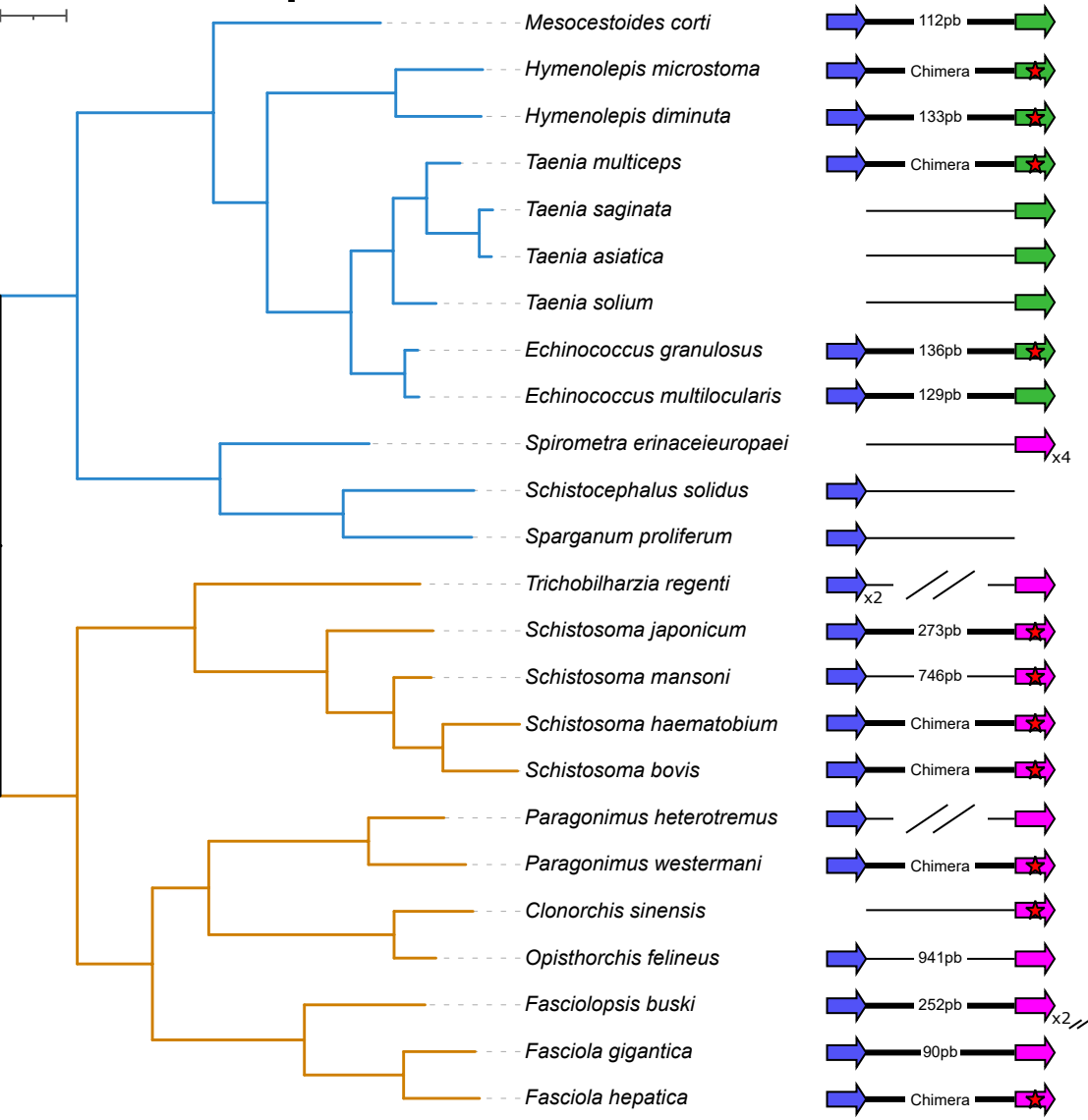
Tree scale: 0.1



- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0005019
- ➡ N0.HOG0010778
- ➡ N0.HOG0012341

Tree scale: 0.1

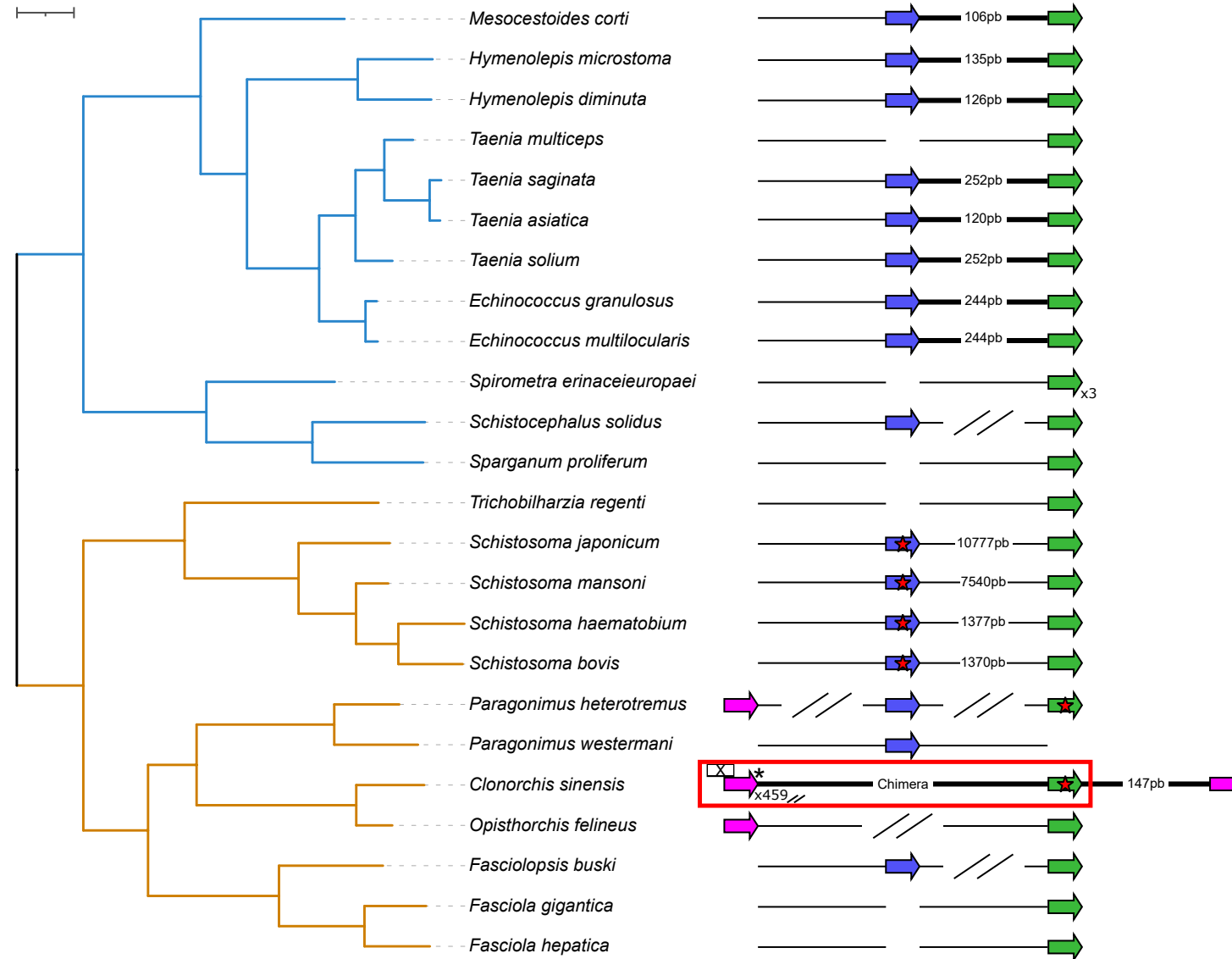
Op4



- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0011332
- ➡ N0.HOG0003821
- ➡ N0.HOG0003822

# Op5

Tree scale: 0.1

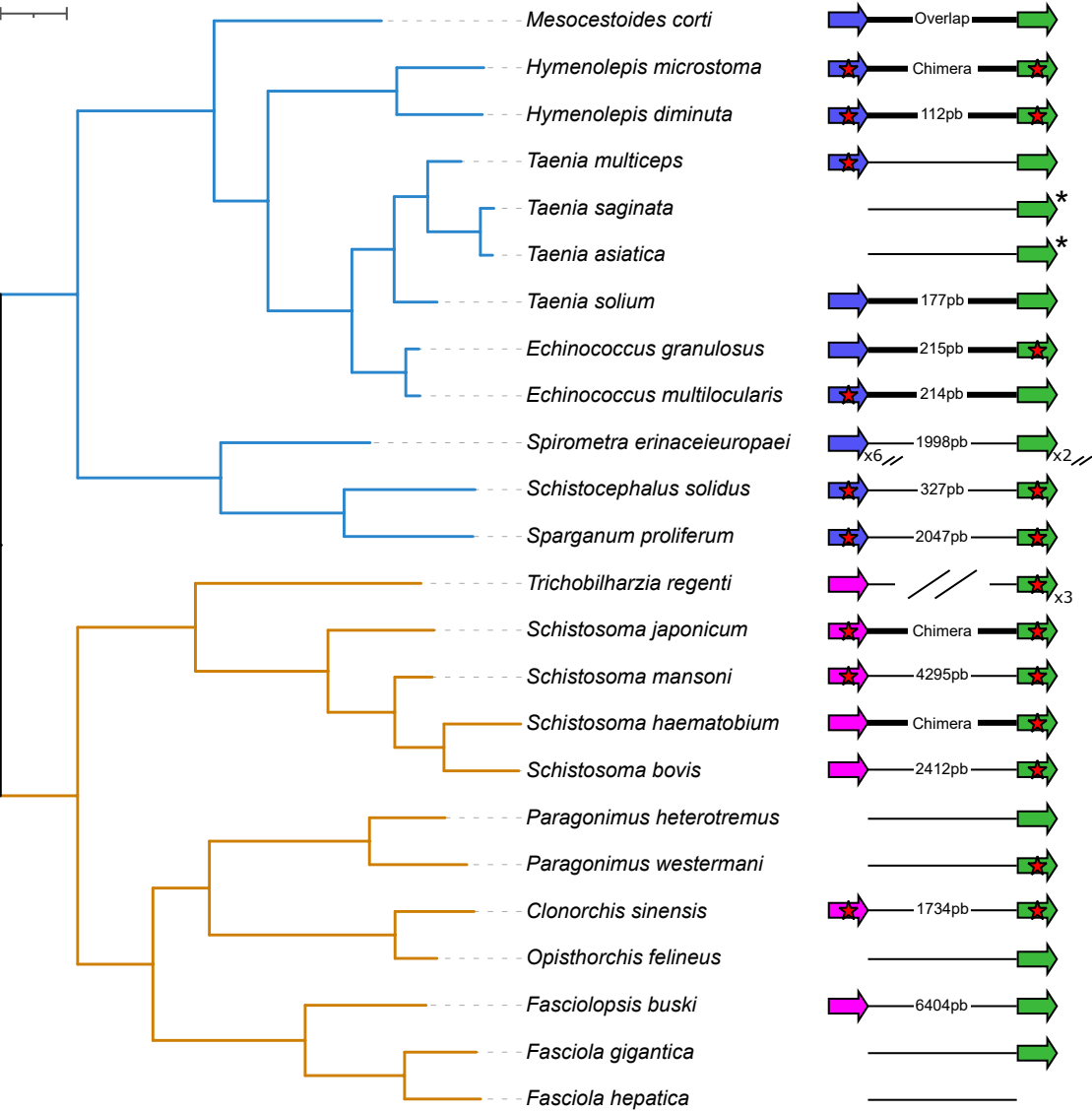


- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0012340
- ➡ N0.HOG0009961
- ➡ N0.HOG0000286
- ☒ Omitted information
- ☐ Potential gain of SL trans-splicing

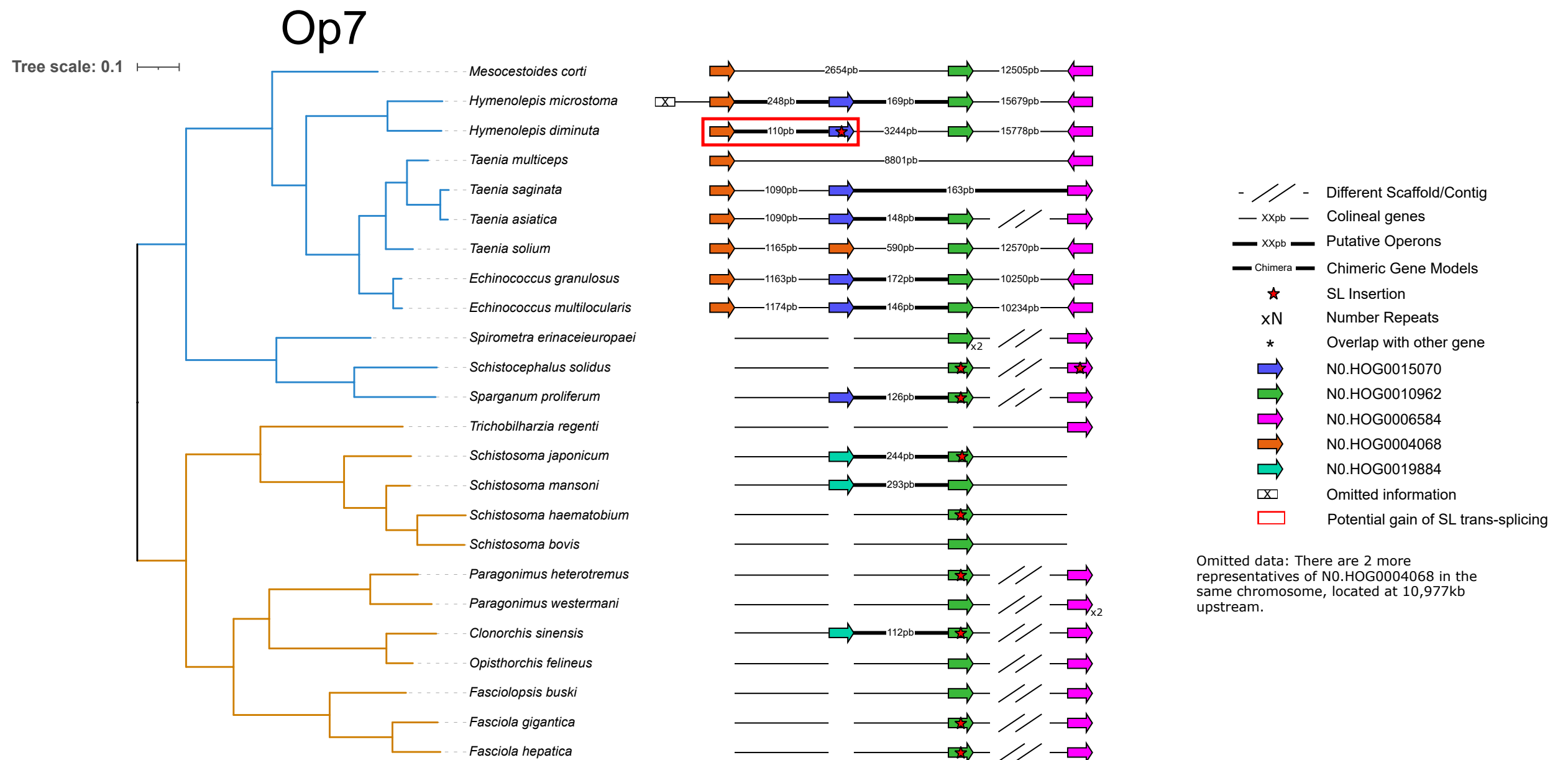
Omitted data: there are 4 additional representatives on this contig. The closest one located at ~66kb.

Tree scale: 0.1

Op6



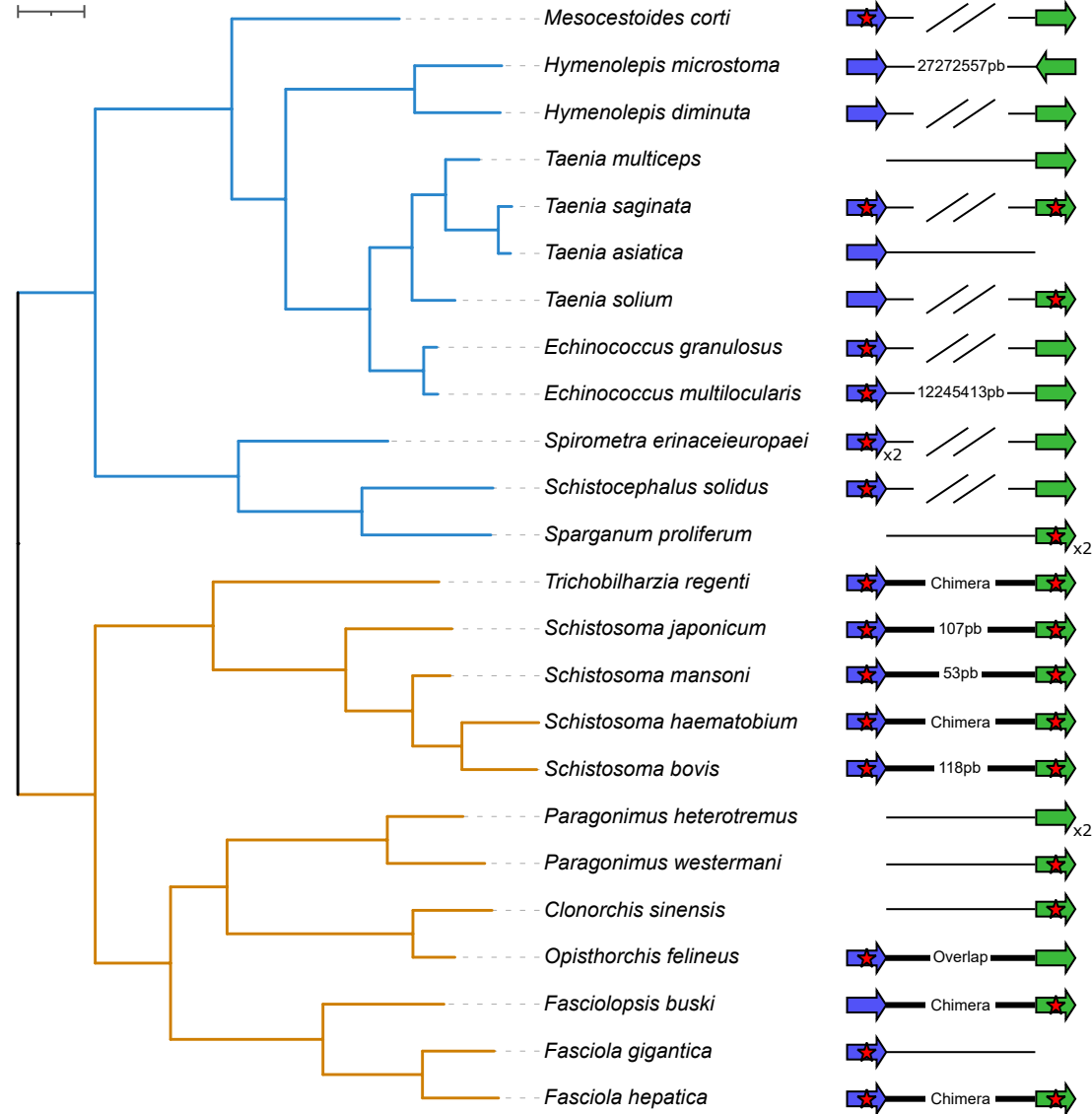
- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- Blue arrow N0.HOG0012554
- Green arrow N0.HOG0009668
- Pink arrow N0.HOG0014511





Tree scale: 0.1

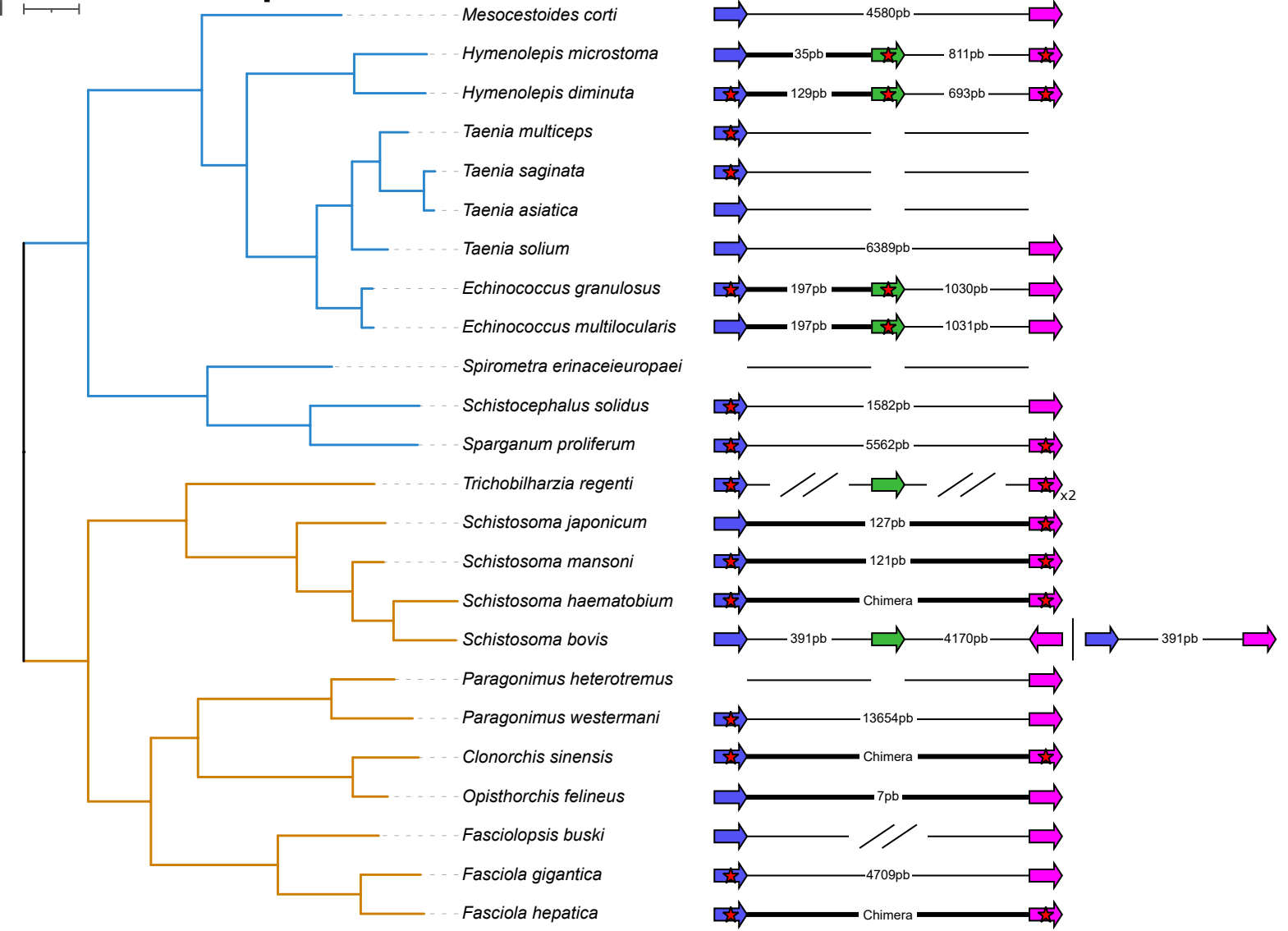
# Op8



- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0011542
- ➡ N0.HOG0002707

Tree scale: 0.1

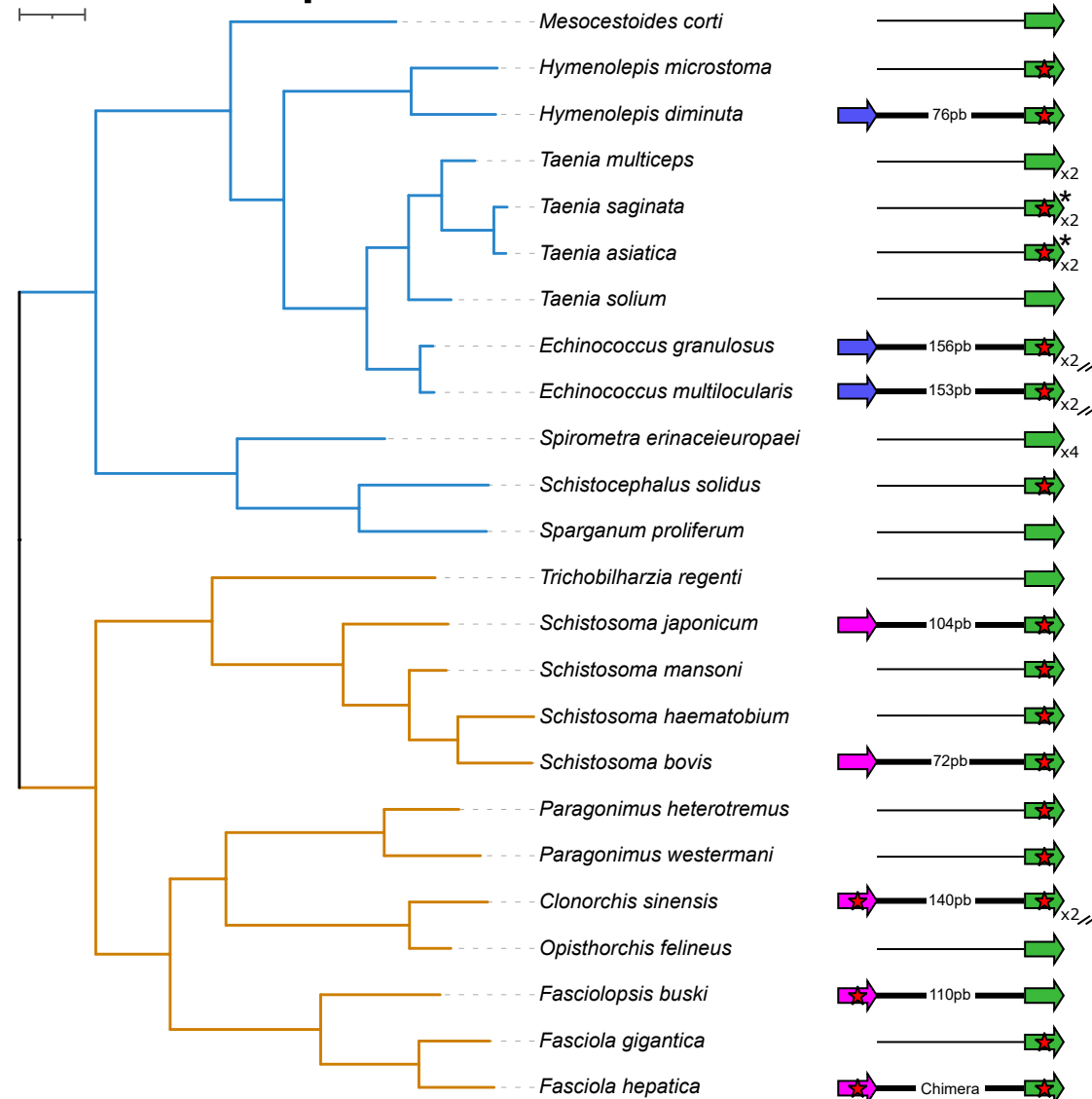
# Op9



- // - Different Scaffold/Contig
- XXpb Colineal genes
- XXpb Putative Operons
- Chimera Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- N0.HOG0010740
- N0.HOG0015684
- N0.HOG0011037

Tree scale: 0.1

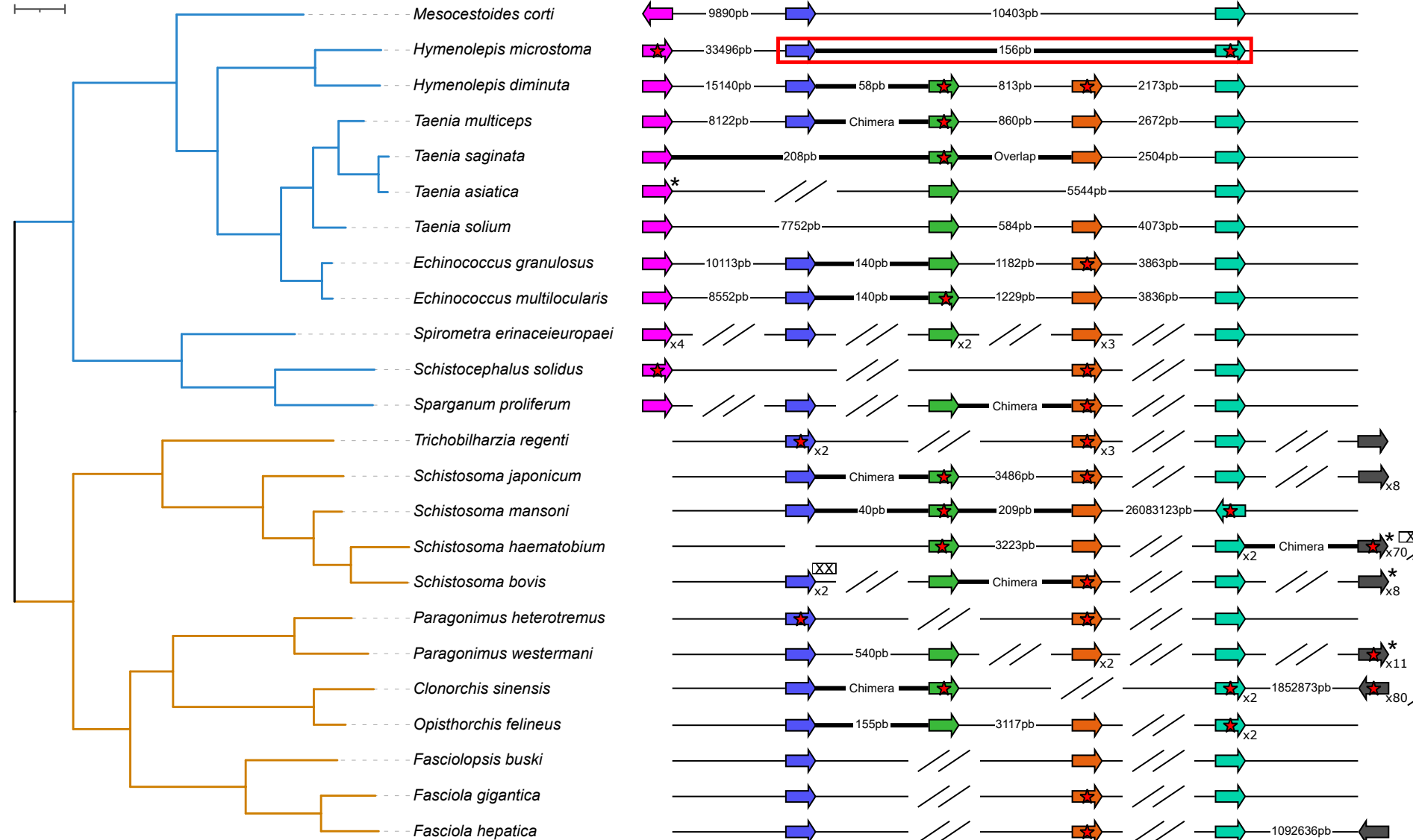
# Op10



- / - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0019220
- ➡ N0.HOG0006207
- ➡ N0.HOG0016412

# Op11

Tree scale: 0.1



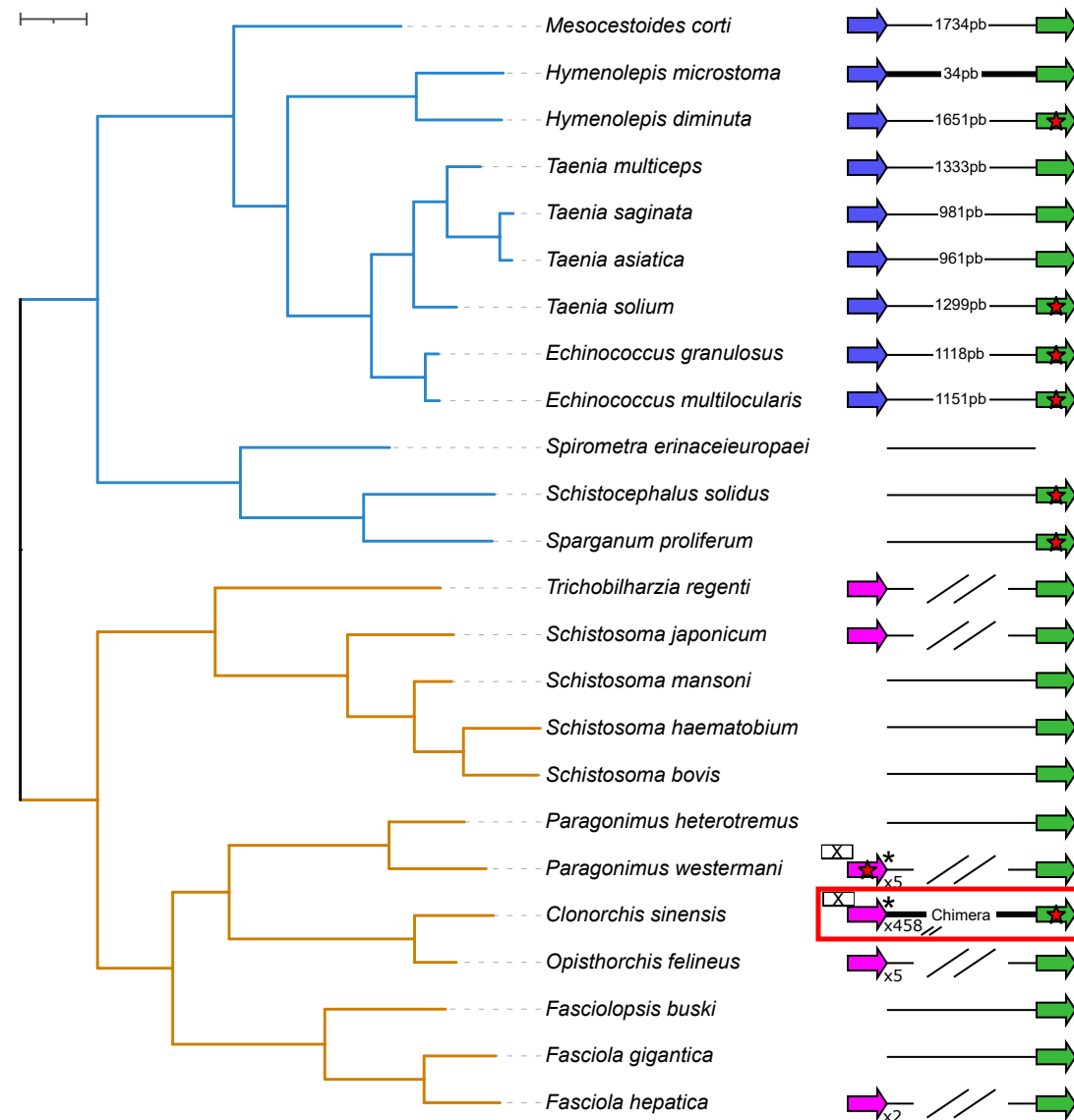
- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- N0.HOG0004578
- N0.HOG0004577
- N0.HOG0012528
- N0.HOG0009987
- N0.HOG0008654
- N0.HOG0000214
- ⊠ Omitted information
- ⊠ Potential gain of SL trans-splicing






⊠ Omitted data: Representatives of HOG N0.HOG0000214 form part of 21 putative operons in *C. sinensis*

⊠ Omitted data: One of N0.HOG0004578 representatives (gene DC041\_0011886) forms an operon with N0.HOG0008554 (gene N0.HOG0008554) on an isolated contig (SBOVIS\_4125)

# Op12

Tree scale: 0.1

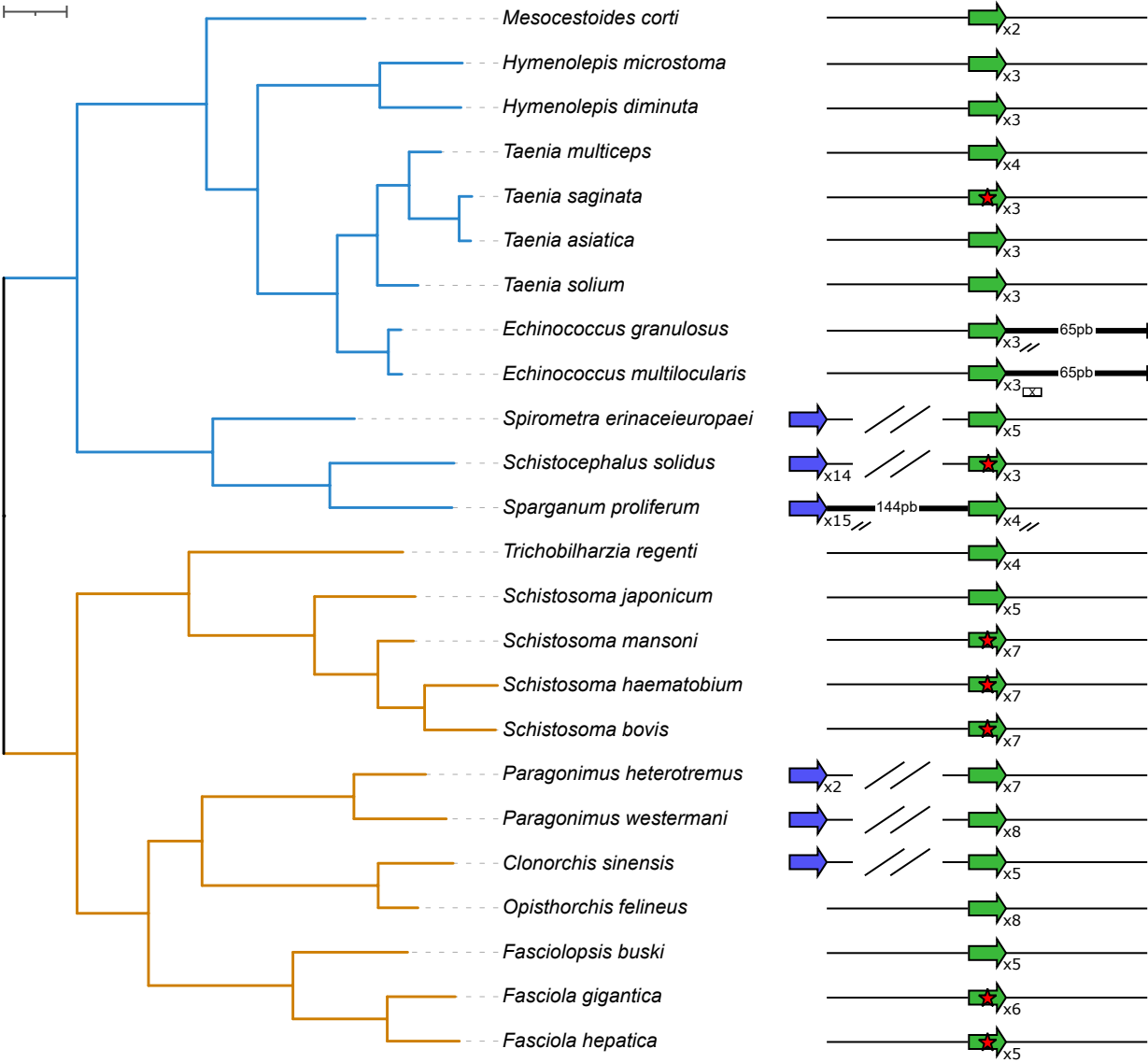


- |   |                                     |
|---|-------------------------------------|
| - // -  | Different Scaffold/Contig           |
| — XXpb —  | Colineal genes                      |
| ▬ XXpb ▬  | Putative Operons                    |
| ▬ Chimera ▬   | Chimeric Gene Models                |
| ★   | SL Insertion                        |
| xN  | Number Repeats                      |
| *   | Overlap with other gene             |
|  | N0.HOG0007476                       |
|  | N0.HOG0010755                       |
|  | N0.HOG0000285                       |
|  | Omitted information                 |
|  | Potential gain of SL trans-splicing |

Omitted data: Representatives of N0.HOG0000285 form part of multiple operon candidates in *Clonorchis sinensis* and *Paragonimus westermani* that are not displayed here.

# Op13

Tree scale: 0.1

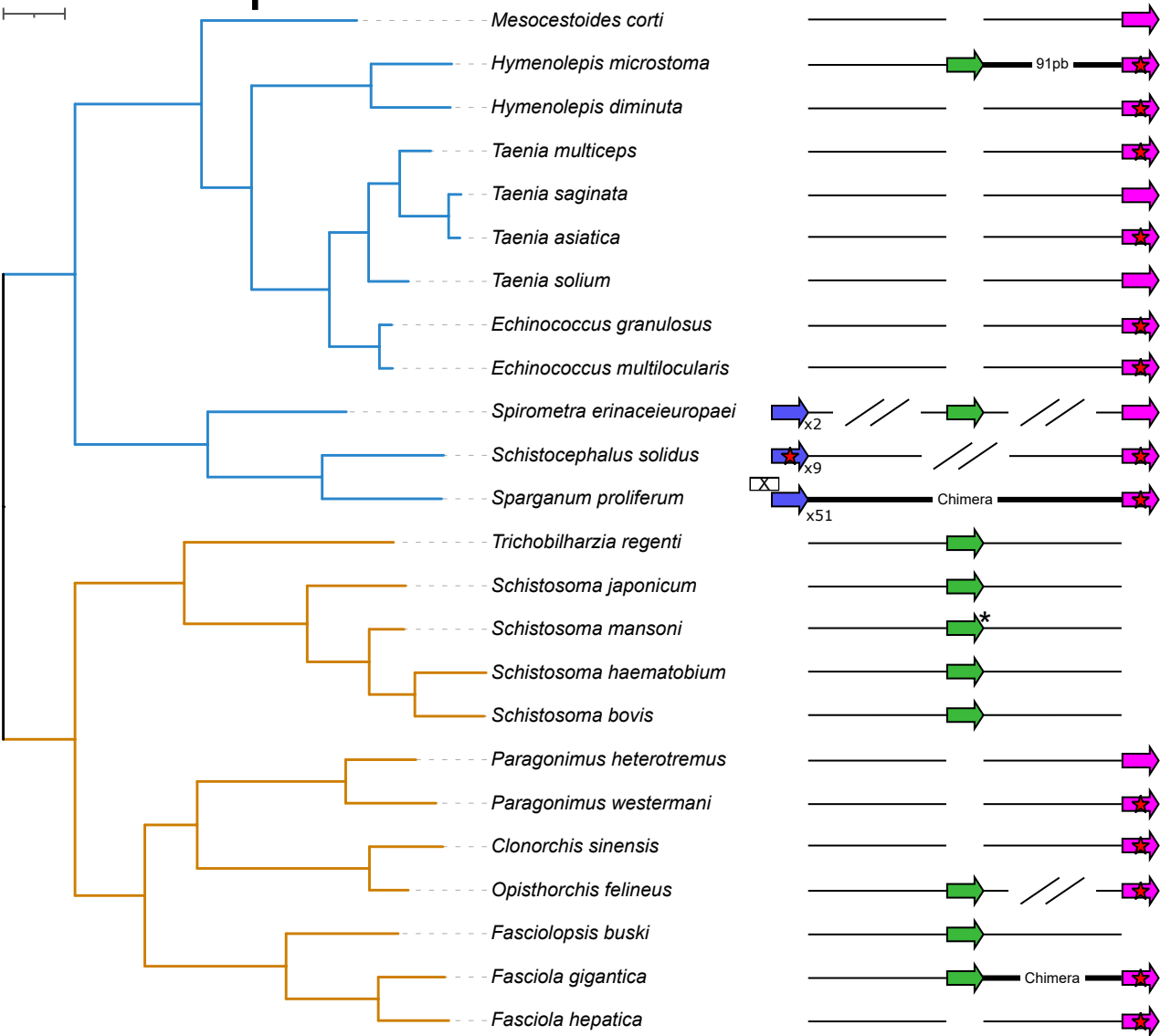


- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0005657
- ➡ N0.HOG0000876
- ➡ N0.HOG0022145
- ☒ Omitted information

Omitted data: The other 2 representatives of N0.HOG0000876 are located in the same chromosome. The closest one at ~5,124Kb.

Tree scale: 0.1

# Op14

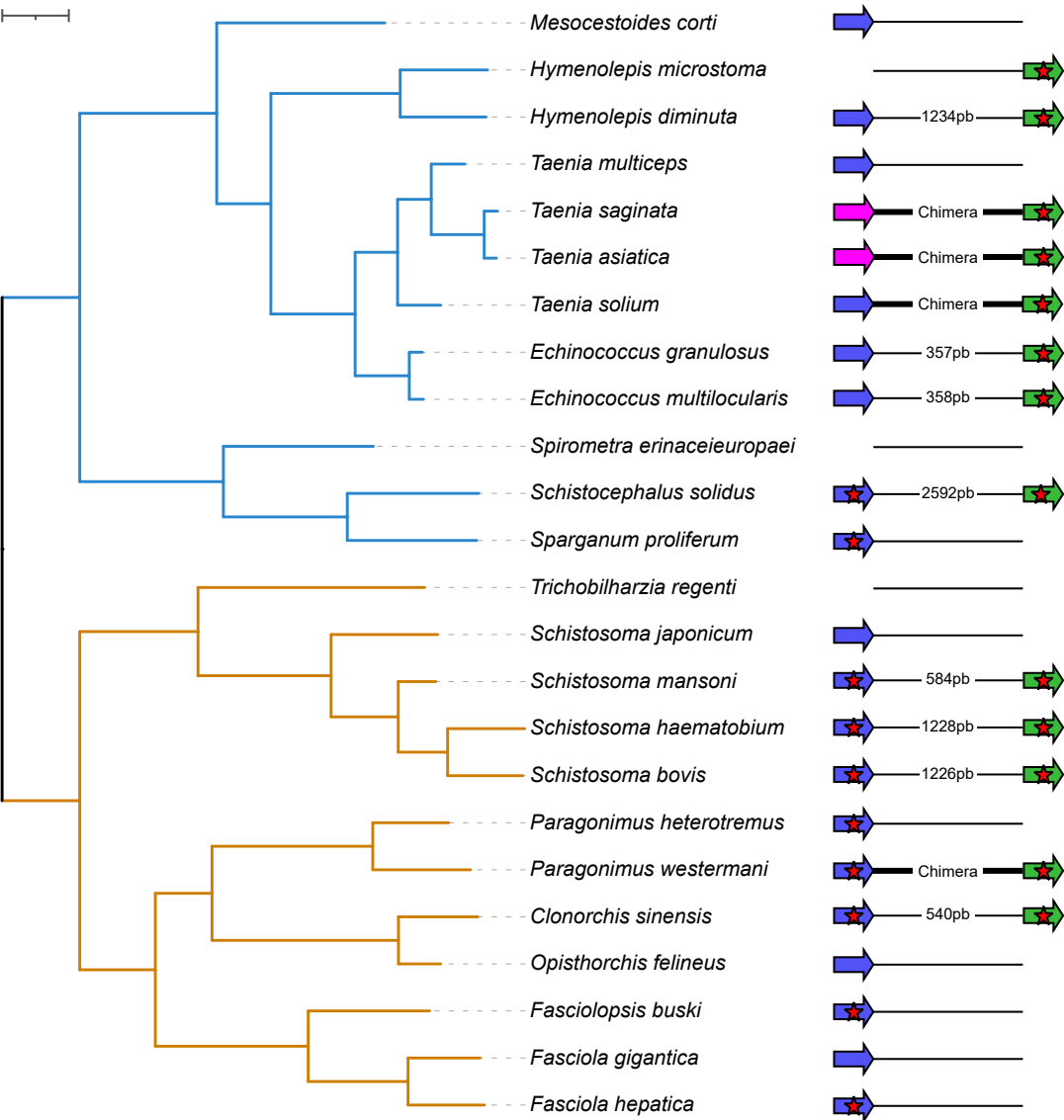


- // - Different Scaffold/Contig
- XXpb Colineal genes
- XXpb Putative Operons
- Chimera Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0002183
- ➡ N0.HOG0008513
- ➡ N0.HOG0008512
- ☒ Omitted information

Omitted data: N0.HOG0002183 has multiple representatives that are involved in many other operons, not showed on this diagram.

# Op15

Tree scale: 0.1

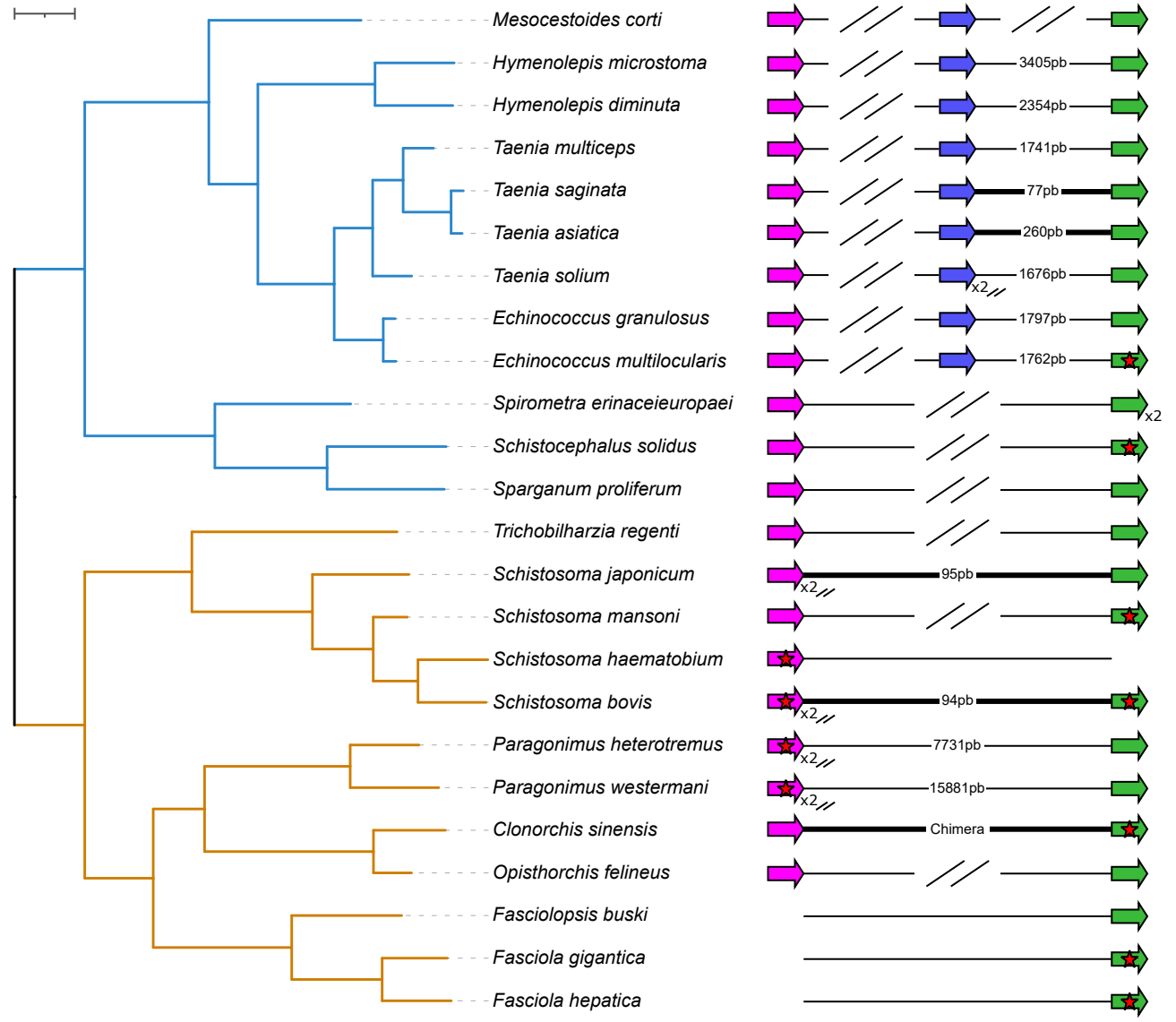


- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0004435
- ➡ N0.HOG0012854
- ➡ N0.HOG0004434



# Op16

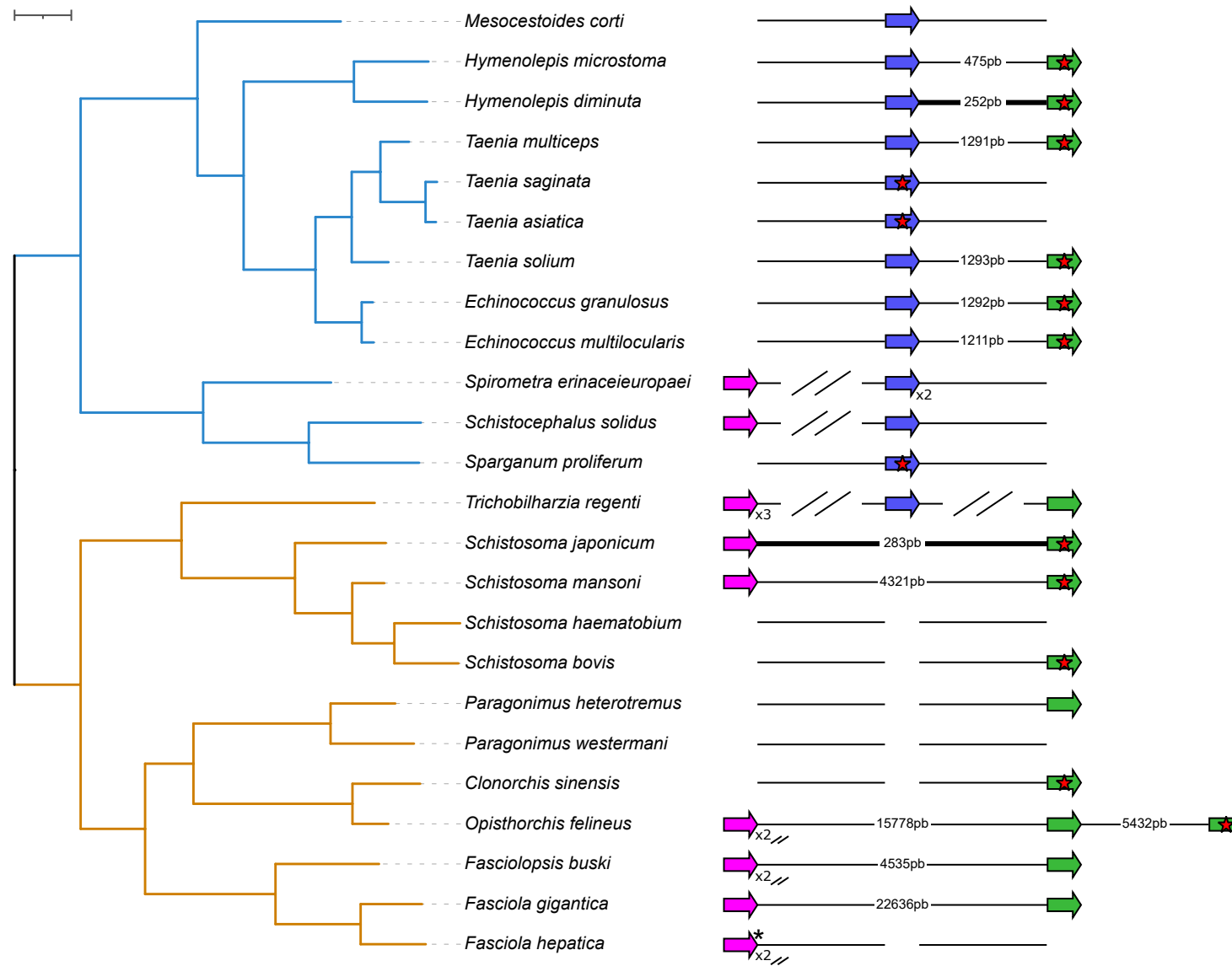
Tree scale: 0.1



- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0005820
- ➡ N0.HOG0010377
- ➡ N0.HOG0009964

# Op17

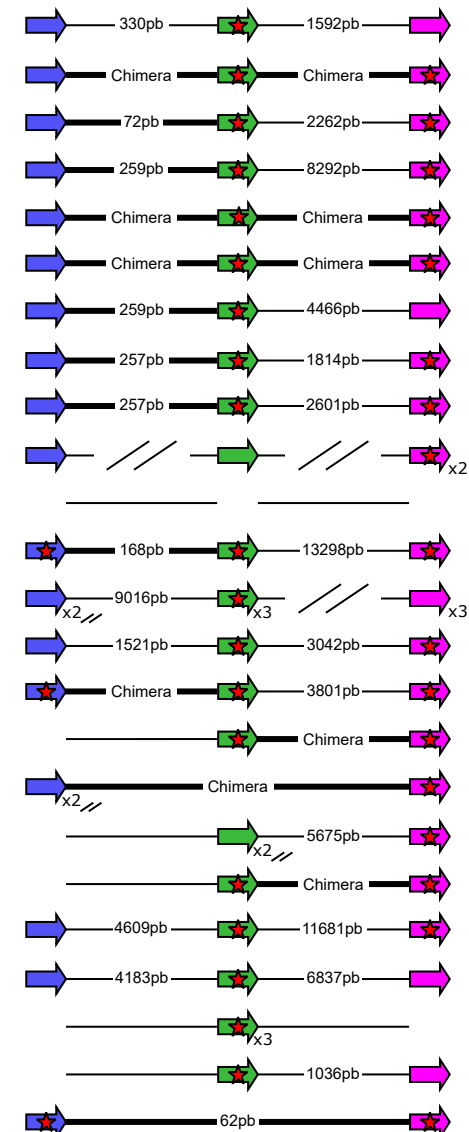
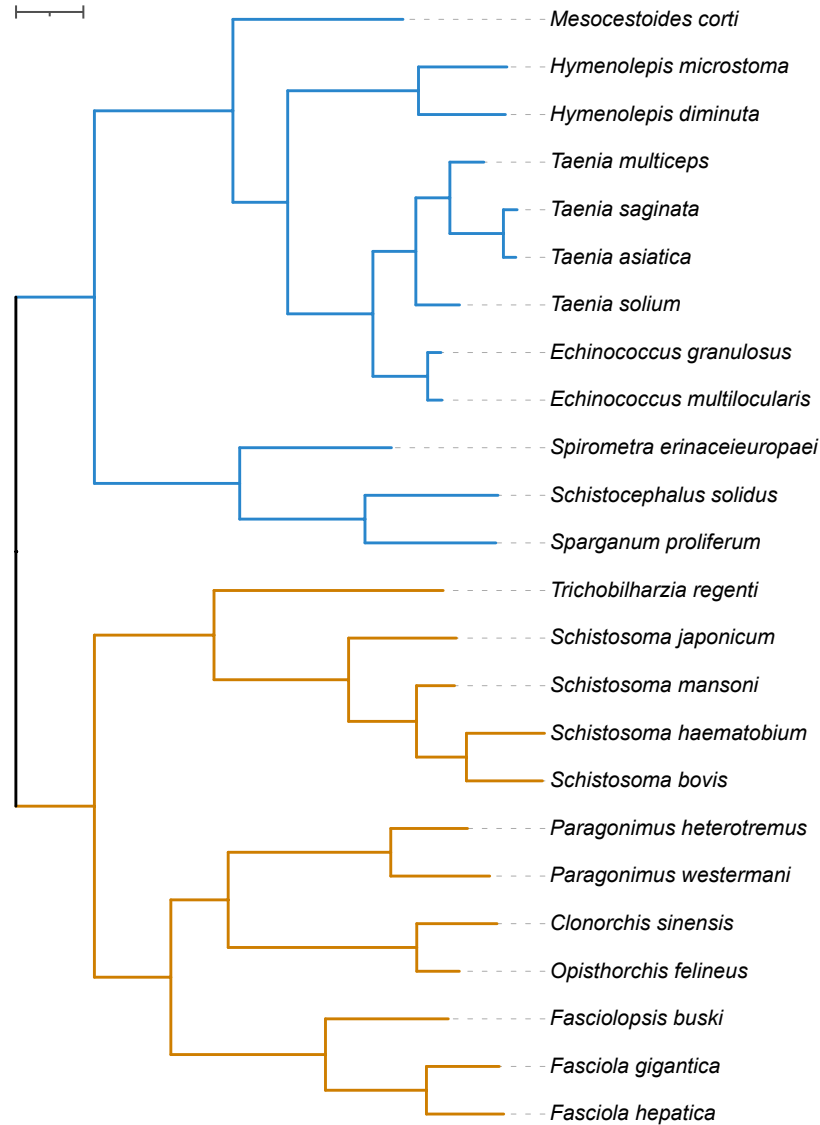
Tree scale: 0.1



- // - Different Scaffold/Contig
- XXpb Colineal genes
- XXpb Putative Operons
- Chimera Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0006355
- ➡ N0.HOG0004575
- ➡ N0.HOG0006356

# Op18

Tree scale: 0.1

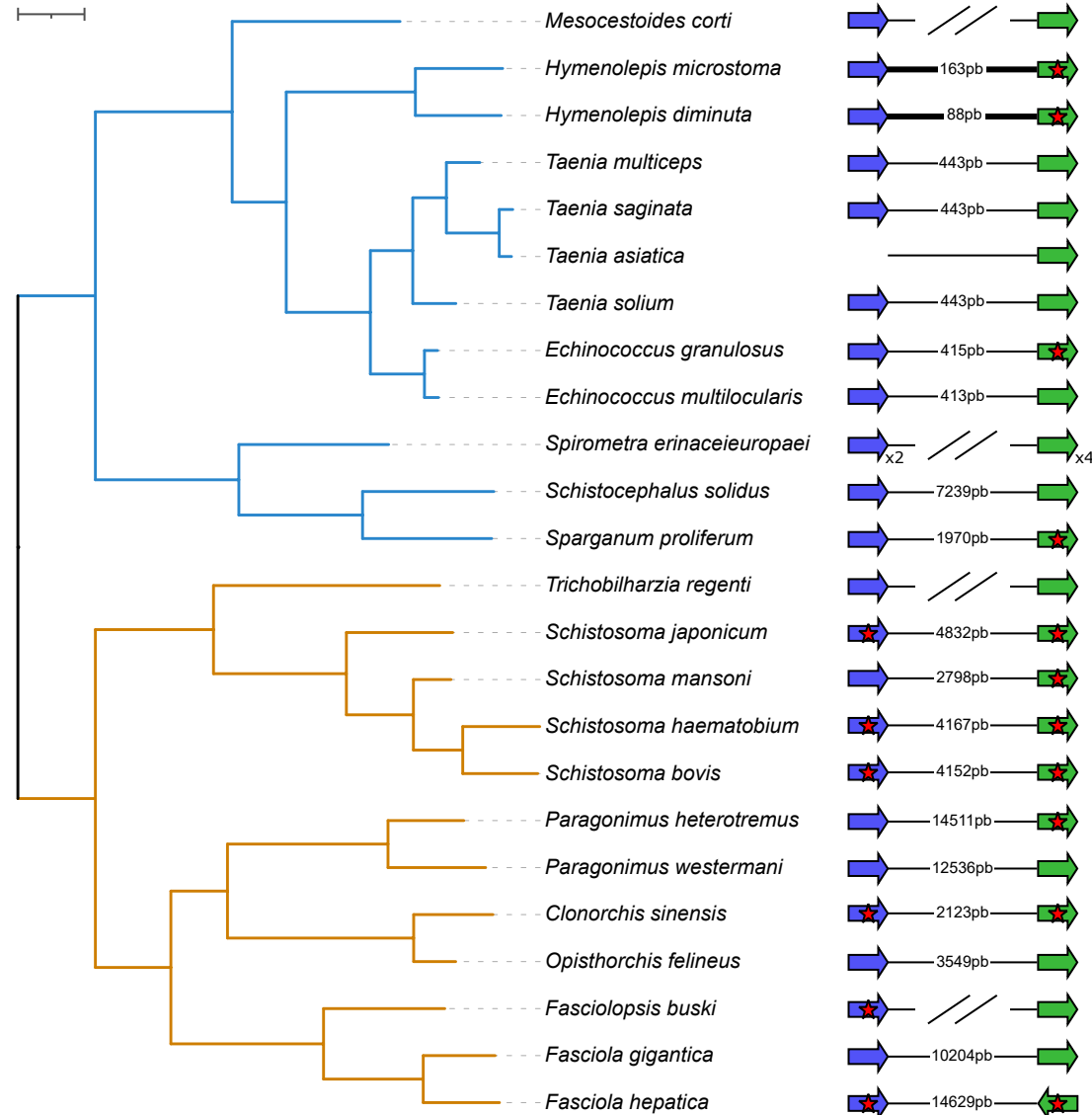


- // - Different Scaffold/Contig
- XXpb Colineal genes
- XXpb Putative Operons
- Chimera Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0011496
- ➡ N0.HOG0008418
- ➡ N0.HOG0010248



# Op19

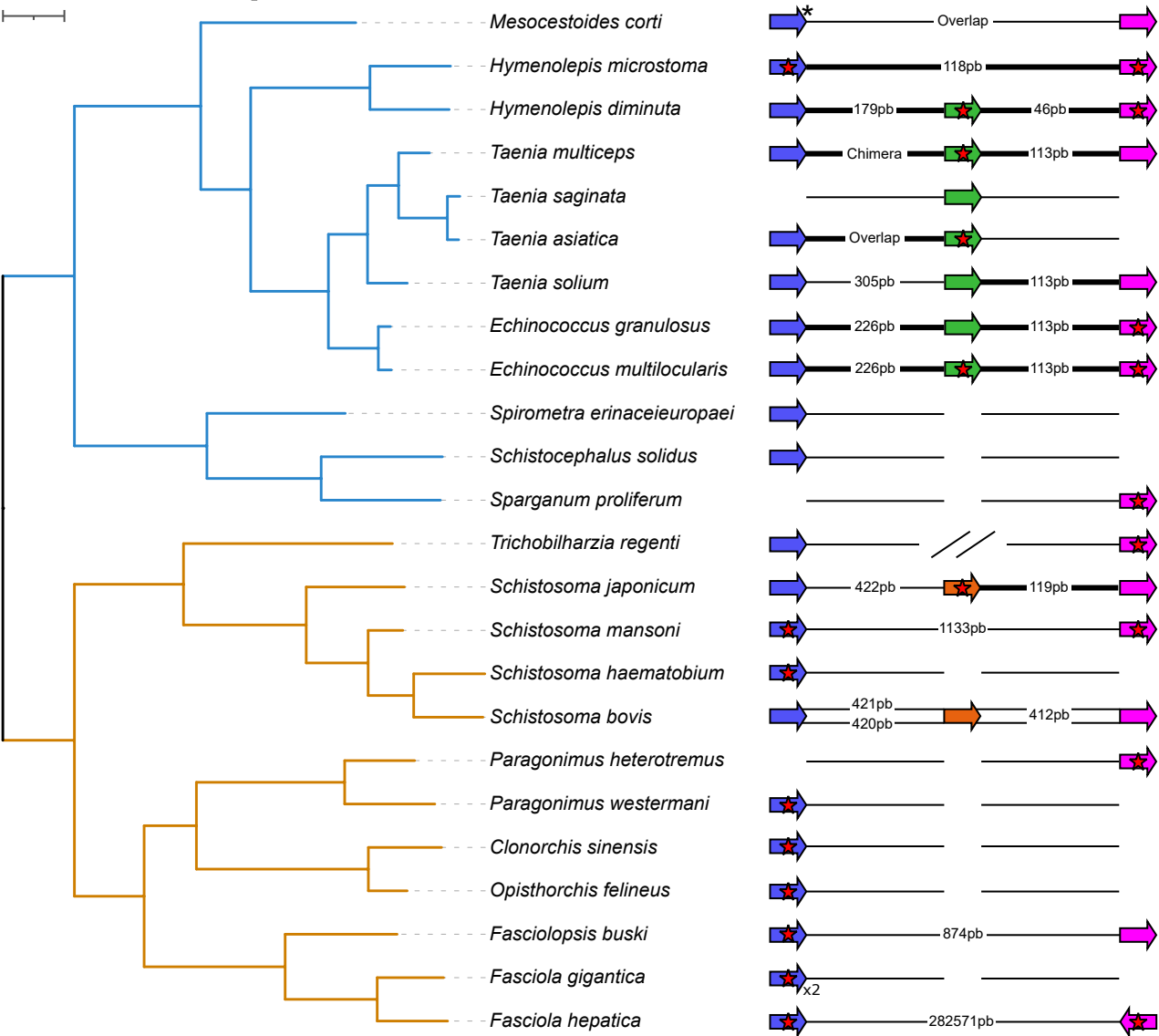
Tree scale: 0.1



- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- Blue arrow N0.HOG0010318
- Green arrow N0.HOG0008973

Tree scale: 0.1

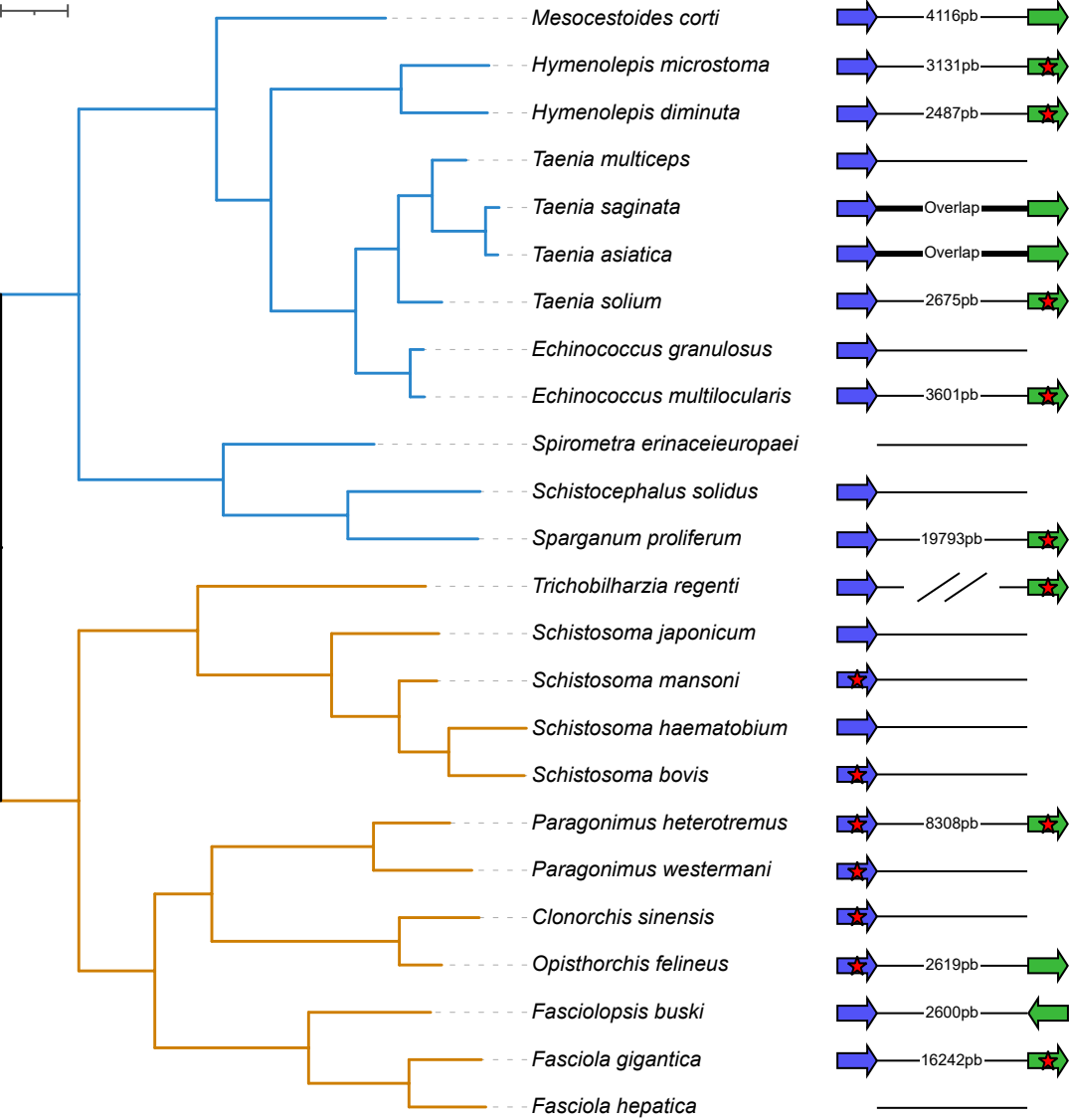
# Op20



- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- Blue arrow N0.HOG0010460
- Green arrow N0.HOG0015076
- Pink arrow N0.HOG0012348
- Orange arrow N0.HOG0020488

Tree scale: 0.1

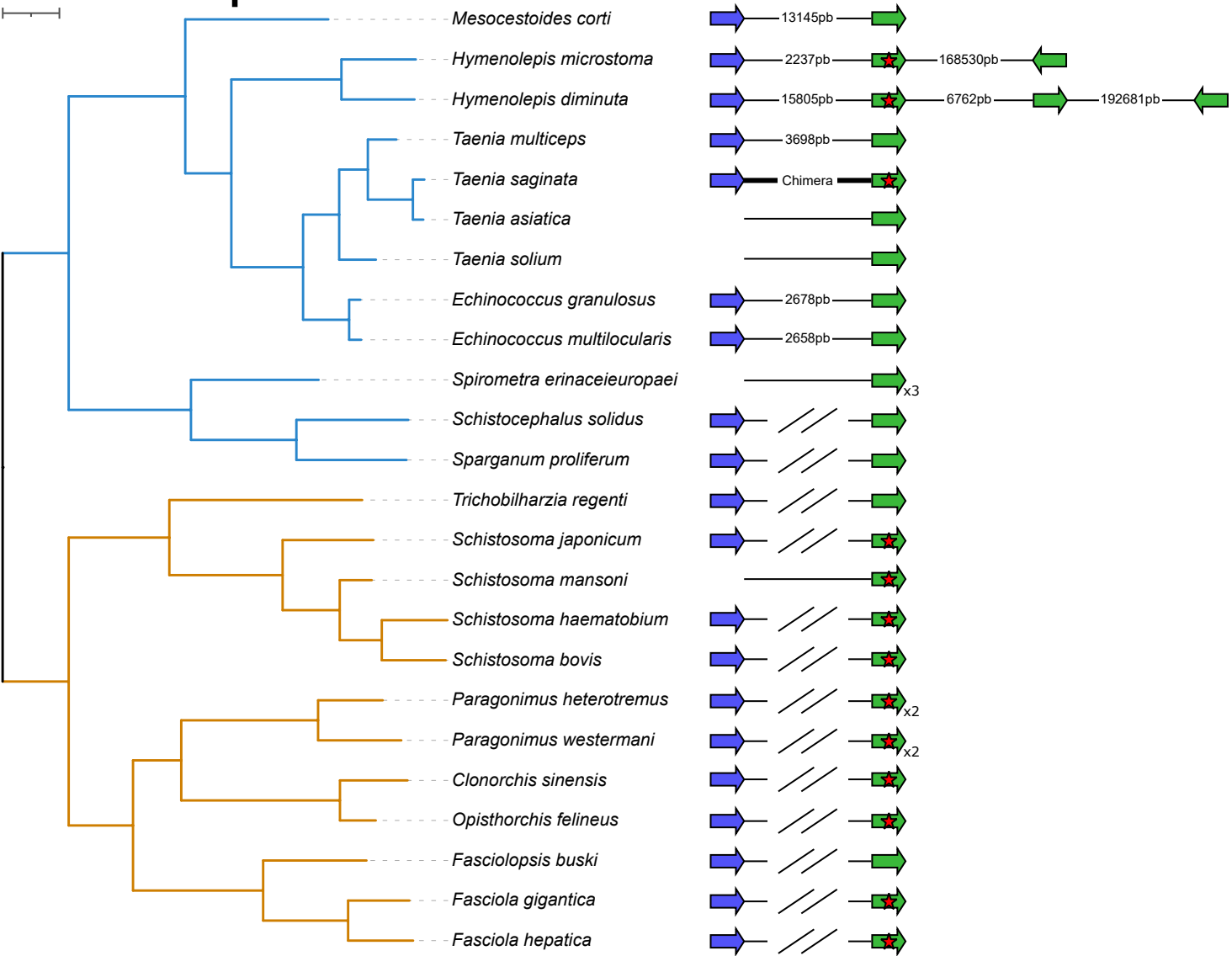
# Op21



- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- N0.HOG0010915
- N0.HOG0013022

Tree scale: 0.1

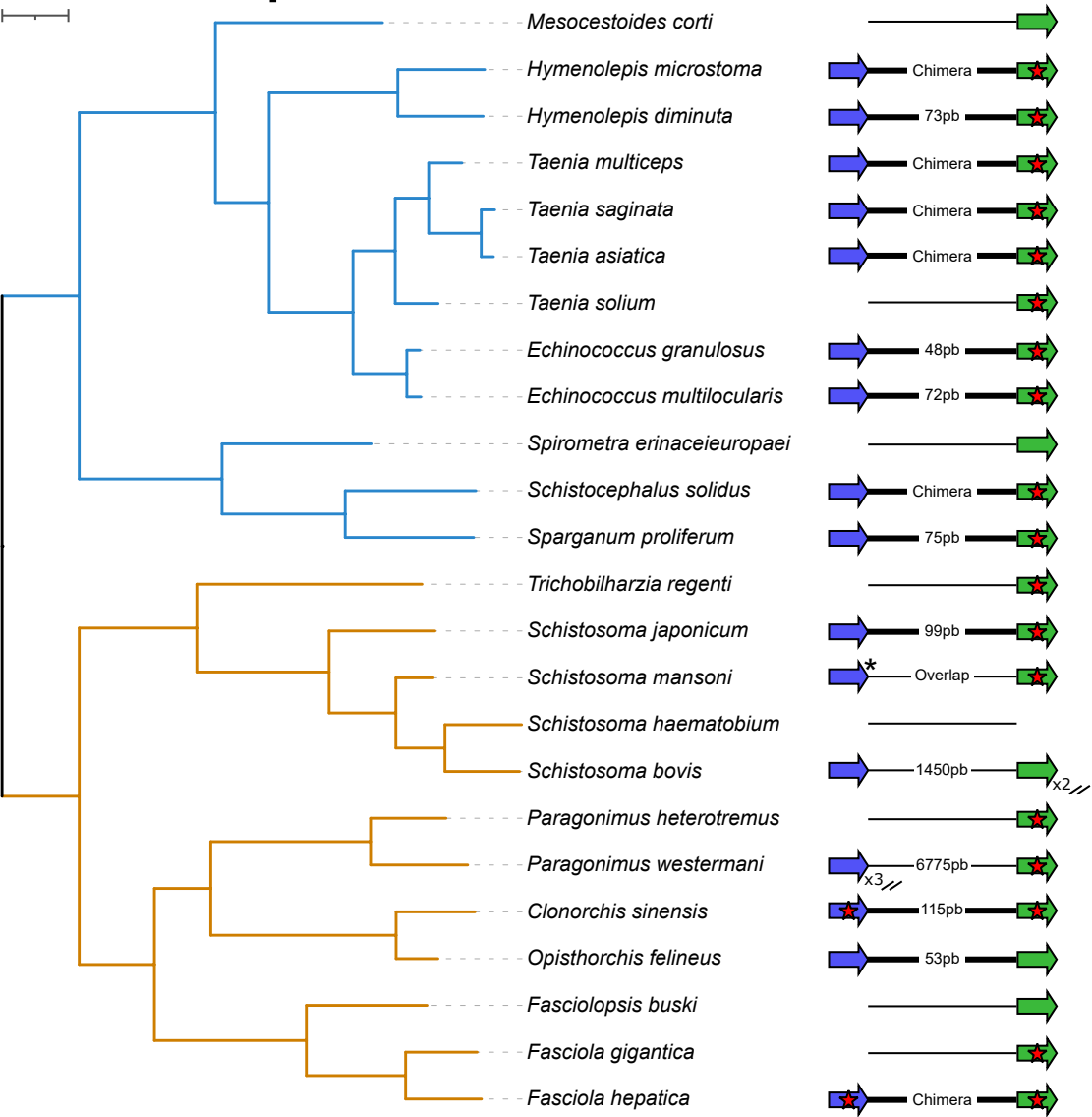
# Op22



- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0011432
- ➡ N0.HOG0006807

Tree scale: 0.1

# Op23

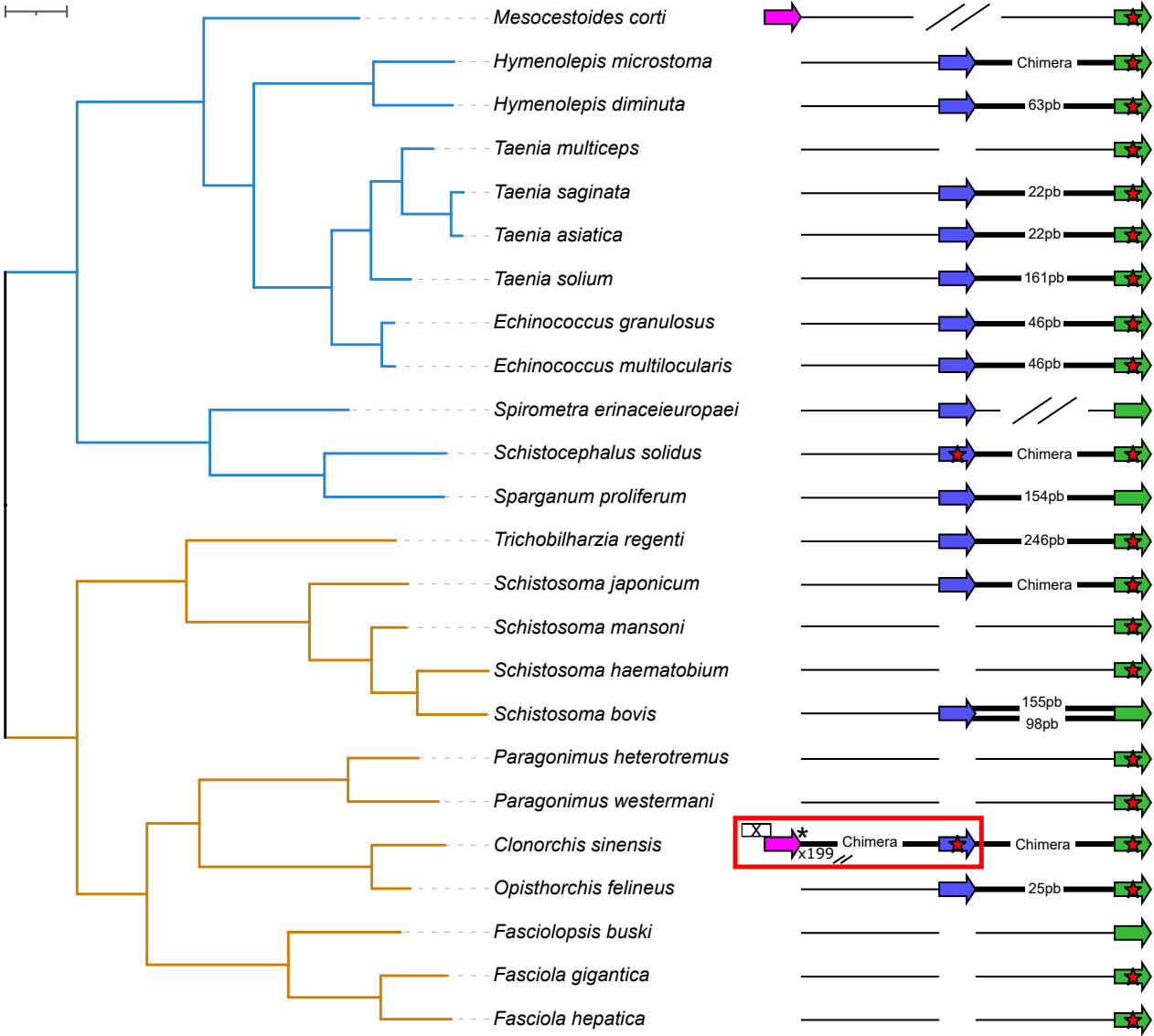


- // - Different Scaffold/Contig
- XXpb — Colinear genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0011925
- ➡ N0.HOG0010306



Tree scale: 0.1

# Op24

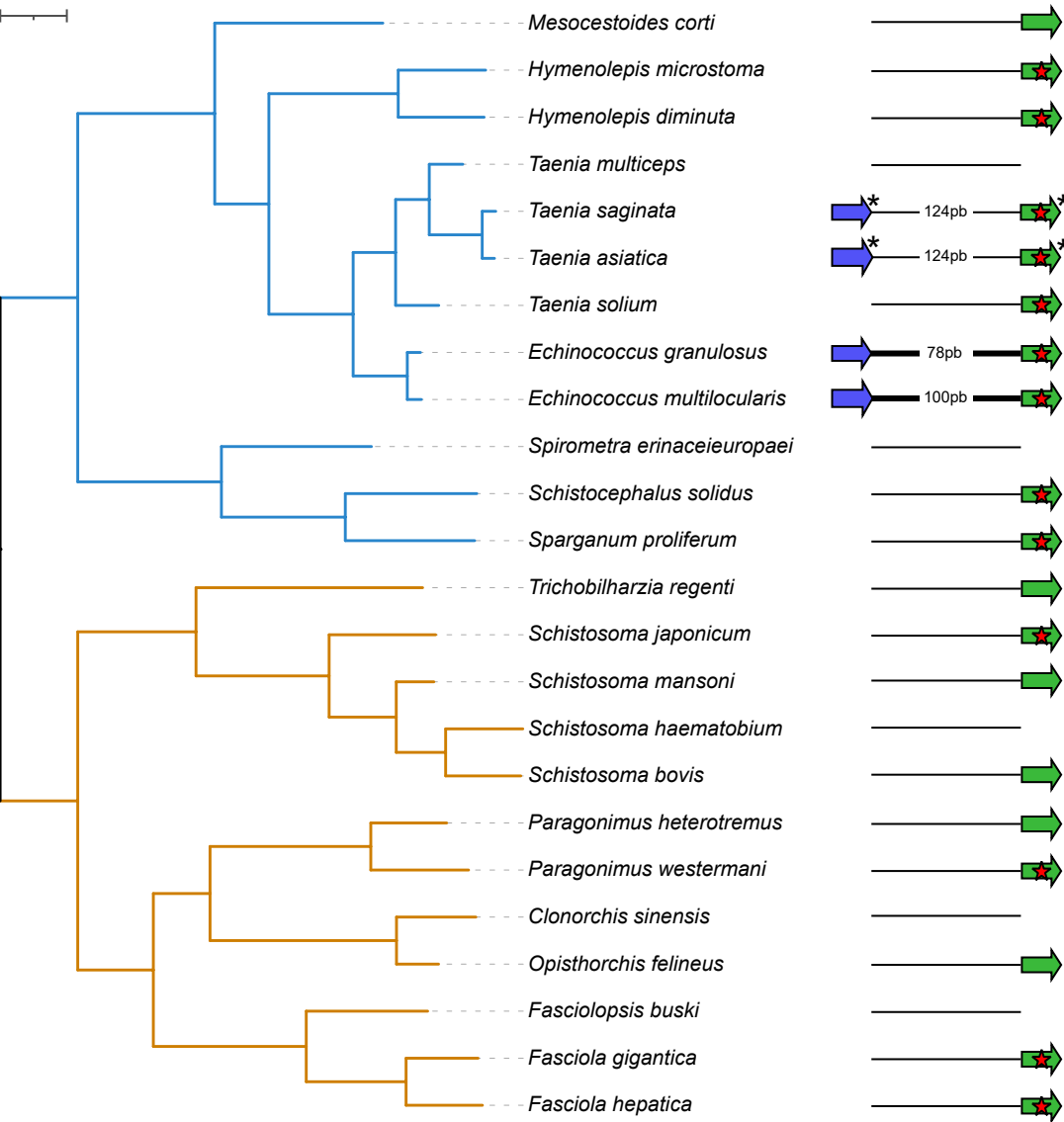


- // - Different Scaffold/Contig
- XXpb Colineal genes
- XXpb Putative Operons
- Chimera Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- N0.HOG0012318
- N0.HOG0009968
- N0.HOG0000648
- ⊠ Omitted information
- Potential gain of SL trans-splicing

Omitted data: N0.HOG0000648 has multiple representatives that are involved in 39 other operons candidates in *C. sinensis*

Op25

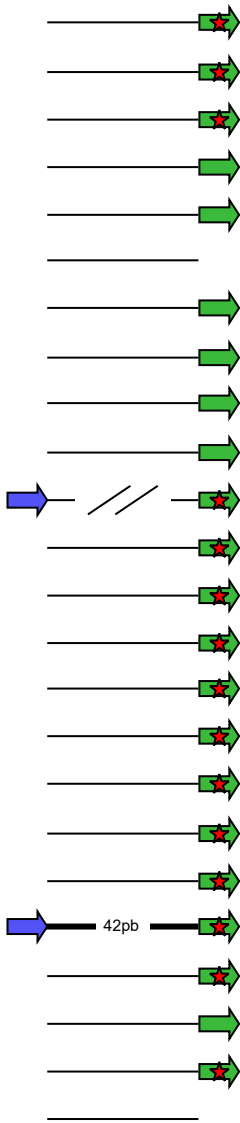
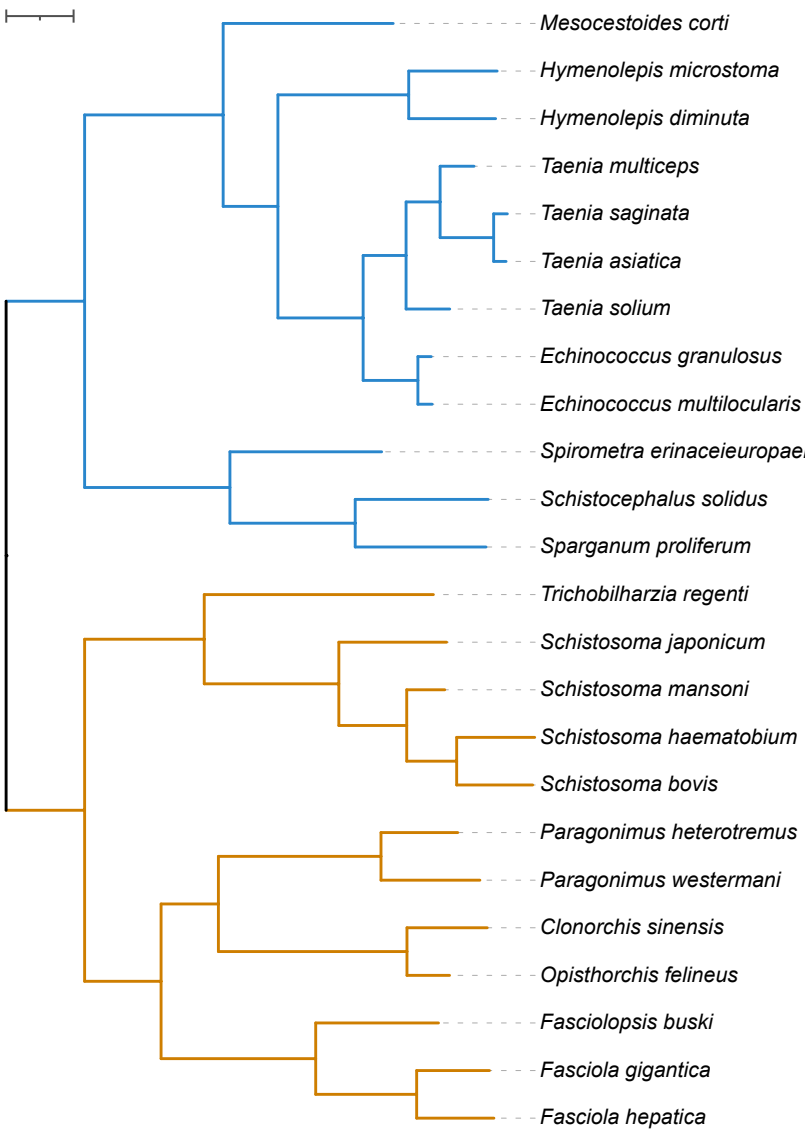
Tree scale: 0.1



- / - Different Scaffold/Contig
- xXpb — Colinear genes
- xXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- N0.HOG0017591
- N0.HOG0011763

# Op26

Tree scale: 0.1



- // - Different Scaffold/Contig
- XXpb — Colineal genes
- XXpb — Putative Operons
- Chimera — Chimeric Gene Models
- ★ SL Insertion
- xN Number Repeats
- \* Overlap with other gene
- ➡ N0.HOG0022032
- ➡ N0.HOG0010953