

Systema Naturae.

The classification of living organisms.

© Alexey B. Shipunov

v. 5.601 (June 26, 2007)

Preface

Most of researches agree that kingdom-level classification of living things needs the special rules and principles. Two approaches are possible: (a) tree-based, Hennigian approach will look for main dichotomies inside so-called “Tree of Life”; and (b) space-based, Linnaean approach will look for the key differences inside “Natural System” multidimensional “cloud”. Despite of clear advantages of tree-like approach (easy to develop rules and algorithms; trees are self-explaining), in many cases the space-based approach is still preferable, because it let us to summarize any kinds of taxonomically related data and to compare different classifications quite easily. This approach also lead us to four-kingdom classification, but with different groups: **Monera**, **Protista**, **Vegetabilia** and **Animalia**, which represent different steps of increased complexity of living things, from simple prokaryotic cell to compound eukaryotic cell and further to tissue/organ cell systems.

The classification

Only recent taxa. Viruses are not included. Abbreviations: incertae sedis (i.s.); pro parte (p.p.); sensu lato (s.l.); sedis mutabilis (sed.m.); sedis possibilis (sed.poss.); sensu stricto (s.str.); status mutabilis (stat.m.); quotes for “environmental” groups; asterisk for paraphyletic* taxa.

Regnum Monera

Superphylum *Archebacteria*

Phylum 1. ARCHEBACTERIA

- Classis 1(1). *Euryarcheota*¹
- 2(2). *Nanoarchaeota*
- 3(3). *Crenarchaeota*²

Superphylum *Bacteria*³

Phylum 2. FIRMICUTES⁴

- Classis 1(4). *Thermotogae* sed.m.
- 2(5). *Clostridia*⁵
- 3(6). *Mollicutes*
- 4(7). *Bacilli*

Phylum 3. ACTINOBACTERIA

- Classis 1(8). *Actinobacteria*

Phylum 4. HADOBACTERIA

- Classis 1(9). *Hadobacteria*⁶

Phylum 5. CHLOROBACTERIA⁷

- Classis 1(10). *Ktedonobacteria* sed.m.
- 2(11). *Thermomicrobia*
- 3(12). *Chloroflexi*
- 4(13). *Dehalococcoidetes*
- 5(14). *Anaerolineae*⁸

¹Incl. Methanobacteria, Methanococci, Methanomicrobia, Halobacteria, Thermoplasma sed.m., Thermococci, Archaeoglobi, Methanopyri.

²Incl. "Korarchaeota", "C1" (*Crenarchaeum*).

³Incl. "Nanobacteria" i.s. et dubitativa, "OP11 group" i.s.

⁴Incl. "TM7" i.s., "OP9".

⁵Incl. Fusobacteria sed.m., Dictyoglomi sed.m., Thermolithobacteria.

⁶= *Deinococcus-Thermus* group.

⁷*Thermobaculum* i.s.

⁸Incl. Caldilineae.

Phylum 6. CYANOBACTERIA

- Classis 1(15). *Gloeobacteria*
- 2(16). *Chroobacteria*⁹
- 3(17). *Hormogoneae*

Phylum 7. SPIROCHAETES

- Classis 1(18). *Spirochaetes*

Phylum 8. BACTEROIDETES¹⁰

- Classis 1(19). *Fibrobacteres*
- 2(20). *Chlorobi*
- 3(21). *Salinibacteria*¹¹
- 4(22). *Bacteroidetes*¹²

Phylum 9. PLANCTOBACTERIA¹³

- Classis 1(23). *Gemmatimonadetes* sed.m.
- 2(24). *Poribacteria*
- 3(25). *Lentisphaerae*
- 4(26). *Verrumicrobiae*¹⁴
- 5(27). *Chlamydiae*
- 6(28). *Planctobacteria*

Phylum 10. PROTEOBACTERIA

- Classis 1(29). *Aquificae* sed.m.¹⁵
- 2(30). *Thiobacteria*¹⁶
- 3(31). *Rhodobacteria*¹⁷
- 4(32). *Geobacteria* sed.m.¹⁸
- 5(33). *Acidobacteria* sed.m.

⁹Incl. Prochlorophyceae, *Acaryochloris*.

¹⁰Incl. "TG3".

¹¹Incl. *Salinibacter*.

¹²Incl. Flavobacteria, Sphingobacteria.

¹³Incl. "OP3", *Ovibacter* i.s.

¹⁴Incl. Opiritae, Spartobacteria.

¹⁵Incl. Desulphurobacteriaceae.

¹⁶= Deltaproteobacteria, Epsilonproteobacteria, Thermodesulfobacteria sed.m.

¹⁷Incl. Alphaproteobacteria, Betaproteobacteria, Gammaproteobacteria.

¹⁸Incl. Chrysiogenetes, Nitrospira, *Calditrix*, *Deferribacteres* (= Synergistes).

Phylum 11. ENDOMICROBIA
Classis 1(34). *Endomicrobia* ¹⁹

Regnum Protista*

Superphylum *Opisthokonta*

Phylum 12. CHOANOZOA

Classis 1(35). *Capsasporea*
2(36). *Choanomonadea* ²⁰
3(37). *Ichtyosporea* ²¹
4(38). *Nucleariacea* ²²

Phylum 13. EOMYCOTA*

Classis 1(39). *Chytridiomycetes* ²³
2(40). *Blastocladiomycetes* ²⁴
3(41). *Rozellomycetes* ²⁵
4(42). *Kickxellomycetes* ²⁶
5(43). *Mucoromycetes* ²⁷
6(44). *Glomeromycetes*

Phylum 14. MICROSPORIDIA

Classis 1(45). *Microsporea* ²⁸

Phylum 15. BASIDIOMYCETES

Subphylum *Ustilagomycotina*

Classis 1(46). *Entorrhizomycetes* sed.m.
2(47). *Wallemiomycetes* sed.m.

¹⁹ = "TG1".

²⁰ Incl. *Ministeria* stat.m.

²¹ Incl. *Amoebidium*, Eccrinales, Aphelidea, *Corallochytrium*.

²² Incl. Nucleariidae, Pompholyxophryidae sed.m.

²³ Incl. Neocallimastigales.

²⁴ Incl. Blastocladales.

²⁵ Incl. *Rosella*, *Olpidium* et *Cauloocytrium* sed.m.

²⁶ Incl. Basidiobolaceae, Harpellales, Zoopagales, Entomophthorales, *Nephridiophaga*, Asellariales sed.m.

²⁷ Incl. Endogonales, Mortierellales.

²⁸ Incl. Metchnikovellida sed.m., *Mikrocytos mackini* sed.m.

3(48). *Exobasidiomycetes*

4(49). *Ustilaginomycetes*

Subphylum *Pucciniomycotina*

Classis 5(50). *Pucciniomycetes*

6(51). *Atractiellomycetes*

7(52). *Cystobasidiomycetes*

8(53). *Agaricostilbomycetes*

9(54). *Microbotryomycetes*²⁹

10(55). *Mixiomycetes*³⁰

Subphylum *Agaricomycotina*

Classis 11(56). *Tremellomycetes*

12(57). *Dacrymycetes*

13(58). *Agaricomycetes*

Phylum 16. ASCOMYCETES

Subphylum *Taphrinomycotina**

Classis 1(59). *Taphrinomycetes*³¹

2(60). *Schizocaccharomycetes*³²

3(61). *Saccharomycetes*

4(62). *Neoelectomycetes*

Subphylum *Pezizomycotina*

Classis 5(63). *Orbiliomycetes*

6(64). *Pezizomycetes*

7(65). *Dothideomycetes*³³

8(66). *Eurotiomycetes*

9(67). *Lecanoromycetes*³⁴

10(68). *Laboulbeniomycetes*

11(69). *Leotiomycetes*

12(70). *Sordariomycetes*

²⁹Incl. Cryptomycocolacales, Classiculales.

³⁰= *Mixia*.

³¹Incl. *Saitoella*.

³²Incl. *Pneumocystis*.

³³Incl. Arthoniales.

³⁴Incl. Lichniales.

Superphylum *Sarcomastigonta**

Phylum 17. AMOEBOZOA sed.m.³⁵

Subphylum *Lobosea*

- Classis 1(71). *Tubulinea*³⁶
- 2(72). *Stereomyxida*
- 3(73). *Acanthomoebidae*³⁷
- 4(74). *Flabellinea*

Subphylum *Conosea*

- Classis 5(75). *Phalansterea*³⁸
- 6(76). *Multiciliatea*³⁹
- 7(77). *Filamoebae*
- 8(78). *Masigamoebidae*⁴⁰
- 9(79). *Dictyostelia*
- 10(80). *Myxomycetes*⁴¹

Phylum 18. APUSOZOA sed.m.⁴²

- Classis 1(81). *Apusomonadea*⁴³
- 2(82). *Breviatea* sed.m.⁴⁴
- 3(83). *Anisomonadea* sed.m.⁴⁵

Phylum 19. CERCOZOA

Subphylum *Monadofilosea*

- Classis 1(84). *Imbricatea*⁴⁶
- 2(85). *Thecofilosea*⁴⁷

³⁵Incl. 'X-cells' i.s.

³⁶Incl. Copromyxidae sed.m., *Fonticula* sed.m

³⁷Incl. *Mayorella*, *Platyamoeba*.

³⁸= *Phalansterium*.

³⁹= *Multicilia*, *Gephyramoeba* sed.m.

⁴⁰Incl. *Pelomyxa* sed.m., *Entamoeba*, *Endolimax*, *Endamoeba*.

⁴¹Incl. *Hyperamoeba* aggr., Protostelida sed.m.

⁴²Incl. *Micronuclearia* i.s.

⁴³Incl. *Amastigomonas*, *Apusomonas*, *Ancyromonas* sed.m.

⁴⁴= *Breviata*; sed.poss. intra Excavata.

⁴⁵Incl. *Diphyllia*, *Collodictyon*, *Sulcomonas*; sed.poss. intra Excavata.

⁴⁶Incl. Euglyphida, Spongomonadida, Thaumatomonadida.

⁴⁷Cryomonadida, Phaeodarea, Ebriida, *Protaspis*.

- 3(86). *Sarcomonadida**⁴⁸
 4(87). *Proteomyxidea*⁴⁹
 5(88). *Chlorarachniophyceae*⁵⁰

Subphylum *Retaria*

- Classis 6(89). *Plasmodiophorea*⁵¹
 7(90). *Gromiea*⁵²
 8(91). *Ascetosporea*⁵³
 9(92). *Foraminifera*⁵⁴

Subphylum *Radiolaria*

- Classis 10(93). *Spumellaria*⁵⁵
 11(94). *Acantharia*
 12(95). *Polycystinea* s.str.⁵⁶

Superphylum *Excavata*

Phylum 20. METAMONADA

- Classis 1(96). *Malawimonadea* sed.m.⁵⁷
 2(97). *Preaxostyla*⁵⁸
 3(98). *Fornicata*⁵⁹
 4(99). *Parabasalea*⁶⁰

Phylum 21. EUGLENOZOA

- Classis 1(100). *Jacobeia*⁶¹

⁴⁸Incl. *Metopion* sed.m.

⁴⁹Incl. Desmothoracida, Gymnosphaerida, Dimorphida, Gymnophrea, *Pseudospora*, *Leucodictyon*, *Reticuloamoeba*, *Massisteria*.

⁵⁰Incl. *Metromonas*, *Sainouron* sed.m.

⁵¹Incl. *Phagomyxa*, *Phagodinium* sed.m., *Pseudospora* sed.m.

⁵²= *Gromia*.

⁵³Incl. Paramyxidia, Haplosporidia, *Bonamia*, *Claustrosporidium*.

⁵⁴Incl. *Reticulomyxa*, Komokiaceae sed.m., Xenophyophorea, *Schizocladus*.

⁵⁵Incl. *Sticholonche* sed.m.

⁵⁶Incl. Collodaria, Nassellarida.

⁵⁷Sed.poss. intra Euglenozoa.

⁵⁸Incl. Oxymonadida, *Trimastix*.

⁵⁹Incl. Retortamonadida, Diplomonadida, *Carpediemonas*, *Dysnectes*.

⁶⁰Incl. Trichomonadida, Hypermastigida.

⁶¹Incl. *Andalucia*.

- 2(101). *Heterolobosea* ⁶²
 3(102). *Hemimastigea* sed.m. ⁶³
 4(103). *Pseudociliata* sed.m. ⁶⁴
 5(104). *Euglenophyceae* ⁶⁵
 6(105). *Saccostoma* ⁶⁶

Superphylum *Alveolata*

Phylum 22. DINOZOA

- Classis 1(106). *Apicomonadea* * ⁶⁷
 2(107). ‘*RM12*’ ⁶⁸
 3(108). *Conoidasida* ⁶⁹
 4(109). *Aconoidasida* ⁷⁰
 5(110). *Ellobiopsea* ⁷¹
 6(111). *Syndinea* ⁷²
 7(112). *Oxyrridea* ⁷³
 8(113). *Dinoflagellata*

Phylum 23. CILIOPHORA

- Classis 1(114). *Karyorelictea*
 2(115). *Heterotrichea*
 3(116). *Spirotrichea* ⁷⁴
 4(117). *Armophorea*
 5(118). *Litostomatea*

⁶²Incl. *Pleurostomum*.

⁶³Incl. *Hemimastix*, *Spiroonema*, *Stereonema*, *Paramastix* sed.m.

⁶⁴= *Stephanopogon*.

⁶⁵= *Plicostoma*; incl. *Diplonemea*.

⁶⁶Incl. *Kinetoplastea*, *Calkinsia*, *Postgaardi*.

⁶⁷Incl. *Colponema* sed.m. *Algovora*, *Myzomonadea* (*Voromonas*, *Aplphamonas*, *Chilovora*), *Perkinsida* (*Perkinsus*, *Rastrimonas*, *Parvilucifera*, *Phagodinium*), *Colpodellida* (*Colpodella*, *Acrocoelus*).

⁶⁸Photosynthetic apicoplast-bearer with alveoli (Walker, 2007).

⁶⁹Incl. *Gregarina*, *Cryptosporidium*, *Selenidium*, *Rhytidicystis*, *Coccidia* sed.m.

⁷⁰Incl. *Haemosporidia*, *Piroplasmida*, *Nephromyces*.

⁷¹Incl. *Ellobiopsis*, *Ellobiocystis*, *Parallobiopsis*, *Rhizellobiopsis*, *Thalassomyces*.

⁷²Incl. *Syndiniales* (“Marine Alveolate Group II”), *Dubosquellaceae* (“Marine Alveolate Group I”).

⁷³= *Oxyrris*.

⁷⁴Incl. *Protocruzia*, *Phacodinium*, *Lycnophora*.

- 6(119). *Phyllopharyngea* ⁷⁵
 7(120). *Nassophorea*
 8(121). *Colpodea*
 9(122). *Prostomatea*
 10(123). *Plagiopylea*
 11(124). *Oligohymenophorea*

Superphylum *Chromista*

Phylum 24. LABYRINTHOMORPHA

- Classis 1(125). *Labyrinthulea* ⁷⁶

Phylum 25. BICOECEA

- Classis 1(126). *Bicoecea* ⁷⁷

Phylum 26. OPALOOA

- Classis 1(127). *Blastocystea*
 2(128). *Opalineae* ⁷⁸
 3(129). *Actinophryida* sed.m. ⁷⁹

Phylum 27. OOMYCOTA

- Classis 1(130). *Oomycetes* ⁸⁰

Phylum 28. CHROMOPHYTA

- Classis 1(131). *Bacillariophyceae* s.l. ⁸¹
 2(132). *Chrysophyceae* s.l. ⁸²
 3(133). *Hypogyrophyceae* stat.m. ⁸³
 4(134). *Raphidophyceae*

⁷⁵Incl. Suctoria.

⁷⁶Incl. *Diplophrys*, *Sorodiplophrys*, Thraustochytridiales, Labyrinthuloideales.

⁷⁷Incl. Placidiales (incl. *Wobbia*), Borokales, Anoecales (incl. *Cafeteria*, *Caecitellus*), Bicoecales, *Commation* sed.m., *Metromonas* sed.m., *Discocelis* sed.m., "MAST" groups.

⁷⁸Incl. Proteromonadida.

⁷⁹Sed.poss. juxta Pedinellales.

⁸⁰Incl. Hyphochitriomycetales, *Developayella*, *Pirsonia*.

⁸¹= Khakista, incl. *Bolidomonas* stat.m.

⁸²= Limnista, incl. *Synchroma* stat.m., Eustigmatales stat.m., Picophagea stat.m. (*Picophagus*, *Chlamydomyxa*), *Oikomonas*, *Paraphysomonas*.

⁸³Incl. Pedinellales, Rhizochromulinales, Dictyochales, Pelagomonadales, Sarcinochrysidales, Pinguichrysidales stat.m.

5(135). *Phaeophyceae* s.l. ⁸⁴

Superphylum *Chloronta*

Phylum 29. HAPTOPHYTA

Classis 1(136). *Prymnesiophyceae* ⁸⁵

Phylum 30. CENTROHELIDA

Classis 1(137). *Holosea* sed.m. ⁸⁶

2(138). *Centrohelea*

Phylum 31. CRYPTISTA

Classis 1(139). *Cryptomonadea* ⁸⁷

2(140). *Katablepharidea* sed.m. ⁸⁸

3(141). *Telonemia*

4(142). "*Picobiliphyta*"

Phylum 32. GLAUCOPHYTA

Classis 1(143). *Glaucophyceae*

Phylum 33. RHODOPHYTA

Classis 1(144). *Cyanidiophyceae* ⁸⁹

2(145). *Rhodellophyceae* ⁹⁰

3(146). *Compsogonophyceae*

4(147). *Bangiophyceae*

5(148). *Florideophyceae*

Phylum 34. CHLOROPHYTA*

Classis 1(149). *Prasinophyceae** ⁹¹

2(150). *Ulvophyceae*

3(151). *Chlorophyceae*

⁸⁴= Fucistia, incl. Chrysomeridales stat.m., Xanthophyceae stat.m., *Schizocladia*, Phaeothamniales.

⁸⁵Incl. Pavlovophyceae.

⁸⁶Incl. (*Luffisphaera*, *Paraluffisphaera*).

⁸⁷Incl. *Goniomonas*.

⁸⁸Incl. *Katablepharis*, *Leucocryptos*, *Platytilomonas*, *Hatena*.

⁸⁹Incl. *Cyanidium*, *Galdieria*, *Glaucosphaera*.

⁹⁰Incl. Stytonematophyceae, Porphyridiophyceae, Rhodellophyceae.

⁹¹Incl. Micromonadales.

- 4(152). *Trebouxiophyceae*⁹²
5(153). *Chlorodendrophyceae*
6(154). *Charophyceae**⁹³

Regnum Vegetabilia

Phylum 35. BRYOPHYTA*

Subphylum *Hepaticae*

- Classis 1(155). *Haplomitriopsida*⁹⁴
2(156). *Marchantiopsida*⁹⁵
3(157). *Jungermanniopsida*

Subphylum *Bryophytina*

- Classis 4(158). *Takakiopsida*
5(159). *Sphagnopsida*⁹⁶
6(160). *Andreaeopsida*⁹⁷
7(161). *Polytrichopsida**⁹⁸
8(162). *Bryopsida*⁹⁹

Subphylum *Anthocerotophytina*

- Classis 9(163). *Anthocerotopsida*

Phylum 36. PTERIDOPHYTA*

Subphylum *Lycopodiophytina*

- Classis 1(164). *Lycopodiopsida*¹⁰⁰

Subphylum *Pteridophytina**

- Classis 2(165). *Psilotopsida*
3(166). *Ophioglossopsida*
4(167). *Equisetopsida*

⁹²Incl. *Helicosporidium*.
⁹³Incl. *Mesostigma*, Conjugatophyceae.
⁹⁴Incl. Treubiaceae.
⁹⁵Incl. Blasiales, Sphaerocarpaceae, Monocleales.
⁹⁶Incl. *Ambuchanania*.
⁹⁷Incl. *Andreaebryum*.
⁹⁸Incl. Oedipodiales, Tetrarhizales, Polytrichales, Buxbaumiales.
⁹⁹Incl. Diphysciales.
¹⁰⁰Incl. Isoëtropsida stat.m.

5(168). *Marattiopsida*

6(169). *Pteridopsida*

Phylum 37. SPERMATOPHYTA

Classis 1(170). *Cycadopsida*

2(171). *Ginkgoopsida*

3(172). *Gnetopsida*

4(173). *Pinopsida*¹⁰¹

5(174). *Taxopsida*

6(175). *Angiospermae*

Regnum Animalia

Subregnum *Parazoa**¹⁰²

Phylum 38. PLACOZOA

Classis 1(176). *Placozoa*

Phylum 39. PORIFERA*

Subphylum *Silicea*

Classis 1(177). *Hexactinellea*

2(178). *Demospongia* s.str.

Subphylum *Calcarea*

Classis 3(179). *Calcarea*

Subphylum *Homosclerea*

Classis 4(180). *Homoscleromorpha*

Subregnum *Eumetazoa*

Infraregnum *Anephrozoa**

Phylum 40. CTENOPHORA

Classis 1(181). *Ctenophora*

¹⁰¹Incl. Pinales.

¹⁰²Incl. *Salinella* i.s. et dubitativa.

Phylum 41. CNIDARIA

- Classis 1(182). *Anthozoa*
- 2(183). *Staurozoa*¹⁰³
- 3(184). *Medusozoa*¹⁰⁴
- 4(185). *Polypodiozoa*¹⁰⁵

Phylum 42. MYXOZOA

- Classis 1(186). *Malacosporea*¹⁰⁶
- 2(187). *Myxosporea*¹⁰⁷

Phylum 43. ACOELOMORPHA

- Classis 1(188). *Acoela*
- 2(189). *Nemertodermatida*

Infraregnum Deuterostomia

Phylum 44. XENOTURBELLIDA

- Classis 1(190). *Xenoturbellida*

Phylum 45. ECHINODERMATA

- Classis 1(191). *Crinoidea*
- 2(192). *Ophiuroidea*
- 3(193). *Asteroidea*¹⁰⁸
- 4(194). *Echinoidea*
- 5(195). *Holothurioidea*

Phylum 46. HEMICHORDATA¹⁰⁹

- Classis 1(196). *Enteropneusta*
- 2(197). *Pterobranchia*

¹⁰³ = Stauromedusae.

¹⁰⁴ Incl. Cubozoa, Scyphozoa, Hydrozoa.

¹⁰⁵ = *Polypodium*.

¹⁰⁶ = *Tetracapsula*, *Buddenbrockia*.

¹⁰⁷ = Actinomyxidia.

¹⁰⁸ Incl. *Xyloplax*.

¹⁰⁹ Incl. *Planctosphaera* i.s.

Phylum 47. CHORDATA

Subphylum *Cephalochordata*

Classis 1(198). *Cephalochordata*

Subphylum *Vertebrata*

Classis 2(199). *Cyclostomata* stat.m.

3(200). *Chondrichtyes*

4(201). *Actinopterygii*

5(202). *Dipnoi*¹¹⁰

6(203). *Amphibia*

7(204). *Reptilia**

8(205). *Aves*

9(206). *Mammalia*

Subphylum *Tunicata*

Classis 10(207). *Ascidacea*¹¹¹

Infraregnum Protostomia

Superphylum *Chaetognatha*

Phylum 48. CHAETOGNATHA sed.m.

Classis 1(208). *Chaetognatha*

Superphylum *Spiralia*

Phylum 49. GNATHIFERA

Classis 1(209). *Gastrotricha* sed.m.¹¹²

2(210). *Gnathostomulida*¹¹³

3(211). *Micrognathozoa*¹¹⁴

4(212). *Rotatoria*¹¹⁵

5(213). *Cycliophora* sed.m.¹¹⁶

6(214). *Entoprocta* stat.m.

¹¹⁰Incl. *Latimeria* sed.m.

¹¹¹Incl. Thaliacea, Larvacea stat.m.

¹¹²Sed.poss. inter Cycloneuralia.

¹¹³Incl. Filospemoidea, Bursovaginoidea.

¹¹⁴= *Limnognathia*.

¹¹⁵Incl. Hemirotifera stat.m. (*Seison*, Acanthocephala et Bdelloidea), Monogononta.

¹¹⁶= *Symbion*.

Phylum 50. PLATYHELMINTHES

- Classis 1(215). *Catenulida*
- 2(216). *Rhabditophora**
- 3(217). *Neodermata*¹¹⁷

Phylum 51. DICYEMIDA sed.m.

- Classis 1(218). *Rhombozoa*

Phylum 52. NEMERTINI

- Classis 1(219). *Nemertini*¹¹⁸

Phylum 53. MOLLUSCA

- Classis 1(220). *Neomeniomorpha*
- 2(221). *Caudofoveata*
- 3(222). *Polyplacophora*
- 4(223). *Monoplacophora*
- 5(224). *Bivalvia*
- 6(225). *Gastropoda*
- 7(226). *Scaphopoda*
- 8(227). *Cephalopoda*

Phylum 54. BRACHIOPODA

- Classis 1(228). *Phoronata* stat.m.
- 2(229). *Inarticulata*¹¹⁹
- 3(230). *Rhynchonellata*

Phylum 55. ECTOPROCTA stat.m.

- Classis 1(231). *Bryozoa*¹²⁰

Phylum 56. ANNELIDA

- Classis 1(232). *Sipunculida* stat.m.¹²¹
- 2(233). *Polychaeta*¹²²

¹¹⁷Incl. Monogenea, Trematoda, Cestoda.

¹¹⁸Incl. *Arhynchonemertes*.

¹¹⁹Incl. Craniata, Lingulata.

¹²⁰Incl. Phylactolaemata, Stenolaemata, Gymnolaemata.

¹²¹Incl. Sipunculoidea, Phascolosomatidea.

¹²²Incl. *Lobatocerebrum*, *Jennaria*, Aelosomata, Clitellata, Myzostomida, Echiura, Siboginida (= Pogonophora et Vestimentifera).

Phylum 57. ORTHONECTA sed.m.

Classis 1(234). *Orthonectida*

Superphylum *Ecdysozoa*

Phylum 58. CYCLONEURALIA*

Subphylum *Nematoidea*

Classis 1(235). *Nematoda*

2(236). *Nematomorpha*

Subphylum *Scalidomorpha*

Classis 3(237). *Priapulida*

4(238). *Kinorhyncha*

5(239). *Loricifera*

Phylum 59. TARDIGRADA

Classis 1(240). *Tardigrada*

Phylum 60. ARTHROPODA

Subphylum *Onychophora*

Classis 1(241). *Onychophora*

Subphylum *Cheliceromorpha*

Classis 2(242). *Chelicerata*¹²³

3(243). *Pantopoda*

Subphylum *Myriapoda*

Classis 4(244). *Chilopoda*

5(245). *Progoneata* stat.m.¹²⁴

Subphylum *Pancrustacea*

Classis 6(246). *Ichthyostraca*¹²⁵

7(247). *Ostracoda* stat.m.

8(248). *Maxillopoda*¹²⁶

9(249). *Malacostraca*¹²⁷

¹²³Incl. Xiphosura.

¹²⁴Incl. Simphyla, Dignatha (Pauropoda et Diplopoda).

¹²⁵Incl. Branchiura, Pentastomida.

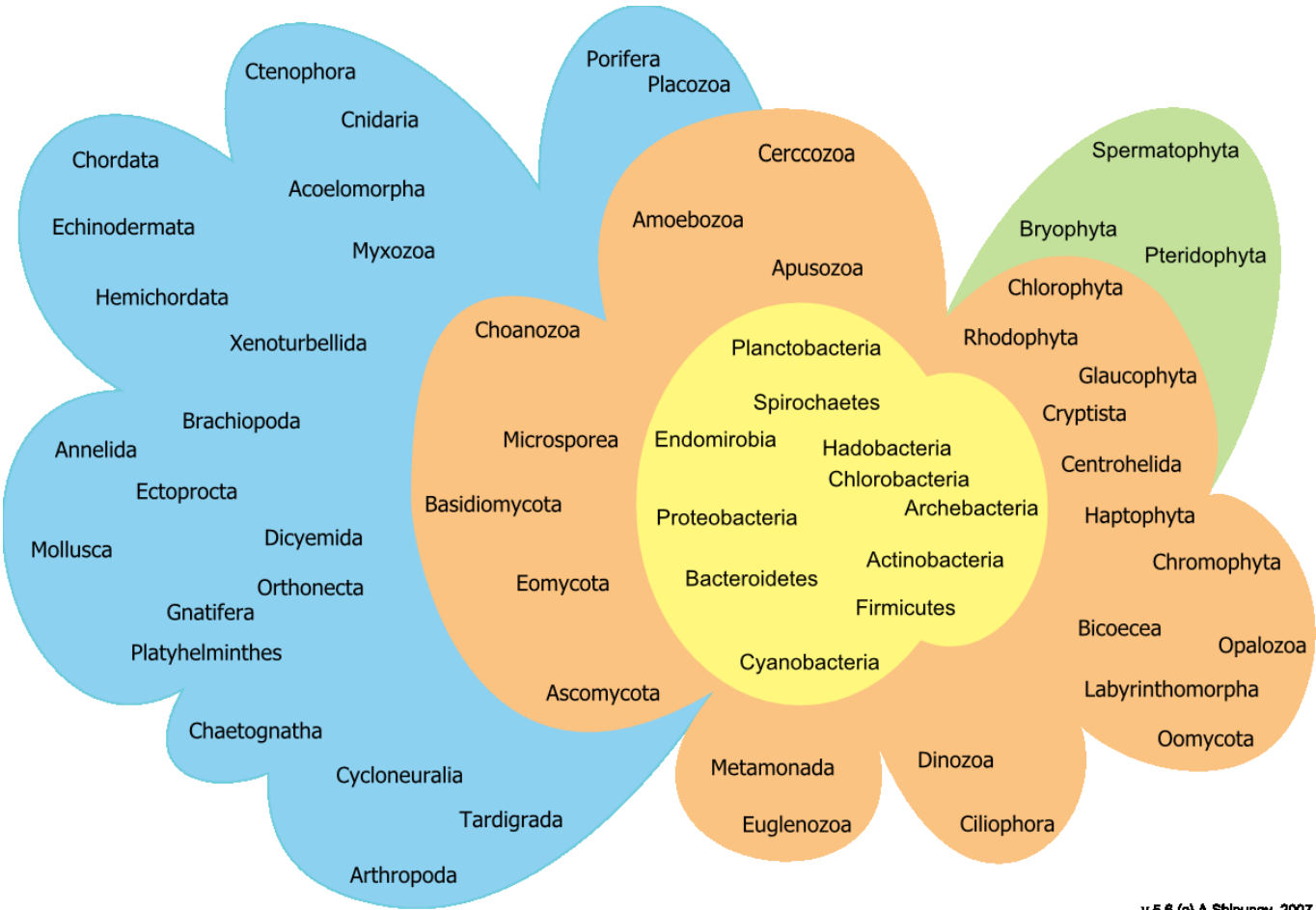
¹²⁶Incl. Tantulocarida, Mystacorarida, Copepoda, Thecostraca stat.m.

¹²⁷Incl. Leptostraca.

- 10(250). *Remipedia*
11(251). *Cephalocarida*
12(252). *Branchiopoda*
13(253). *Hexapoda*¹²⁸

¹²⁸Incl. Collembola, Protura, Diplura.

Schematic view of the classification



References

- [1] E. Abouheif, R. Zardoya, and A. Meyer. Limitations of metazoan 18s rRNA sequence data: implications for reconstructing a phylogeny of the animal kingdom and inferring the reality of the cambrian explosion. *J. Mol. Evol.*, 47:394–405, 1998.
- [2] A. Abzhanov and T. C. Kaufman. Homeotic genes and the arthropod head: Expression patterns of the labial, proboscipedia, and deformed genes in crustaceans and insects. *Proc. Natl. Acad. Sci. USA*, 96(18):10224–10229, 1999.
- [3] S. M. Adl, A. G. B. Simpson, M. A. Farmer, R. A. Andersen, O. R. Anderson, J. R. Barta, S. S. Bowser, G. Brugerolle, R. A. Fensome, S. Fredericq, T. Y. James, S. Karpov, P. Kugrens, J. Krug, C. E. Lane, L. A. Lewis, J. Lodge, D. H. Lynn, D. G. Mann, R. M. Mccourt, L. Mendoza, J. Moestrup, S. E. Mozley-Standridge, T. A. Nerad, C. A. Shearer, A. V. Smirnov, F. W. Spiegel, and M. F. J. R. Taylor. The New Higher Level Classification of Eukaryotes with Emphasis on the Taxonomy of Protists. *J. Eukaryot. Microbiol.*, 52(5):399–451, 2005.
- [4] A.G.Collins. Phylogeny of medusozoa and the evolution of cnidarian life cycles. *J. Evol. Biol.*, 15:418–432, 2002.
- [5] A. M. A. Aguinaldo, J. M. Turbeville, L. S. Linford, M. C. Rivera, J. R. Garey, R. A. Raff, and J. A. Lake. Evidence for a clade of nematodes, athropods and other moulting animals. *Nature*, 387:489–493, 1997.
- [6] S. Ahmad, A. Selvapandiyam, and R. Bhatnagar. A protein-based phylogenetic tree for gram-positive bacteria derived from hrca, a unique heat-shock regulatory gene. *International Journal of Systematic Bacteriology*, 49:1387–1394, 2000.
- [7] K. Aho and E. O. Kajander. Pitfalls in detection of novel nanoorganisms. *J. Clin. Microbiol.*, 41(7):3460–3461, 2003.
- [8] M. C. Aime, P. B. Matheny, D. A. Henk, E. M. Frieders, R. H. Nilsson, M. Piepenbring, D. J. McLaughlin, L. J. Szabo, D. Begerow, J. P. Sampaio, R. Bauer, M. Weiß, F. Oberwinkler, and D. Hibbett. An overview of the higher level classification of Pucciniomycotina based on

combined analyses of nuclear large and small subunit rDNA sequences. *Mycologia*, 98:896–905, 2007.

- [9] *Ainsworth and Bisby's dictionary of the Fungi*. Kew, 1983.
- [10] M. Akam, E. Salo, C. E. Cook, and E. Jime. The Hox gene complement of acoel flatworms, a basal bilaterian clade. *EVOLUTION & DEVELOPMENT*, 6(3):154–163, 2004.
- [11] V. V. Aleshin, I. A. Milyutina, O. S. Kedrova, N. S. Vladychenskaya, and N. B. Petrov. Phylogeny of nematoda and cephalorhyncha derived from 18s rdna. *J. Mol. Evol.*, 47:597–605, 1998.
- [12] C. Alonso, F. Warnecke, R. Amann, and J. Pernthaler. High local and global diversity of flavobacteria in marine plankton. *Environ. Microbiol.*, (in press):1–14, 2007.
- [13] J. Alroy. The fossil record of north american mammals: evidence for a paleocene evolutionary radiation. *Syst. Biol.*, 48(1):107–118, 1999.
- [14] E. R. Alvarez-Buylla, S. Pelaz, S. J. Liljegren, S. E. Gold, C. Burgeff, G. S. Ditta, L. R. de Pouplana, L. Martinez-Castilla, and M. F. Yanofsky. Evolution an ancestral mads-box gene duplication occurred before the divergence of plants and animals. *Proc. Natl. Acad. Sci. USA*, 97(10):5328–5333, 2000.
- [15] R. A. Andersen et al. Pelagophyceae cl. nov. *J. Phycol.*, 29:701–715, 1993.
- [16] R. A. Andersen, D. Potter, R. R. Bidigare, M. Latasa, K. Rowan, and C. J. O’Kelly. Characterization and phylogenetic position of the enigmatic golden alga phaeothamnion confervicola: Ultrastructure, pigment composition and partial ssu rdna sequence. *J. Phycol.*, 34(2):286–298, 1999.
- [17] R. A. Andersen, Y. van de Peer, D. Potter, J. P. Sexton, M. Kawachi, and T. Lajeunesse. Phylogenetic analysis of the ssu rrna from members of the chrysophyceae. *Protist*, 150(1):71–84, 1999.
- [18] R. A. Andersen. Synurophyceae cl. nov. *Amer. J. Bot.*, 74:337–353, 1987.

- [19] R. A. Andersen. Biology and systematics of heterokont and haptophyte algae. *American Journal of Botany*, 91(10), 2004.
- [20] F. E. Anderson, A. J. Cordoba, and M. Thollesson. Bilaterian Phylogeny Based on Analyses of a Region of the SodiumPotassium ATPase a-Subunit Gene. 58:252–268, 2004.
- [21] J. O. Andersson and A. J. Roger. A Cyanobacterial Gene in Nonphotosynthetic Protists—An Early Chloroplast Acquisition in Eukaryotes? *Current Biology*, 12:115–119, 2002.
- [22] M. A. Andrade, C. Ouzounis, C. Sander, J. Tamames, and A. Valencia. Functional classes in the three domains of life. *J. Mol. Evol.*, 49:551–557, 1999.
- [23] C. Andreoli, I. Moro, N. L. Rocca, F. Rigoni, L. D. Valle, and L. Bargeloni. *Pseudopleurochloris antarctica* gen. et sp. nov., a new coccoid xanthophycean from pack-ice of wood bay (ross sea, antarctica): ultrastructure, pigments and 18s rRNA gene sequence. *European J. Phycol.*, 34:149–159, 1999.
- [24] S. S. An, B. Mopps, K. Weber, and D. Bhattacharya. The origin and evolution of green algal and plant actins. *Mol. Biol. Evol.*, 16(2):275–285., 1998.
- [25] L. Aravid, R. L. Tatusov, Y. I. Wolf, D. R. Walker, and E. V. Koonin. Evidence for massive gene exchange between archaeal and bacterial hyperthermophiles. *Trends Genet.*, 14(11):442–444, 1998.
- [26] L. Aravind, D. R. Walker, and E. V. Koonin. Conserved domains in dna repair proteins and evolution of repair systems. *Nucleic Acids Research*, 27(5):1223–1242, 1999.
- [27] J. M. Archibald, C. J. O’Kelly, and W. F. Doolittle. The chaperonin genes of jakobid and jakobid-like flagellates: Implications for eukaryotic evolution. *Mol. Biol. Evol.*, 19:422–431, 2002.
- [28] N. Arisue, M. Hasegawa, and T. Hashimoto. Root of the Eukaryota Tree as Inferred from Combined Maximum Likelihood Analyses of Multiple Molecular Sequence Data. *Macromolecules*, 22(3):409–420, 2004.

- [29] U. Arnason, A. Gullberg, S. Gretarsdottir, B. Ursing, and A. Janke. The mitochondrial genome of the sperm whale and a new molecular reference for estimating eutherian divergence dates. *J Mol Evol*, 50:569–578, 2000.
- [30] U. Arnason, A. Gullberg, A. Janke, and X. Xu. Pattern and timing of evolutionary divergences among hominoids based on analyses of complete mtDNAs. *J. Mol. Evol.*, 43:650–661, 1996.
- [31] Arx. Fungal phyla. *Sydowia*, 37(1):1–5, 1984.
- [32] T. A. Auchtung, C. D. Takacs-Vesbach, and a. M. Cavanaugh. 16s rRNA phylogenetic investigation of the candidate division "korarchaeota". *Environ. Microbiol.*, 72(7):5077–5082, 2006.
- [33] J. C. Avise, W. S. Nelson, and C. G. Sibley. Why one-kilobase sequences from mitochondrial DNA fail to solve the hoatzin phylogenetic enigma. *Mol Phylogenet Evol*, 3(2):175–184, 1994.
- [34] F. J. Ayala, A. Rzhetsky, and F. J. Ayala. Origin of the metazoan phyla: Molecular clocks confirm paleontological estimates. *Proc. Natl. Acad. Sci. USA*, 95(2):606–611, 1998.
- [35] J. Bague and M. Riutort. Molecular phylogeny of the Platyhelminthes. *Can. J. Zool.*, 82(2004), 2003.
- [36] J. C. Bailey, R. R. Bidigare, S. J. Christensen, and R. A. Andersen. Phaeothamniophyceae classis nova: a new lineage of chromophytes based upon photosynthetic pigments, rbcL sequence analysis and ultrastructure. *Protist*, 149(2):245–263, 1998.
- [37] S. L. Baldauf and W. F. Doolittle. Origin and evolution of the slime molds (mycetozoa). *Proc. Natl. Acad. Sci. USA*, 94(No 22):12007–12012, 1997.
- [38] S. L. Baldauf, J. D. Palmer, and W. F. Doolittle. The root of the universal tree and the origin of eukaryotes based on evolution factor phylogeny. *Proc. Natl. Acad. Sci. USA*, 93:7749–7754, 1996.
- [39] S. L. Baldauf and J. D. Palmer. Animals and fungi are each other's closest relatives: congruent evidence from multiple proteins. *Proc. Natl. Acad. Sci. USA*, 90(24):11558–11562, 1993.

- [40] S. L. Baldauf, A. J. Roger, I. Wenk-Siefert, and W. F. Doolittle. A kingdom-level phylogeny of eukaryotes based on combined protein data. *Science*, 290:972–977, 2000.
- [41] S. Baldauf. The deep roots of eucaryotes. *Science*, 300:1703–1706, 2003.
- [42] R. S. K. Barnes et al. *The invertebrates: a new synthesis*. Oxford, 1988.
- [43] S. M. Barns, E. C. Cain, L. Sommerville, and C. R. Kuske. Acidobacteria phylum sequences in uranium contaminated subsurface sediments greatly expand the known diversity within the phylum. *Appl. Environ. Microbiol.*, (in press):1–12, 2007.
- [44] D. J. S. Barr. Evolution and kingdoms of organisms from the perspective of a mycologist. *Mycologia*, 84(1):1–11, 1992.
- [45] T. Bartolomaeus and G. Purschke. Morphology, Molecules, Evolution and Phylogeny in Polychaeta and Related Taxa. *Hydrobiologia*, 536:341–356, 2005.
- [46] M. Barucca, M. A. Biscotti, E. Olmo, and A. Canapa. All the Three ParaHox Genes are Present in *Nuttallochiton mirandus* (Mollusca: Polyplacophora): Evolutionary Considerations. *JOURNAL OF EXPERIMENTAL ZOOLOGY*, 306B(2006):164–167, 2006.
- [47] D. Bass and T. Cavalier-Smith. Phylum-specific environmental DNA analysis reveals remarkably high global biodiversity of Cercozoa (Protozoa). *International Journal of Systematic and Evolutionary Microbiology*, 54:63229–63220, 2004.
- [48] D. Bass, D. Moreira, P. Lopez-Garcia, S. Polet, E. E. Chao, S. von der Heyden, J. Pawlowski, and T. Cavalier-Smith. Polyubiquitin Insertions and the Phylogeny of Cercozoa and Rhizaria. *Protist*, 156:149–161, 2005.
- [49] R. M. Bateman, P. R. Crane, W. A. Dimichele, P. R. Kenrick, N. P. Rowe, T. Speck, and W. E. Stein. Early evolution of land plants: Phylogeny, physiology, and ecology of the primary terrestrial radiation. *Annu. Rev. Ecol. Syst.*, 29:263–292, 1998.

- [50] F. U. Battistuzzi, A. Feijao, and S. B. Hedges. A genomic timescale of prokaryote evolution: insights into the origin of methanogenesis, phototrophy, and the colonization of land. *BMC Evolutionary Biology*, 4(44), 2004.
- [51] M. Bauer, T. Lombardot, H. Teeling, N. L. Ward, R. I. Amann, and F. O. Gloeckner. Archaea-like genes for c1-transfer enzymes in planktomycetes: Phylogenetic implications of their unexpected presence in this phylum. *J Mol Evol*, 59:571–586, 2004.
- [52] R. Bauer, D. Begerow, J. P. Sampaio, M. Weiss, and F. Oberwinkler. The simple-septate basidiomycetes: a synopsis. *Mycol Progress*, 5:41–66, 2006.
- [53] S. Beckert, S. Steinhauser, H. Muhle, and V. Knoop. A molecular phylogeny of bryophytes based on nucleotide sequences of the mitochondrial nad5 gene. *Pl. Syst. Evol.*, 218:179–192, 1999.
- [54] A. Becker, K.-U. Winter, B. Meyer, H. Saedler, and G. Theissen. Madsbox gene diversity in seed plants 300 million years ago. *Mol. Biol. Evol.*, 17(10):1425–1434, 2000.
- [55] D. Begerow, M. Stoll, and R. Bauer. A phylogenetic hypothesis of Ustilaginomycotina based on multiple gene analyses and morphological data. *Mycologia*, 98:906–916, 2007.
- [56] O. Beja, L. Aravind, E. V. Koonin, M. T. Suzuki, A. Hadd, L. P. Nguyen, S. B. Jovanovich, C. M. Gates, R. A. Feldman, J. L. Spudich, E. N. Spudich, and E. F. DeLong. Bacterial rhodopsin: evidence for a new type of phototrophy in the sea. *Science*, 289(5486):1902–1906, 2000.
- [57] J. H. Belcher and E. M. F. Swale. *Luffisphaera* gen. nov., an enigmatic scaly micro-organism. *Proc. R. Soc. Lond. B.*, 188:495–499, 1975.
- [58] M. L. Berbee and J. W. Taylor. Detecting morphological convergence in true fungi, using 18s rRNA gene sequence data. *Biosystems*, 28(13):117–125, 1992.
- [59] M. L. Berbee and J. W. Taylor. Dating the evolutionary radiations of the true fungi. *Can. J. Bot.*, 71:1114–1127, 1993.

- [60] C. Berney, J. Fahrni, and J. Pawlowski. How many novel eukaryotic 'kingdoms'? Pitfalls and limitations of environmental DNA surveys. *BMC Biology*, 2(13):1–13, 2004.
- [61] E. A. Berntson, S. C. France, and L. S. Mullineaux. Phylogenetic relationships within the class anthozoa (phylum cnidaria) based on nuclear 18s rdna sequences. *Molecular Phylogenetics and Evolution*, 13(2):1055–7903, 1999.
- [62] F. C. J. Berthe, F. le Roux, D. Rodriguez, E. Peyretailade, P. Peyret, C. P. Vivares, and M. Gouy. Phylogenetic analysis of the small subunit ribosomal rna of marteilia refringens validates the existence of phylum paramyxea (desportes and perkins,. *J. Euk. Microbiol.*, 47(3):288–293, 1990.
- [63] D. Bhattacharya, T. Helmchen, and M. Melkonian. Molecular evolutionary analyses of nuclear-encoded small subunit ribosomal rna identify an independent rhizopod lineage containing the euglyphina and the chlorarachniophyta. *J. Euk. Microbiol.*, 42(No 1):65–69, 1995.
- [64] D. Bhattacharya and L. Medlin. Algal phylogeny and the origin of land plants. *Plant Physiol.*, 116:9–15, 1998.
- [65] D. Bhattacharya and K. Weber. The actin gene of the glaucocystophyte cyanophora paradoxa: analysis of the coding region and introns, and an actin phylogeny of eukaryotes. *Curr Genet*, 31(5):439–446, 1997.
- [66] J. A. Bieszke, E. L. Braun, L. E. Bean, S. Kang, D. O. Natvig, and K. A. B. and. The nop-1 gene of neurospora crassa encodes a seven transmembrane helix retinal-binding protein homologous to archaeal rhodopsins. *Proc. Natl. Acad. Sci. USA*, 96(14):8034–8039, 1999.
- [67] C. Bitsch and J. Bitsch. Phylogenetic relationships of basal hexapods among the mandibulate arthropods: a cladistic analysis based on comparative morphological characters. *Zoologica Scripta*, 33(6):511–550, 2004.
- [68] N. W. Blackstone and B. D. Jasker. Phylogenetic Considerations of Clonality, Coloniality, and Mode of Germline Development in Animals. *JOURNAL OF EXPERIMENTAL ZOOLOGY*, 297B:35–47, 2003.

- [69] J. L. Blanchard and J. S. Hicks. The non-photosynthetic plastid in malarial parasites and other apicomplexans is derived from outside the green plastid lineage. *J. Euk. Microbiol.*, 46(4):367–375, 1999.
- [70] C. E. Blessin and J. S. Keithly. Is cryptosporidium a pre-mitochondrial apicomplexan? *J. Euk. Microbiol.*, 1998.
- [71] M. Bocchetta, S. Gribaldo, A. Sanangelantoni, and P. Cammarano. Phylogenetic depth of the bacterial genera aquifex and thermotoga inferred from analysis of ribosomal protein, elongation factor, and rna polymerase subunit sequences. *J Mol Evol*, 50:366–380, 2000.
- [72] A. Bodyl. How are plastid proteins of the apicomplexan parasites imported? a hypothesis*. *Acta Protozool.*, 38:31–37, 1999.
- [73] A. Bodyl. Do plastid-related characters support the chromalveolate hypothesis? *J. Phycol.*, 41(2005):712–719, 2005.
- [74] F. Boero, B. Schierwater, and S. Piraino. Cnidarian milestones in metazoan evolution. *Integrative and Comparative Biology*, (in press):1–8, 2007.
- [75] S. Bogen. The nucleomorph genomes of cryptophytes and chlorarachniophytes. *Protist*, 151:103–109, 2000.
- [76] S. L. Bonatto and F. M. Salzano. A single and early migration for the peopling of the americas supported by mitochondrial dna sequence data. *Proc. Natl. Acad. Sci. USA*, 94(No 5):1866–1871, 1997.
- [77] L. Bonnaud, R. Boucher-Rodoni, and M. Monnerot. Phylogeny of cephalopods inferred from mitochondrial dna sequences. *Mol Phylogenet Evol*, 7(1):44–54, 1997.
- [78] J. L. Boore and W. M. Brown. Mitochondrial genomes of galathea, helobdella, and platynereis: Sequence and gene arrangement comparisons indicate that pogonophora is not a phylum and annelida and arthropoda are not sister taxa. *Mol. Biol. Evol.*, 17(1):87–106, 2000.
- [79] J. L. Boore and J. L. Staton. The mitochondrial genome of the sipunculid phascolopsis gouldii supports its association with annelida rather than mollusca. *Mol. Biol. Evol.*, 19:127–137, 2002.

- [80] G. C. Booton, G. L. Floyd, and P. A. Fuerst. Polyphyly of tetrasporalean green algae inferred from nuclear small-subunit ribosomal DNA. *J. Phycol.*, 34(2):306–311, 1998.
- [81] C. Borchiellini, N. Boury-Esnault, J. Vacelet, and Y. le Parco. Phylogenetic analysis of the hsp70 sequences reveals the monophyly of metazoa and specific phylogenetic relationships between animals and fungi. *Mol. Biol. Evol.*, 15(6):647–655., 1998.
- [82] C. Borchiellini, C. Chombard, M. Manuel, E. Alivon, J. Vacelet, and N. Boury-Esnault. Molecular phylogeny of Demospongiae: implications for classification and scenarios of character evolution. *Molecular Phylogenetics and Evolution*, 32:823–837, 2004.
- [83] C. Borchiellini et al. Sponge paraphyly and the origin of the metazoa. *J. Evol. Biol.*, 14:171–179, 2001.
- [84] L. M. Botero, K. B. Brown, S. Brumefield, M. Burr, R. W. Castenholz, M. Young, and T. R. McDermott. *Thermobaculum terrenum* gen. nov., sp. nov.: a non-phototrophic gram-positive thermophile representing an environmental clone group related to the Chloroflexi (green non-sulfur bacteria) and Thermomicrobia. *Arch. Microbiol.*, 181(4):269–277, 2004.
- [85] J. P. Botting and N. J. Butterfield. Reconstructing early sponge relationships by using the Burgess Shale fossil *Eiffelia globosa*, Walcott. *Proc. Natl. Acad. Sci. USA*, 102(5):1554–1559, 2004.
- [86] S. J. Bourlat, T. Juliusdottir, C. J. Lowe, R. Freeman, J. Aronowicz, M. Kirschner, E. S. Lander, M. Thorndyke, H. Nakano, A. B. Kohn, A. Heyland, L. L. Moroz, R. R. Copley, and M. J. Telford. Deuterostome phylogeny reveals monophyletic chordates and the new phylum Xenoturbellida. *Nature*, pages 1–4, 2006.
- [87] S. J. Bourlat, C. Nielsen, A. E. Lockyer, D. T. J. Littlewood, and M. J. Telford. *Xenoturbella* is a deuterostome that eats molluscs. *Nature*, 424:925–928, 1994.
- [88] N. Boury-Esnault. Systematics and evolution of Demospongiae. *Can. J. Zool.*, 84(2006):205–224, 2002.

- [89] L. M. Bowe, G. Coat, and C. W. D. Pamphilis. Phylogeny of seed plants based on all three genomic compartments: Extant gymnosperms are monophyletic and gnetales' closest relatives are conifers. *Proc. Natl. Acad. Sci.*, 97(8):4092–4097, 2000.
- [90] B. H. Bowman et al. [molecular evolution of fungi]. *Mol. Biol. Evol.*, 9:285–296, 1990.
- [91] W. Bown. A new tree of life takes root. *Science*, page 30, 1990.
- [92] D. Bridge, C. W. Cunningham, d. r. Salle, and L. W. Buss. Class-level relationships in the phylum cnidaria: molecular and morphological evidence. *Mol Biol Evol*, 12(4):679–689, 1995.
- [93] D. Briggs and R. Fortey. The early radiation and relationships of the major arthropod groups. *Science*, 246:241–243, 1989.
- [94] H. Brinkmann and H. Philippe. Archaea sister group of bacteria? indications from tree reconstruction artifacts in ancient phylogenies. *Mol. Biol. Evol.*, 16(6):817–825, 1999.
- [95] C. Brochier-Armanet and P. Forterre. Widespread distribution of archaeal reverse gyrase in thermophilic bacteria suggests a complex history of vertical inheritance and lateral gene transfers. *Archaea*, 2:i – xi, 2006.
- [96] C. Brochier, P. Forterre, and S. Gribaldo. An emerging phylogenetic core of archaea: phylogenies of transcription and translation machineries converge following addition of new genome sequences. *BMC Evolutionary Biology*, 5(36), 2005.
- [97] C. Brochier, S. Gribaldo, Y. Zivanovic, F. Confalonieri, and P. Forterre. Nanoarchaea: representatives of a novel archaeal phylum or a fast-evolving euryarchaeal lineage related to thermococcales? *Genome Biology*, 6(R42), 2005.
- [98] L. Bromham, A. Rambaut, R. Fortey, A. Cooper, and D. Penny. Testing the cambrian explosion hypothesis by using a molecular dating technique. *Proc. Natl. Acad. Sci. USA*, 95(21):12386–12389, 1998.

- [99] J. R. Brown and W. F. Doolittle. Gene descent, duplication, and horizontal transfer in the evolution of glutamyl- and glutaminyl-trna synthetases. *J. Mol. Evol.*, 49:485–495, 1999.
- [100] G. Brugerolle and D. Patterson. A cytology of *Aulocomonas submarina* skuja 1939, a heterotrophic flagellate with a novel ultrastructural identity. *European Journal of Protistology*, 25:192–199, 1990.
- [101] G. Brugerolle and D. Patterson. Ultrastructure of *Trimastix convexa* hollande, an amitochondrial anaerobic flagellate with a previously undescribed organisation. *Eur. J. Protistol.*, 33(2):121–130, 1997.
- [102] G. Brugerolle. Flagellar and cytoskeletal systems in amitochondrial flagellates: *Archamoeba*, *Metamonada* and *Parabasala*. *Protoplasma*, 164:70–90, 1991.
- [103] G. Brugerolle. *Colpodella vorax*: ultrastructure, predation, life-cycle, mitosis, and phylogenetic relationships. *Europ. J. Prot.*, 38:113–125, 2002.
- [104] G. Brugerolle. Description of a New Freshwater Heterotrophic Flagellate *Sulcomonas lacustris* Affiliated to the Collodictyonids. *Acta Protozool.*, 45:175–182, 2006.
- [105] T. D. Bruns, R. Vilgalys, S. M. Barnes, D. Gonzalez, D. S. Hibbett, D. J. Lane, L. Simon, S. Stickel, T. M. Szaro, W. G. Weisburg, and E. Al. Evolutionary relationships within the fungi: analyses of nuclear small subunit rRNA sequences. *Mol Phylogenet Evol*, 1(3):231–241, 1992.
- [106] J. Bucknam, Y. Boucher, and E. Baptiste. Refuting phylogenetic relationships. *Biology Direct*, 1(26):1–41, 2006.
- [107] G. E. Budd and S. Jensen. A critical reappraisal of the fossil record of the bilaterian phyla. *Biol. Rev.*, 75:253–295, 2000.
- [108] K. Budin and H. Philippe. New insights into the phylogeny of eukaryotes based on ciliate hsp70 sequences. *Mol Biol Evol*, 15(8):943–956, 1998.
- [109] E. T. N. Bui, P. J. Bradley, and P. J. Johnson. A common evolutionary origin for mitochondria and hydrogenosomes. *Proc. Natl. Acad. Sci. USA*, 93:9651–9656, 1996.

- [110] F. Burki and J. Pawlowski. Monophyly of Rhizaria and Multigene Phylogeny of Unicellular Bikonts. *Proteins*, 23(10):1922–1930, 2006.
- [111] J. G. Burleigh and S. Mathews. Phylogenetic signal in nucleotide data from seed plants: implications for resolving the seed plant tree of life. *American Journal of Botany*, 91(10):1599–1613, 2004.
- [112] E. M. Burreson and S. E. Ford. A review of recent information on the Haplosporidia, with special reference to *Haplosporidium nelsoni* (MSX disease). *Aquat. Living Resour.*, 17(2004):499–517, 2004.
- [113] M. K. Butler and J. A. Fuerst. Comparative analysis of ribonuclease p rna of the planctomycetes. *International Journal of Systematic and Evolutionary Microbiology*, 54:1333–1344, 2004.
- [114] G. Caetano-Anolles. Evolved rna secondary structure and the rooting of the universal tree of life. *J. Mol. Evol.*, 54:333–345, 2002.
- [115] M. J. Cafaro. Eccrinales (Trichomycetes) are not fungi, but a clade of protists at the early divergence of animals and fungi. *Molecular Phylogenetics and Evolution*, 35:21–34, 2005.
- [116] C. B. Cameron, J. R. Garey, and B. J. Swalla. Evolution of the chordate body plan: New insights from phylogenetic analyses of deuterostome phyla. *Proc. Natl. Acad. Sci.*, 97(9):4469–4474, 2000.
- [117] P. Cammarano, R. Creti, A. M. Sanangelantoni, and P. Palm. The archaea monophyly issue: A phylogeny of translational elongation factor g(2) sequences inferred from an optimized selection of alignment positions. *J. Mol. Evol.*, 49:524–537, 1999.
- [118] A. Campbell, J. Mrrzek, and S. Karlin. Genome signature comparisons among prokaryote, plasmid, and mitochondrial dna. *Proc. Natl. Acad. Sci. USA*, 96(16):9184–9189, 1999.
- [119] A. Campos, M. P. Cummings, J. L. Reyes, and J. P. Lacleite. Phylogenetic relationships of platyhelminthes based on 18S ribosomal gene sequences. *Mol. Phyl. Evol.*, 10(1):1–10, 1998.

- [120] E. U. Canning, A. Curry, S. W. Feist, M. Longshaw, and B. Okamura. A new class and order of myxozoans to accommodate parasites of bryozoans with ultrastructural observations on tetracapsula bryosalmonae (pkx organism). *J. Eukar. Micr.*, 47:456–468, 2000.
- [121] E. U. Canning, A. Curry, S. W. Feist, M. Longshaw, and B. Okamura. A new class and order of myxozoans to accommodate parasites of bryozoans with ultrastructural observations on tetracapsula bryosalmonae (pkx organism). *J. Euk. Microbiol.*, 47(5):456–468, 2000.
- [122] E. U. Canning, A. Curry, S. L. L. Hill, and B. Okamura. Ultrastructure of *Buddenbrockia allmani* n. sp. (Myxozoa, Malacosporea), a Parasite of *Lophopus crystallinus* (Bryozoa, Phylactolaemata). *J. Eukaryot. Microbiol.*, 54(3):247–262, 2007.
- [123] Y. Cao, J. Adachi, and M. Hasegawa. Eutherian phylogeny as inferred from mitochondrial dna sequence data. *Jpn J Genet*, 69(5):455–472, 1994.
- [124] A. Carafa, J. G. Duckett, J. P. Knox, and R. Ligrone. Distribution of cell-wall xylans in bryophytes and tracheophytes: new insights into basal interrelationships of land plants. *New Phytologist*, 168:231–240, 2005.
- [125] R. B. Carnegie, G. R. Meyer, J. Blackbourn, N. Cochenec-Laureau, F. C. J. Berthe, and S. M. Bower. Molecular detection of the oyster parasite *Mikrocytos mackini*, and a preliminary phylogenetic analysis. *DISEASES OF AQUATIC ORGANISMS*, 54:219–227, 2003.
- [126] D. A. Caron, R. L. Lim, M. R. Dennett, and R. J. Cast. Molecular phylogenetic analysis of the heterothrophic chrysophyte genus *paraphysomonas* (chrysophyceae), and the design of rna-targeted oligonucleotide probes for two species. *J. Phycol.*, 35:824–837, 1999.
- [127] S. Carranza, J. Baguna, and M. Riutort. Are the platyhelminthes a monophyletic primitive group? an assessment using 18s rdna sequences. *Mol. Biol. Evol.*, 14:485–497, 1997.
- [128] G.-J. Caspers, D. U. de Weerd, J. Wattel, and W. W. de Jong. Crystallin sequences support a galliform-anseriform clade. *Mol. Phyl. Evol.*, 7(2):185–188, 1997.

- [129] I. Cassens, S. Vicario, V. G. Waddell, H. Balchowsky, D. van Belle, W. Dings:, C. Fans:, R. S. L. Mohanp:, P. C. Simoes-Lopes, R. Bastida, A. Meyer, M. J. Stanhope, and M. C. Milinkovitch. Independent adaptation to riverine habitats allowed survival of ancient cetacean lineages. *Proc. Natl. Acad. Sci.*, 97(21):11343–11347, 2000.
- [130] J. Castresana and D. Moreira. Respiratory chains in the last common ancestor of living organisms. *J. Mol. Evol.*, 49:453–460, 1999.
- [131] L. Cavaletti, P. Monciardini, R. Bamonte, P. Schumann, M. Rohde, M. Sosio, and S. Donadio. New lineage of filamentous, spore-forming, gram-positive bacteria from soil. *Environ. Microbiol.*, 72(6):4360–4369, 2006.
- [132] T. Cavalier-Smith and M. T. P. Allsopp. Corallochytrium, an enigmatic non-flagellate protozoan related to choanoflagellates. *Eur. J. Protistol.*, 32:306–310, 1996.
- [133] T. Cavalier-Smith, M. T. Allsopp, and E. E. Chao. Chimeric conundra: are nucleomorphs and chromists monophyletic or polyphyletic? *Proc. Natl. Acad. Sci. USA*, 91(24):11368–11372, 1994.
- [134] T. Cavalier-Smith, M. Allsop, E. Chao, N. Boury-Esnault, and J. Vacelet. Sponge phylogeny, animal monophyly, and the origin of the nervous system: 18s rna evidence. *Can. J. Zool.*, 74:2031–2045, 1996.
- [135] T. Cavalier-Smith, E. E.-Y. Chao, and B. Oates. Molecular phylogeny of amoebzoa and the evolutionary significance of the unikont phylum Cercozoa. *European Journal of Protistology*, 40:21–48, 2004.
- [136] T. Cavalier-Smith and E. E.-Y. Chao. Molecular Phylogeny of Centronid Heliozoa, a Novel Lineage of Bikont Eukaryotes That Arose by Ciliary Loss. *J Mol Evol*, 56:387–396, 2003.
- [137] T. Cavalier-Smith and E. E.-Y. Chao. Phylogeny and Classification of Phylum Cercozoa (Protozoa). *Protist*, 154:341–358, 2003.
- [138] T. Cavalier-Smith and E. E.-Y. Chao. Phylogeny of Choanozoa, Apusozoa, and Other Protozoa and Early Eukaryote Megaevolution. *J Mol Evol*, 56:540–563, 2003.

- [139] T. Cavalier-Smith and E. E.-Y. Chao. Phylogeny and Megasytematics of Phagotrophic Heterokonts (Kingdom Chromista). *J Mol Evol*, 62:388–420, 2006.
- [140] T. Cavalier-Smith and E. E. Chao. The opalozoan apuzomonas is related to the common ancestor of animals, fungi and choanoflagellates. *Proc. R. Soc. L. B.*, 261:1–6, 1995.
- [141] T. Cavalier-Smith and E. E. Chao. Sarcomonad ribosomal rna sequences, rhizopod phylogeny, and the origin of euglyphid amoebae. *Arch. Protistenkd.*, 147:227–236, 1996/97.
- [142] T. Cavalier-Smith and E. E. Chao. Molecular phylogeny of the free-living archezoan *trepomonas agilis* and the nature of the first eukaryote. *J. Mol. Evol.*, 43(6):551–562, 1996.
- [143] T. Cavalier-Smith and E. E. Chao. Hyperamoeba rna phylogeny and the classification of the phylum amoebozoa. *J. Euk. Microbiol.*, pages 1–8, 1998.
- [144] T. Cavalier-Smith and E. E. Chao. Protalveolate phylogeny and systematics and the origins of Sporozoa and dinoflagellates (phylum Myzozoa nom. nov.). *European Journal of Protistology*, 40:185–212, 2004.
- [145] T. Cavalier-Smith and S. von der Heyden. Molecular phylogeny, scale evolution and taxonomy of centrohelid Heliozoa. *Mol. Phyl. Evol.*, 1(in press):1–56, 2007.
- [146] T. Cavalier-Smith. Protista without mitochondria. *Nature*, 326(6111), 1987.
- [147] T. Cavalier-Smith. Classification of percolozoa. *Endocytobiology*, 5:401, 1993.
- [148] T. Cavalier-Smith. Kingdom protozoa and its 18 phyla. *Microb. Rew.*, 57:953–994, 1993.
- [149] T. Cavalier-Smith. The protozoan phylum opalozoa. *J. Euk. Microbiol.*, 40(5):609–615, 1993.
- [150] T. Cavalier-Smith. Zooflagellate phylogeny and classification. *Cytology*, 37(No 11):1010–1029, 1995.

- [151] T. Cavalier-Smith. Amoeboflagellates and mitochondrial cristae in eukaryote evolution: Megasytematics of the new protozoan subkingdoms eozoa and neozoa. *Arch. Protistenkd.*, 147:237–258, 1996/97.
- [152] T. Cavalier-Smith. Cryptomonad nuclear and nucleomorph 18s rRNA phylogeny. *Eur. J. Phycol.*, 31(4):315–328, 1996.
- [153] T. Cavalier-Smith. A revised six-kingdom system of life. *Biol. Rev.*, 73(2):203–266, 1998.
- [154] T. Cavalier-Smith. Principles of protein and lipid targeting in secondary symbiogenesis: Euglenoid, dinoflagellate, and sporozoan plastid origins and the eukaryote family tree. *J. Euk. Microbiol.*, 46(4):347–366, 1999.
- [155] T. Cavalier-Smith. *Flagellate megaevolution: the basis for eukaryote diversification*, pages 361–390. 2000.
- [156] T. Cavalier-Smith. The neomuran origin of archaeobacteria, the neobacterial root of the universal tree and bacterial megaclassification. *Int. J. Syst. Evol. Micr.*, 52:7–76, 2002.
- [157] T. Cavalier-Smith. The phagotrophic origin of eukaryotes and phylogenetic classification of protozoa. *Int. J. Syst. Evol. Micr.*, 52:297–354, 2002.
- [158] T. Cavalier-Smith. Protist phylogeny and the high-level classification of Protozoa. *Europ. J. Protistol.*, 39(2003):338–348, 2003.
- [159] T. Cavalier-Smith. The excavate protozoan phyla Metamonada Grasse emend. (Anaeromonadea, Parabasalia, Carpediemonas, Eopharyngia) and Loukozooa emend. (Jakobea, Malawimonas): their evolutionary affinities and new higher taxa. *International Journal of Systematic and Evolutionary Microbiology*, 53:1741–1758, 2003.
- [160] T. Cavalier-Smith. Only six kingdoms of life. *Proc. R. Soc. Lond. B*, 271:1251–1262, 2004.
- [161] T. Cavalier-Smith. Cell evolution and earth history: stasis and revolution. *Phil. Trans. R. Soc. B*, pages 1–38, 2006.

- [162] T. Cavalier-Smith. Rooting the tree of life by transition analyses. *Biology Direct*, 1(19):1–83, 2006.
- [163] P. Y. Chan, T. W. Lam, S. M. Yiu, and C. M. Liu. A more accurate and efficient whole genome phylogeny. *Proceedings*, pages 1–15, 2005.
- [164] D. J. Chapman and V. J. Chapman. *The algae*. Glasgow, 1979.
- [165] S. M. Chaw, H. Long, B. S. Wang, A. Zharkikh, and W. H. Li. The phylogenetic position of taxaceae based on 18s rna sequences. *J Mol Evol*, 37(6):624–630, 1993.
- [166] S.-M. Chaw, C. L. Parkinson, Y. Cheng, T. M. Vincent, and J. D. Palmer. Seed plant phylogeny inferred from all three plant genomes: Monophyly of extant gymnosperms and origin of gnetales from conifers. *Proc. Natl. Acad. Sci.*, 97(8):4086–4091, 2000.
- [167] S. M. Chaw, H. M. Sung, H. Long, A. Zharkikh, and W. H. Li. The phylogenetic positions of the conifer genera amentotaxus phyllocladus, and nageia inferred from 18s rna sequences. *J Mol Evol*, 41(2):224–230, 1995.
- [168] S. M. Chaw, A. Zharkikh, H. M. Sung, T. C. Lau, and W. H. Li. Molecular phylogeny of extant gymnosperms and seed plant evolution: analysis of nuclear 18s rna sequences. *Mol Biol Evol*, 14(1):56–68, 1997.
- [169] Y. Cheng, R. G. Nicolson, K. Tripp, and S.-M. Chaw. Phylogeny of taxaceae and cephalotaxaceae genera inferred from chloroplast mat k gene and nuclear rdna its region. *Mol. Phyl. Evol.*, pages 353–365, 1999.
- [170] J.-Y. Chen, P. Oliveri, C.-W. Li, G.-Q. Zhou, F. Gao, J. W. Hagadorn, K. J. Petersonf, and E. H. Davidson. Precambrian animal diversity: Putative phosphatized embryos from the doushantuo formation of china. *Proc. Natl. Acad. Sci.*, 97(9):4457–4462, 2000.
- [171] J. W. Chihade, J. R. Brown, P. R. Schimmel, and L. R. de Pouplana. Origin of mitochondria in relation to evolutionary history of eucaryotic alanyl-trna synthetase. *Proc. Natl. Acad. Sci. USA*, 97(No 22):12153–12157, 2000.

- [172] J. Chiu, R. DeSalle, H.-M. Lam, L. Meisel, and G. Coruzzi. Molecular evolution of glutamate receptors: A primitive signaling mechanism that existed before plants and animals diverged. *Mol. Biol. Evol.*, 16(6):826–838, 1999.
- [173] Y.-J. Choo, K. Lee, J. Song, and J.-C. Cho. *Puniceicoccus vermicola* gen. nov., sp. nov., a novel marine bacterium, and description of puniceicoccaceae fam. nov., puniceicoccales ord. nov., opitutaceae fam. nov., opitutaes ord. nov. and opitutae classis nov. in the phylum 'verrucomicrobia'. *International Journal of Systematic and Evolutionary Microbiology*, 57:532–537, 2007.
- [174] R. Chouari, D. L. Paslier, P. Daegelen, P. Ginestet, J. Weissenbach, and A. Sghir. Novel predominant archaeal and bacterial groups revealed by molecular analysis of an anaerobic sludge digester. *Environ. Microbiol.*, 7(8):1104–1115, 2005.
- [175] J.-C. Cho, K. L. Vergin, R. M. Morris, and S. J. Giovannoni. *Lentisphaera araneosa* gen. nov., sp. nov, a transparent exopolymer producing marine bacterium, and the description of a novel bacterial phylum, lentisphaerae. *Environ. Microbiol.*, 6(6):611–621, 2004.
- [176] C. G. Clark and A. J. Roger. Direct evidence for secondary loss of mitochondria in *entamoeba histolytica*. *Proc. Natl. Acad. Sci. (USA)*, 92(7):6518–6521, 1995.
- [177] B. L. Clay, P. Kugrens, and R. E. Lee. A revised classification of cryptophyta. *Bot. J. Linn. Soc.*, 131(2):131–151, 1999.
- [178] B. Clay and P. Kugrens. Systematics of the enigmatic kathablepharids, including em characterization of the type species, *kathablepharis phoenikoston*, and new observations on *k. remigera* comb. nov. *Protist*, 150(1):43–59, 1999.
- [179] B. L. Cohen and A. Weydmann. Molecular evidence that phoronids are a subtaxon of brachiopods (Brachiopoda: Phoronata) and that genetic divergence of metazoan phyla began long before the early Cambrian). *Organisms, Diversity & Evolution*, 5:253–273, 2005.
- [180] B. L. Cohen. Monophyly of brachiopods and phoronids: reconciliation of molecular evidence with linnaean classification (the subphylum

phoroniformea nov.). *Proc. R. Soc. Lond. Biological Sciences*, 267:225–231, 2000.

- [181] D. J. Colgan, P. A. Hutchings, and M. Braunea. A multigene framework for polychaete phylogenetic studies. *Organisms, Diversity & Evolution*, 6(2006):220–235, 2006.
- [182] A. G. Collins, B. Bentlage, G. I. Matsumoto, S. H. D. Haddock, K. J. Osborn, and B. Schierwater. Solution to the phylogenetic enigma of Tetraplatia, a worm-shaped cnidarian. *Biol. Lett.*, 2:120–124, 2006.
- [183] A. G. Collins, P. S. Chuchert, A. C. M. Arques, T. H. J. Ankowski, M. O. M. Edina, and B. E. S. Chierwater. Medusozoan Phylogeny and Character Evolution Clarified by New Large and Small Subunit rDNA Data and an Assessment of the Utility of Phylogenetic Mixture Models. *Syst. Biol.*, 55(1):97–115, 2006.
- [184] A. G. Collins. Evaluating multiple alternative hypotheses for the origin of bilateria: An analysis of 18s rrna molecular evidence. *Proc. Natl. Acad. Sci. USA*, 95(26):15458–15463, 1998.
- [185] S. Conway-Morris and J.-B. Caron. Halwaxiids and the Early Evolution of the Lophotrochozoans. *Science*, 62:1255–1258, 2004.
- [186] S. Conway-Morris and W. T. Crompton. The origins and evolution of acanthocephala. *Biol. Rev.*, 57(1):85–119, 1982.
- [187] J. O. Corliss. The kingdom protista and its 45 phyla. *BioSystems*, 17(2):87–126, 1984.
- [188] J. O. Corliss. Protistan diversity and origin of multicellular/multitissued organisms. *Boll. Zool.*, 56:227–234, 1989.
- [189] J. O. Corliss. An iterim utilitiation [“user-friendly”] hierarchial classification and characterization of protists. *Acta Protozool.*, 33(1):1–51, 1994.
- [190] J. O. Corliss. Megasytematics and phylogenetics of the protists revisited: Grades, clades, one or several kingdoms? *J. Euk. Microbiol.*, 1998.

- [191] P. S. Corneli and R. H. Ward. Mitochondrial genes and mammalian phylogenies: Increasing the reliability of branch length estimation. *Mol. Biol. Evol.*, 17(2):224–234, 2000.
- [192] E. K. Costello and S. K. Schmidt. Microbial diversity in alpine tundra wet meadow soil: novel chloroflexi from a cold, water-saturated environment. *Environ. Microbiol.*, 8(8):1471–1486, 2006.
- [193] C. J. Cox, B. Goffinet, A. E. Newton, A. J. Shaw, and T. A. J. Hedderon. Phylogenetic relationships among the diplolepideous-alternate mosses (bryidae) inferred from nuclear and chloroplast dna sequences. *Bryologist*, 103(2):224–241, 2000.
- [194] C. J. Cox, B. Goffinet, A. J. Shaw, and S. B. Boles. Phylogenetic relationships among the mosses based on heterogeneous bayesian analysis of multiple genes from multiple genomic compartments. *Systematic Botany*, 29(2):234–250, 2004.
- [195] B. Crandall-Stoller. Morphogenesis, developmental anatomy and bryophyte phylogenetics: contradictions of monophyly. *J. Bryol.*, 14:1–23, 1986.
- [196] P. R. Crane and P. Kenrick. Diverted development of reproductive organs: a source of morphological innovation in land plants. *Pl. Syst. Evol.*, 206:161–174, 1997.
- [197] P. R. Crane and P. Kenrick. Problems in cladistic classification: higher-level relationships in land plants. *Aliso*, 15(No 2):87–104, 1997.
- [198] P. R. Crane. The fossil history of the gnetales. *Int. J. Plant. Sci.*, 157(No 6 Suppl.):50–57, 1996.
- [199] J. B. Dacks, A. Marinets, W. F. Doolittle, T. Cavalier-Smith, and J. John M. Logsdon. Analyses of rna polymerase ii genes from free-living protists: Phylogeny, long branch attraction, and the eukaryotic big bang. *Mol. Biol. Evol.*, 19:830–840, 2002.
- [200] N. Daugbjerg and R. A. Andersen. Phylogenetic analyses of the rbcL sequences from haptophytes and heterokont algae suggest their chloroplasts are unrelated. *Mol Biol Evol*, 14(12):1242–1251, 1997.

- [201] A. A. da Silva, J. Pawlowski, and A. J. Gooday. High diversity of deep-sea Gromia from the Arabian Sea revealed by small subunit rDNA sequence analysis. *Mar. Biol.*, 148:769–777, 2006.
- [202] F. B. da Silva, V. C. Muschner, and S. L. Bonatto. Phylogenetic position of Placozoa based on large subunit (LSU) and small subunit (SSU) rRNA genes. *Genetics and Molecular Biology*, 30(1):127–132, 2007.
- [203] E. J. Deeds, H. Hennessey, and E. I. Shakhnovich. Prokaryotic phylogenies inferred from protein structural domains. *Genome Research*, pages 393–402, 2005.
- [204] C. Delarbre, H. Escriva, C. Gallut, V. Barriel, P. Kourilsky, P. Janvier, V. Laudet, and G. Gachelin. The complete nucleotide sequence of the mitochondrial dna of the agnathan lampetra fluviatilis: Bearings on the phylogeny of cyclostomes. *Mol. Biol. Evol.*, 17(4):519–529, 1990.
- [205] G. Delflandre. *Classe des Ebriedines*, pages 407–424. Masson et Co, Paris, 1952.
- [206] P. Delgado-Viscogliosi, E. Viscogliosi, D. Gerbod, M. L. Sogin, V. P. Edgcomb, and J. Kulda. Molecular phylogeny of parabasalids based on small subunit rRNA sequences, with emphasis on the trichomonadinae subfamily. *J. Euk. Microbiol.*, 47(1):70–75, 2000.
- [207] S. L. Dellaporta, A. Xu, S. Sagasser, W. Jakob, M. A. Moreno, L. W. Buss, and B. Schierwater. Mitochondrial genome of Trichoplax adhaerens supports Placozoa as the basal lower metazoan phylum. *Proc. Natl. Acad. Sci. USA*, 103(23):8751–8756, 2006.
- [208] V. Demoulin. The origin of ascomycetes and basidiomycetes. *Bot. Rev.*, 40(3):315–345, 1974.
- [209] Demoulin. [rhodophyta and fungi]. *BioSystems*, 18(3–4):347–356, 1985.
- [210] R. A. Dewel. Colonial Origin for Eumetazoa: Major Morphological Transitions and the Origin of Bilaterian Complexity. *JOURNAL OF MORPHOLOGY*, 243:35–74, 2000.
- [211] E. de Luna, W. R. Buck, H. Akiyama, T. Arikawa, H. Tsubota, D. Gonzalez, A. E. Newton, and A. J. Shaw. Ordinal phylogeny within the

hypnobryalean pleurocarpous mosses inferred from cladistic analyses of three chloroplast dna sequence data sets: trnl-f, rps4, and rbcl. *Bryologist*, 103(2):242–256, 2000.

- [212] A. E. de L. Monteros. Higher-level phylogeny of trogoniformes. *Mol. Phyl. Evol.*, 14(1):20–34, 2000.
- [213] Y. V. de Peer, S. L. Baldauf, W. F. Doolittle, and A. Meyer. An updated and comprehensive rRNA phylogeny of (crown) eukaryotes based on rate-calibrated evolutionary distances. *J. Mol. Evol.*, 51:565–576, 2000.
- [214] J. Diruggiero, J. R. Brown, A. P. Bogert, and F. T. Robb. Dna repair systems in archaea: Mementos from the last universal common ancestor? *J. Mol. Evol.*, 49:474–484, 1999.
- [215] E. O. Dodson. The kingdoms of organisms. *Syst. Zool.*, 20(3):265–281, 1971.
- [216] M. A. Dojka, P. Hugenholtz, S. K. Haack, and N. R. Pace. Microbial diversity in a hydrocarbon- and chlorinated-solvent- contaminated aquifer undergoing intrinsic bioremediation. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 64(10):3869–3877, 1998.
- [217] S. P. Donachie, S. Hou, K. S. Lee, C. W. Riley, A. Pikina, C. Belisle, S. Kempe, T. S. Gregory, A. Bossuyt, J. Boerema, J. Liu, T. A. Freitas, A. Malahoff, and M. Alam. The hawaiian archipelago: A microbial diversity hotspot. *Microbial Ecology*, 48(2004):509–520, 2004.
- [218] P. C. J. Donoghue, P. L. Forey, and R. J. Aldridge. Conodont affinity and chordate phylogeny. *Biol. Rev.*, 75:191–251, 2000.
- [219] W. F. Doolittle. Fun with genealogy. *Proc. Natl. Acad. Sci. USA*, 94:12751–12753, 1997.
- [220] W. F. Doolittle. Phylogenetic classification and the universal tree. *Science*, 284(5423):2124–2128, 1999.
- [221] P. B. Douglas and K. F. Jarrell. Further evidence to suggest that archaeal flagella are related to bacterial type IV pili. *J. Mol. Evol.*, 46:370–373, 1998.

- [222] S. E. Douglas and S. L. Penny. The plastid genome of the cryptophyte alga, guillardia theta: complete sequence and conserved synteny groups confirm its common ancestry with red algae. *J. Mol. Evol.*, 48:236–244, 1999.
- [223] J. A. Doyle. Seed plant phylogeny and relationships of gnetales. *Intern. J. Plant Sci.*, 57(6 (Suppl.)):S3–S39, 1996.
- [224] R. J. Duff and D. L. Nickrent. Phylogenetic relationships of land plants using mitochondrial small-subunit rDNA sequences. *Amer. J. Bot.*, 86(3):372–386, 1999.
- [225] W. d. Almeida, M. L. Christoffersen, D. d. Amorim, A. R. S. Garraffoni, and G. S. Silva. Polychaeta, are monophyletic: Polychaeta, Annelida, and Articulata are not monophyletic: Metameria (Metazoa, articulating the Metameria (Metazoa, Coelomata). *Revista Brasileira de Zoologia*, 20(1):23–57, 2003.
- [226] J. E. d. Torre, M. G. Egan, M. S. Katari, E. D. Brenner, D. W. Stevenson, G. M. Coruzzi, and R. DeSalle. ESTimating plant phylogeny: lessons from partitioning. *BMC Evolutionary Biology*, 6(48):1–15, 2006.
- [227] G. D. Edgecombe. Morphological data, extant Myriapoda, and the myriapod stem-group. *Contributions to Zoology*, 73(3):1–37, 2004.
- [228] I. Eeckhaut, L. Fievez, and M. C. M. Muller. Larval Development of Myzostoma cirriferum (Myzostomida). *JOURNAL OF MORPHOLOGY*, 283:258–269, 2003.
- [229] I. Eeckhaut and D. Lanterbecq. Myzostomida: A review of the phylogeny and ultrastructure. *Hydrobiologia*, 535/536:253–275, 2005.
- [230] J. A. Eisen, N. Ward, K. E. Nelson, J. H. Badger, J. Sakwa, D. Wu, M. Wu, K. Penn, G. Pai, S. Smith, E. M. O. Connor, J. Enticknap, T. Steppe, and F. T. Robb. Phylogenomics: a genome- level approach to assembling the bacterial branches of the tree of life. 2004.
- [231] C. C. Emig. Les lophophotates constituens — ils embracement? *Bull. Soc. Zool. Fr.*, 122(3):279–288, 1997.

- [232] A. Erber, D. Riemer, M. Bovenschulte, and K. Weber. Molecular phylogeny of metazoan intermediate filament proteins. *J. Mol. Evol.*, 47:751–762, 1998.
- [233] A. V. Ereskovsky and A. K. Dondua. The problem of germ layers in sponges (Porifera) and some issues concerning early metazoan evolution. *Zoologischer Anzeiger*, 151(2):65–76, 2006.
- [234] A. V. Ereskovsky and D. B. Tokina. Asexual reproduction in homoscleromorph sponges (Porifera; Homoscleromorpha). *Mar. Biol.*, 151:425–434, 2007.
- [235] O. E. Eriksson. Outline of Ascomycota - 2006. *Myconet*, 12:1–82, 2006.
- [236] C. Erseus and M. Kallersjo. 18S rDNA phylogeny of Clitellata (Annelida). *Zoologica Scripta*, 33(2):187–196, 2003.
- [237] C. Esser, W. Martin, and T. Dagan. The origin of mitochondria in light of a fluid prokaryotic chromosome model. *Biol. Lett.*, pages 1–5, 2006.
- [238] G. F. ESTEBAN, K. J. CLARKE, and B. J. FINLAY. Paraluffisphaera tuba gen. n., sp. n. - a Newly-discovered Eukaryote. *Acta Protozool.*, 44:265–270, 2005.
- [239] R. C. Everroad and A. M. Wood. Comparative molecular evolution of newly discovered picocyanobacterial strains reveals a phylogenetically informative variable region of b-phycoerythrin. *J. Phycol.*, (in press):1–12, 2006.
- [240] B. E., H. Brinkmann, D. V. Moore, C. W. Sensen, P. Gordon, L. Durruffle, T. Gaasterland, P. Lopez, and H. Muller, M. & Philippe. The analysis of 100 genes supports the grouping of three highly divergent amoebae: Dictyostelium, entamoeba, and mastigamoeba. *Proc. Natl. Acad. Sci. USA*, 99:1414–1419, 2002.
- [241] M. Fanenbruck, S. Harzsch, and J. W. Wagele. The brain of the Remipedia (Crustacea) and an alternative hypothesis on their phylogenetic relationships. *Proc. Natl. Acad. Sci. USA*, 101(11):3868–3873, 2004.

- [242] C. L. Farge, B. D. Mishler, J. A. Wheeler, D. P. Wall, K. Johannes, S. Schaffer, and A. J. Shaw. Phylogenetic relationships within the haplolepideous mosses. *Bryologist*, 103(2):257–276, 2000.
- [243] A. E. Feller and S. B. Hedges. Molecular evidence for the early history of living amphibians. *Mol. Phyl. Evol.*, 9(3):509–516, 1998.
- [244] J. W. Fell, T. Boekhout, A. Fonseca, G. Scorzetti, and A. Statzell-Tallman. Biodiversity and systematics of basidiomycetous yeasts as determined by large-subunit rDNA d1/d2 domain sequence analysis. *Int. J. Syst. and Evol. Microbiol.*, 50:1351–1371, 2000.
- [245] T. Fenchel and R. Thar. “Candidatus Ovobacter propellens”: a large conspicuous prokaryote with an unusual motility behaviour. *FEMS Microbiol. Ecol.*, 48(2004):231–238, 2004.
- [246] D.-F. Feng, G. Cho, and R. F. Doolittle. Determining divergence times with a protein clock: Update and reevaluation. *Proc. Natl. Acad. Sci. USA*, 94:13028–13033, 1997.
- [247] F. Fenner. The classification and nomenclature of viruses. *J. Gen. Virol.*, 31:463–470, 1976.
- [248] I. Ferrera, S. Longhorn, A. B. Banta, Y. Liu, D. Preston, and A.-L. Reysenbach. Diversity of 16S rRNA gene, its region and acb gene of the aquificales. *Extremophiles*, (in press):1–8, 2006.
- [249] I. Fiala. The phylogeny of Myxosporea (Myxozoa) based on small subunit ribosomal RNA gene analysis. *International Journal for Parasitology*, 36:1521–1534, 2006.
- [250] Field et al. Molecular phylogeny of the animal kingdom. *Science*, 239:748–753, 1988.
- [251] L. Fieseler, M. Horn, M. Wagner, and U. Hentschel. Discovery of the novel candidate phylum “poribacteria” in marine sponges. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 70(6):3724–3732, 2004.
- [252] L. Fieseler, A. Quaiser, C. Schleper, and U. Hentschel. Analysis of the first genome fragment from the marine sponge-associated, novel candidate phylum poribacteria by environmental genomics. *Environ. Microbiol.*, 8(4):612–624, 2006.

- [253] R. M. Figge, M. Schubert, H. Brinkmann, and R. Cerff. Glyceraldehyde-3-phosphate dehydrogenase gene diversity in eubacteria and eukaryotes: Evidence for intra- and inter-kingdom gene transfer. *Mol. Biol. Evol.*, 16(4):429–440, 1999.
- [254] D. A. Fitzpatrick, M. E. Logue, J. E. Stajich, and G. Butler. A fungal phylogeny based on 42 complete genomes derived from supertree and combined gene analysis. *BMC Evolutionary Biology*, 6(99):1–15, 2006.
- [255] I. Foissner and W. Foissner. Revision of the family spironemidae dofein (protista, hemimastigophora), with description of two species, spironema terricola n. sp. and stereonema geiseri n. g., n. sp. *J. Euk. Microbiol.*, 40(No 4):422–438, 1993.
- [256] W. Foissner, H. O. Blatterer, and I. Foissner. The hemimastigophora (hemimastix amphikineta nov. gen., nov. spec.), a new protozoan phylum from gondwanian soils. *Eur. J. Protistol.*, 23:361–383, 1988.
- [257] W. Foissner and I. Foissner. The hemimastigophora, remarkable heterotrophic flagellates possibly related to euglenoid protists. *Proc. Germ. Zool. Soc.*, page 136, 1993.
- [258] L. L. Forrest. Unraveling the evolutionary history of the liverworts (Marchantiophyta): multiple taxa, genomes and analyses. 109(3):303, 2006.
- [259] R. Fortey. Olenid trilobites: The oldest known chemoautotrophic symbionts? *Proc. Natl. Acad. Sci.*, 97(12):6574–6578, 2000.
- [260] G. E. Fox et al. The phylogeny of procaryotes. *Science*, 209(4455):6, 1980.
- [261] D. D. Franceschi and C. Vozenin-Serra. Origin of ginkgo biloba l. phylogenetic approach. *C R Acad Sci III*, 323(6):583–592, 2000.
- [262] T. Friedl, A. Besendahl, P. Pfeiffer, and D. Bhattacharya. The distribution of group i introns in lichen algae suggests that lichenization facilitates intron lateral transfer. *Mol. Phyl. Evol.*, pages 342–352, 1999.
- [263] T. Friedl and C. O’Kelly. Phylogenetic relationships of green algae assigned to the genus Planophila (Chlorophyta) : evidence from 18S

rDNA sequence data and ultrastructure. *Eur. J. Phycol.*, 37:373–384, 2002.

- [264] M. W. Frohlich and D. S. Parker. The mostly male theory of flower evolutionary origins: from genes to fossils. *Syst. Bot.*, 25(No 2):155–170, 2000.
- [265] J. A. Fuerst. Planctomycetes - a phylum of emerging interest for microbial evolution and ecology. *WFCC (World Federation of Culture Collections) Newsletter*, 38:1–11, 2004.
- [266] J. A. Fuerst. Intracellular compartmentation in planctomycetes. *Annu. Rev. Microbiol.*, 59:299–328, 2005.
- [267] N. J. Fuller, C. Campbell, D. J. Allen, F. D. Pitt, K. Zwirgmaier, F. L. Gall, D. Vaultot, and D. J. Scanlan. Analysis of photosynthetic picoeukaryote diversity at open ocean sites in the Arabian Sea using a PCR biased towards marine algal plastids. *AQUATIC MICROBIAL ECOLOGY*, 43:79–93, 2006.
- [268] S. Funes, E. Davidson, A. Reyaes-Presto, S. Magallon, P. Herrion, and M. P. King. Response to comment on ‘a green algal apicoplast ancestor’. *Science*, 301:49b, 2003.
- [269] H. Furuya, K. Tsuneki, and Y. Koshida. Fine Structure of Dicyemid Mesozoans, With Special Reference to Cell Junctions. *JOURNAL OF MORPHOLOGY*, 231(1997):297–305, 1997.
- [270] A. P. Gaeth, R. V. Short, and M. B. Renfree. The developing renal, reproductive, and respiratory systems of the african elephant suggest an aquatic ancestry. *Proc. Natl. Acad. Sci. USA*, 96(10):5555–5558, 1999.
- [271] Y.-H. Gai, D.-X. Song, H.-Y. Sun, and K.-Y. Zhou. Myriapod Monophyly and Relationships Among Myriapod Classes Based on Nearly Complete 28S and 18S rDNA Sequences. *ZOOLOGICAL SCIENCE*, 23:1101–1108, 2006.
- [272] N. Galtier, N. Tourasse, and M. Gouy. A nonhyperthermophilic common ancestor to extant life forms. *Science*, 283(5399):220–221, 1999.

- [273] B. Gao and R. S. Gupta. Phylogenomic analysis of proteins that are distinctive of Archaea and its main subgroups and the origin of methanogenesis. *BMC Genomics*, 8:86, 2007.
- [274] M. Garcia-Varela, G. P.-P. de Leon, P. de la Torre, M. P. Cummings, S. S. S. Sarma, and J. P. Lacleste. Phylogenetic relationships of acanthocephala based on analysis of 18s ribosomal rna gene sequences. *J Mol Evol*, 50:532–540, 2000.
- [275] M. Garcia-Varela and S. A. Nadler. Phylogenetic relationships among Syndermata inferred from nuclear and mitochondrial gene sequences. *Molecular Phylogenetics and Evolution*, 2006.
- [276] E. Garcsa-Machado, M. Pempera, N. Dennebouy, M. Oliva-Suarez, J.-C. Mounolou, and M. Monnerot. Mitochondrial genes collectively suggest the paraphyly of crustacea with respect to insecta. *J. Mol. Evol.*, 49:142–149, 1999.
- [277] J. R. Garey, T. J. Near, M. R. Nonnemacher, and S. A. Nadler. Molecular evidence for acanthocephala as a subtaxon of rotifera. *J. Mol. Evol.*, 43:287–292, 1996.
- [278] A. Gargas, P. T. DePriest, M. Grube, and A. Tehler. Multiple origins of lichen symbioses in fungi suggested by ssu rdna phylogeny. *Science*, 268(5216):1492–1495, 1995.
- [279] A. Gargas and J. W. Taylor. Phylogeny of discomycetes and early radiations of the apothecial ascomycotina inferred from ssu rdna sequence data. *Exp Mycol*, 19(1):7–15, 1995.
- [280] G. M. Garrity, J. A. Bell, and T. G. Lilburn. *Taxonomic Outline of the Prokaryotes. Bergey’s Manual of Systematic Bacteriology*. Release 5.0. Springer-Verlag, New York, second edition edition, 2004.
- [281] G. M. Garrity, J. A. Bell, and T. Lilburn. *The Revised Road Map to the Manual*, volume Two, chapter The Proteobacteria Part A Introductory Essays. Springer, second edition edition, 2006.
- [282] J. Gatesy, M. Milinkovitch, V. Waddell, and M. Stanhope. Towards resolving the interordinal relationships of placental mammals. *Syst. Biol.*, 48(1):16–20, 1999.

- [283] H. Gehrig, A. Schussler, and M. Kluge. Geosiphon pyriforme, a fungus forming endocytobiosis with nostoc (cyanobacteria), is an ancestral member of the glomales: evidence by ssu rna analysis. *J Mol Evol*, 43(1):71–81, 1996.
- [284] A. Germot and H. Philippe. Critical analysis of eukaryotic phylogeny: A case study based on the hsp70 family. *J. Euk. Microbiol.*, 46(2):116–124, 1999.
- [285] A. Germot, K. Philippe, and H. L. Guyader. Evidence for loss of mitochondria in microsporidia from a mitichondriat-type HSP70 in nosema locustae. *Mol Bioch. Parasit.*, 87(2):159–168, 1997.
- [286] S. P. Gibbs and M. L. Kerracher. Cell and nucleomorph division of the alga cryptomonas. *Can. J. Bot.*, 60(11):2440–2452, 1982.
- [287] S. P. Gibbs. The cloroplasts of euglena may be evolved from symbiotic green alga. *Can. J. Bot.*, 56(22):2883–2889, 1978.
- [288] G. Giribet, S. Carranza, J. Baguna, M. Riutort, and C. Ribera. First molecular evidence for the existence of a tardigrada + arthropoda clade. *Mol Biol Evol*, 13(1):76–84, 1996.
- [289] G. Giribet, S. Carranza, M. Riutort, J. Baguna, and C. Ribera. Internal phylogeny of the chilopoda (myriapoda, arthropoda) using complete 18s rdna and partial 28s rdna sequences. *Philos Trans R Soc Lond B Biol Sci*, 354(1380):215–222, 1999.
- [290] G. Giribet, D. L. Distel, M. Polz, W. Sterrer, and W. C. Wheeler. Triploblastic relationships with emphasis on the acoelomates and the position of gnathostomulida, cycliophora, plathelminthes, and chaetognatha: A combined approach of 18s rdna sequences and morphology. *Syst. Biol.*, 49:539–562, 2000.
- [291] G. Giribet, G. D. Edgecombe, J. M. Carpenter, C. A. D’Haese, and W. C. Wheeler. Is Ellipura monophyletic? A combined analysis of basal hexapod relationships with emphasis on the origin of insects. *Organisms, Diversity & Evolution*, 4:319–340, 2004.
- [292] G. Giribet, A. Okusu, A. R. Lindgren, S. W. Huff, M. Schrodler, and M. K. Nishiguchi. Evidence for a clade composed of molluscs with

serially repeated structures: Monoplacophorans are related to chitons. *Proc. Natl. Acad. Sci. USA*, 103(20):7723–7728, 2006.

- [293] G. Giribet and C. Ribera. The position of arthropods in the animal kingdom: A search for a reliable outgroup for internal arthropod phylogeny. *Mol. Phyl. Evol.*, 9(3):481–488, 1998.
- [294] G. Giribet and C. Ribera. A review of arthropod phylogeny: new data based on ribosomal dna sequences and direct character optimization. *Cladistics*, 16:204–231, 2000.
- [295] G. Giribet, S. Richter, G. D. Edgecombe, and W. C. Wheeler. The position of crustaceans within Arthropoda - Evidence from nine molecular loci and morphology. *Crustacean Issues*, 16:307–352., 2005.
- [296] G. Giribet, M. V. Sorensen, P. Funch, R. M. Kristensen, and W. Sterrer. Investigations into the phylogenetic position of Micrognathozoa using four molecular loci. *Cladistics*, 20:1–13, 2004.
- [297] G. Giribet. Molecules, development and fossils in the study of metazoan evolution; Articulata versus Ecdysozoa revisited. *Zoology*, 106(2003):303–326, 2003.
- [298] N. Glansdorff. On the origin of operons and their possible role in evolution toward thermophily. *J. Mol. Evol.*, 49:432–438, 1999.
- [299] G. Glazko, M. Gensheimer, and A. Mushegian. Phylogenetic tree inference from local gene content. *BMC Evolutionary Biology*, in press.
- [300] J.-J. Godon, J. Morinière, M. Moletta, M. Gaillac, V. Bru, and J.-P. Delgènes. Rarity associated with specific ecological niches in the bacterial world: the Synergistes example. *Environ. Microbiol.*, 7(2):213–224, 2005.
- [301] L. R. Goertzen and E. C. Theriot. Effect of taxon sampling, character weighting, and combined data on the interpretation of relationships among the heterokont algae. *J. Phycol.*, 39:423–439, 2003.
- [302] B. Goffinet and W. R. Buck. Systematics of the bryophyta (mosses): from molecules to a revised classification. In *Monographs in Systematics Botany*, volume 38, 2004.

- [303] B. Goffinet and C. J. Cox. Phylogenetic relationships among basal-most arthrodontous mosses with special emphasis on the evolutionary significance of the funariineae. *Bryologist*, 103(2):212–223, 2000.
- [304] M. Goodman, C. A. Porter, J. Czelusniak, S. L. Page, H. Schneider, J. Shoshani, G. Gunnell, and C. P. Groves. Toward a phylogenetic classification of primates based on DNA evidence complemented by fossil evidence. *Mol. Phyl. Evol.*, 9(3):585–598, 1998.
- [305] H. V. Goodson and S. C. Dawson. Multiplying myosins. *Biochemistry*, 103(10), 2006.
- [306] U. Gophna, W. F. Doolittle, and R. L. Charlebois. Weighted Genome Trees: Refinements and Applications. *J. Bacteriol.*, 187(4):1305, 2005.
- [307] G. Gothe, K. J. Boehm, and E. Unger. Ultrastructural details of the plasmodial rhizopod *synamoeba arenaria grell*. *Acta Protozool.*, 38:49–59, 1999.
- [308] D. E. Graham, R. Overbeek, G. J. Olsen, and C. R. Woese. Evolution an archaeal genomic signature. *Proc. Natl. Acad. Sci. USA*, 97(7):3304–3308, 2000.
- [309] L. E. Graham, L. W. Wilcox, M. E. Cook, and P. G. Gensel. Resistant tissues of modern marchantioid liverworts resemble enigmatic Early Paleozoic microfossils. *Proc. Natl. Acad. Sci. USA*, 101:11025–11029, 2004.
- [310] P. Grandcolas. Abstracts of the 23rd Annual Meeting of the Willi Hennig Society. “Phylogenetics and Evolutionary Biology”. *Cladistics*, 20:583–608, 2004.
- [311] M. Grasshoff and M. Gudo. The Origin of Metazoa and the Main Evolutionary Lineages of the Animal Kingdom: The Gallertoid Hypothesis in the light of Modern Research. *Senckenbergiana lethaea*, 82(1):295–314, 2002.
- [312] D. Graur, M. Gouy, and L. Duret. Evolutionary affinities of the order perissodactyla and the phylogenetic status of the superordinal taxa ungulata and altungulata. *Mol. Phyl. Evol.*, 7(2):195–200, 1997.

- [313] M. W. Gray, G. Burger, and B. F. Lang. Mitochondrial evolution. *Science*, 283(5407):1476–1481, 1998.
- [314] M. W. Gray, B. F. Lang, R. Cedergren, G. B. Golding, C. Lemieux, D. Sankoff, M. Turmel, N. Brossard, E. Delage, T. G. Littlejohn, I. Plante, P. Rioux, D. Saint-Louis, Y. Zhu, and G. Burger. Genome structure and gene content in protist mitochondrial dnas. *Nucleic Acids Res.*, 26(4):865–878, 1998.
- [315] K. G. Grell. Reticulosphaera. *Eur. J. Prot.*, 26(No 1):39, 50–54, 1990.
- [316] K. G. Grell. Corallomyxa nipponica n. sp. and the phylogeny of plasmodial protists. *Arch. fur Protistenkunde*, 140:303–390, 1991.
- [317] K. G. Grell. Leucodictyon marinum n. gen., n. sp. *Arch. Protistenkunde*, 140(No 1):2–20, 1991.
- [318] K. G. Grell. Reticulamoeba gemmipara , n. gen., n. sp. *Arch. Protistenkunde*, 144(No 1):59–60, 1994.
- [319] K. G. Grell. Synamoeba arenaria n. gen., n. sp. *Arch. Protistenkunde*, 144(No 2):145–146, 1994.
- [320] K. G. Grell. Thalatomyxa canariensis, n. sp. *Arch. Protistenkunde*, 144(No 3):323–324, 1994.
- [321] S. Gribaldo and C. Brochier-Armanet. The origin and evolution of Archaea: a state of the art. *Phil. Trans. R. Soc. B*, pages 1–16, 2006.
- [322] S. Gribaldo, V. Lumia, R. Creti, E. C. de Macario, A. Sanangelantoni, and P. Cammarano. Discontinuous occurrence of the hsp70 (dnak) gene among archaea and sequence features of hsp70 suggest a novel outlook on phylogenies inferred from this protein. *Journal of Bacteriology, January*, 181(2):434–443, 1999.
- [323] A. Groisillier, R. Massana, K. Valentin, D. Vaultot, and L. Guillou. Genetic diversity and habitats of two enigmatic marine alveolate lineages. *AQUATIC MICROBIAL ECOLOGY*, 42:37–49, 2006.
- [324] M. Groth-Malonek, U. Wahrmund, M. Polsakiewicz, and V. Knoop. Evolution of a pseudogene: Exclusive survival of a functional mitochondrial nad7 gene supports Haplomitrium as the earliest liverwort lineage

and proposes a secondary loss of RNA editing in Marchantiidae. *Mol. Biol. Evol.*, 5:1–22, 2007.

- [325] J. G. Groth and G. F. Barrowclough. Basal divergences in birds and the phylogenetic utility of the nuclear rag-1 gene. *Mol Phylogenet Evol*, 12(2):115–123, 1999.
- [326] A. Gruhl, P. Grobe, and T. Bartolomaeus. Fine structure of the episome in *Phoronis ovalis*: significance for the coelomic organization in Phoronida. *Invertebrate Biology*, 124(4):332–343, 2005.
- [327] D. Grzebyk, O. Schofield, C. Vetriani, and P. G. Falkowski. The mesozoic radiation of eucaryotic algae: the portable plastid hypothesis. *J. Phycol.*, 39:259–267, 2003.
- [328] H.-C. Guersoy, D. Koper, and B.-J. Benecke. The vertebrate 7s k rna separates hagfish (*Myxine glutinosa*) and lamprey (*Lampetra fluviatilis*). *J. Mol. Evol.*, 50:456–464, 2000.
- [329] L. Guillou, M. J. Chrtiennot-Dinet, S. Boulben, S. Y. M. van der Staay, and D. Vaultot. *Symbiomonas scintillans* gen. et sp. nov. and *picophagus flagellatus* gen. et sp. nov. (heterokonta): Two new heterotrophic flagellates of picoplanktonic size. *Protist*, 150:383–398, 1999.
- [330] L. Guillou, W. Eikrem, M.-J. Chrtiennot-Dinet, F. L. Gald, R. Masana, K. Romari, C. PedrXs-AliX, and D. Vaultot. Diversity of Picoplanktonic Prasinophytes Assessed by Direct Nuclear SSU rDNA Sequencing of Environmental Samples and Novel Isolates Retrieved from Oceanic and Coastal Marine Ecosystems. *Protist*, 155:193–214, 2004.
- [331] L. Guillou, S.-Y. M. van der Staay, H. Claustre, F. Partensky, and D. Vaultot. Diversity and abundance of bolidophyceae (heterokonta) in two oceanic regions. *Applied and Environmental Microbiology*, 65(10):4528–4536, 1999.
- [332] L. Guillou. *Bolidomonas*: a new genus with two species belonging to a new algal class, the bolidophyceae (heterokonta). *J. Phycol.*, 35(2):368–381, 1999.

- [333] R. S. Gupta and E. Lorenzini. Phylogeny and Molecular Signatures (Conserved Proteins and Indels) that are Specific for the Bacteroidetes and Chlorobi Species. *BMC Evol Biol*, 7(1):71, 2007.
- [334] R. S. Gupta, T. Mukhtar, and B. Singh. Evolutionary relationships among photosynthetic prokaryotes (heliobacterium chlorum, chloroflexus aurantiacus, cyanobacteria, chlorobium tepidum and proteobacteria): implications regarding the origin of photosynthesis. *Mol Microbiol*, 32(5):893–906, 1999.
- [335] R. S. Gupta and P. H. A. Sneath. Application of the character compatibility approach to generalized molecular sequence data: branching order of the proteobacterial subdivisions. *J Mol Evol*, 64(1):90–100, 2007.
- [336] R. S. Gupta. Protein phylogenies and signature sequences: A reappraisal of evolutionary relationships among archaeobacteria, eubacteria, and eukaryotes. *Microbiology and Molecular Biology Reviews*, 62(4):1435–1491, 1998.
- [337] R. S. Gupta. The phylogeny of proteobacteria: relationships to other eubacterial phyla and eukaryotes. *FEMS Microbiol Rev*, 24(4):367–402, 2000.
- [338] R. S. Gupta. The phylogeny and signature sequences characteristics of fibrobacteres, chlorobi and bacteroidetes. *Crit. Rev. in Microbiology*, 30:123–143, 2004.
- [339] R. S. Gupta. *Prokaryotic Phylogeny*, 2005.
- [340] R. S. Gupta. Branching Order of Bacterial Phyla. *Bacterial (Prokaryotic) Phylogeny Webpage (April 2007)*. <http://www.bacterialphylogeny.com/index.html>, page NA, 2007.
- [341] B. G., B. G., P. H., and C. G. Collodictyon triciliatum and diphylleia rotans (= aulacomonas submarina) form a new family of flagellates (collodictyonidae) with tubular mitochondrial cristae that is phylogenetically distant from other flagellate groups. *Protist*, 153:59–70, 2002.
- [342] B. G. Cryptophagus subtilis: a new parasite of cryptophytes affiliated with the perkinsozoa lineage. *Eur. J. Prot.*, 37:379–390, 2002.

- [343] F. Haas, D. Waloszek, and R. Hartenberger. Devonohexapodus bocksbergensis, a new marine hexapod from the Lower Devonian Hunsrueck Slates, and the origin of Atelocerata and Hexapoda. *Org. Divers. Evol.*, 3:39–54, 2003.
- [344] J. D. Hackett, H. S. Yoon, S. Li, A. Reyes-Prieto, S. E. Ruemmele, and D. Bhattacharya. Phylogenomic analysis supports the monophyly of cryptophytes and haptophytes and the association of ‘Rhizaria’ with chromalveolates. *Mol. Biol. Evol.*, (in press):1–34, 2007.
- [345] M. Hajibabaei, J. Xia, and G. Drouin. Seed plant phylogeny: Gnetales are derived conifers and a sister group to Pinaceae. *Molecular Phylogenetics and Evolution*, pages 1–10, 2006.
- [346] K. M. Halanych. The phylogenetic position of the pterobranch hemichordates based on 18s rdna sequence data. *Mol Phylogenet Evol*, 4(1):72–76, 1995.
- [347] K. M. Halanych. The new view of animal phylogeny. *Annu. Rev. Ecol. Evol. Syst.*, 35:229–256, 2004.
- [348] K. A. Hall, P. A. Hutchings, and D. J. Colgan. Further phylogenetic studies of the Polychaeta using 18S rDNA sequence data. *J. Mar. Biol. Ass. U.K.*, 84:949–960, 2004.
- [349] B. Hammerschmidt, M. Schlegel, D. H. Lynn, D. D. Leipe, M. L. Sogin, and I. B. Raikov. Insights into the evolution of nuclear dualism in the ciliates revealed by phylogenetic analysis of rrna sequences. *J. Euk. Microbiol.*, 43(No 3):225–230, 1996.
- [350] *Handbook of Protoctista*. Jones and Bartlett Publishers, Boston, 1989.
- [351] B. Hanelt, D. van Schyndel, C. M. Adema, L. A. Lewis, and E. S. Loker. The phylogenetic position of rhopalura ophiocomae (orthonec-tida) based on 18s ribosomal dna sequence analysis. *Mol. Biol. Evol.*, 13:1187–1191, 1996.
- [352] V. Hannaert, H. Brinkmann, U. Nowitzki, J. A. Lee, M.-A. Albert, C. W. Sensen, T. Gaasterland, M. Mbller, P. Michels, and W. Martin. Enolase from trypanosoma brucei, from the amitochondriate protist mastigamoeba balamuthi, and from the chloroplast and cytosol

of euglena gracilis: Pieces in the evolutionary puzzle of the eukaryotic glycolytic pathway. *Mol. Biol. Evol.*, 17(7):989–1000, 2000.

- [353] S. Hansmann and W. Martin. Phylogeny of 33 ribosomal and six other proteins encoded in an ancient gene cluster that is conserved across procaryotic genomes: influence of excluding poorly alignable sites from analysis. *J. Syst. Evol. Microbiol.*, 50:1655–1663, 2000.
- [354] A. Harada, S. Ohtsuka, and T. Horiguchi. Species of the Parasitic Genus *Duboscquella* are Members of the Enigmatic Marine Alveolate Group I. *Protist*, (in press):1–11, 2007.
- [355] J. T. Harper, E. Waanders, and P. J. Keeling. On the monophyly of chromalveolates using a six-protein phylogeny of eukaryotes. *International Journal of Systematic and Evolutionary Microbiology*, 55:487–496, 2005.
- [356] S. Harzsch and G. Hafner. Evolution of eye development in arthropods: Phylogenetic aspects. *Arthropod Structure & Development*, 35:319–340, 2006.
- [357] S. Harzsch and C. H. Mueller. A new look at the ventral nerve centre of *Sagitta*: implications for the phylogenetic position of Chaetognatha (arrow worms) and the evolution of the bilaterian nervous system. *Frontiers in Zoology*, 4(14):1–15, 2007.
- [358] S. Harzsch. Neurophylogeny: Architecture of the nervous system and a fresh view on arthropod phylogeny. *Integrative and Comparative Biology*, 46(2):162–194, 2006.
- [359] T. Hashimoto, Y. Inagaki, and M. Sakaguchi. Phylogeny and evolution of eukaryotes. *Genes Genet. Syst.*, 81:420, 2006.
- [360] T. Hashimoto, L. B. Srnchez, T. Shirakura, M. Mbller, and M. Hasegawa. Secondary absence of mitochondria in giardia lamblia and trichomonas vaginalis revealed by valyl-trna synthetase phylogeny. *Proc. Natl. Acad. Sci. USA*, 95(12):6860–6865, 1998.
- [361] K. Hausmann and N. Külsmann. Towards to a new perspective in protozoan evolution. *Eur. J. Protistol.*, 30(4):365–482, 1994.

- [362] K. Hausmann, M. Weitere, M. Wolf, and H. Arndt. *Meteora sporadica* gen. nov. et sp. nov. (protista incertae sedis) — an extraordinary free-living protist from the mediterranean deep sea. *Europ. J. Protistol.*, 38:171–177, 2002.
- [363] S. B. Hedges and L. L. Poling. A molecular phylogeny of reptiles. *Science*, 283(5404):998–1001, 1998.
- [364] L. Hendriks, d. R. Baere, van d. Y. Peer, J. Neefs, A. Goris, and d. R. Wachter. The evolutionary position of the rhodophyte porphyra umbilicalis and the basidiomycete leucosporidium scottii among other eukaryotes as deduced from complete sequences of small ribosomal subunit rna. *J Mol Evol*, 32(2):167–177, 1991.
- [365] S. R. Henz, D. H. Huson, A. F. Auch, K. Nieselt-Struwe, and S. C. Schuster. Whole-genome prokaryotic phylogeny. *Bioinformatics*, 21(10):2329–2335, 2005.
- [366] H. Herlyn, O. Piskurek, J. Schmitz, U. Ehlers, and H. Zischler. The syndermatan phylogeny and the evolution of acanthocephalan endoparasitism as inferred from 18S rDNA sequences. *Molecular Phylogenetics and Evolution*, 26:155–164, 2003.
- [367] R. A. Herr, L. Ajello, J. W. Taylor, S. N. Arseculeratne, and L. Mendoza. Phylogenetic analysis of rhinosporidium seeberi’s 18s small-subunit ribosomal dna groups this pathogen among members of the protoctistan mesomycetozoa clade. *Journal of Clinical Microbiology*, 37(9):2750–2754, 1999.
- [368] L. A. Hertel, C. J. Bayne, and E. S. Loker. The symbiont *Capsaspora owczarzaki*, nov. gen. nov. sp., isolated from three strains of the pulmonate snail *Biomphalaria glabrata* is related to members of the Mesomycetozoea. *International Journal for Parasitology*, 32:1183–1191, 2002.
- [369] L. G. Herve and P. Herve. Le’piulia constituties une categoria systematique volable? *Bull. Soc. Zool. Fr.*, 122(4):439, 1996.
- [370] X. He-Nygren, A. Juslen, I. Ahonen, D. Glenney, and S. Piippo. Illuminating the evolutionary history of liverworts (Marchantiophyta)—towards a natural classification. *Cladistics*, 22:1–31, 2006.

- [371] D. J. Hibberd and F. Leedale. Eustigmatophyceae — a new algae class with unique organization of the motile cell. *Nature*, 225(5234):758–760, 1970.
- [372] R. E. Hibberd and R. E. Norris. Cytology and ultrastructure of chlorarachnion reptans. *J. Phycol.*, 20(2):310–330, 1984.
- [373] D. S. Hibbett, M. Binder, J. F. Bischoff, M. Blackwell, P. F. Cannon, O. E. Eriksson, S. Huhndorf, T. James, P. M. Kirk, R. Luecking, T. Lumbsch, F. Lutzoni, P. B. Matheny, D. J. McLaughlin, M. J. Powell, S. Redhead, C. L. Schoch, J. W. Spatafora, J. A. Stalpers, R. Vilgalys, M. C. Aime, A. Aptroot, R. Bauer, D. Begerow, G. L. Benny, L. A. Castlebury, P. W. Crous, Y.-C. Dai, W. Gams, D. M. Geiser, G. W. Griffith, C. Gueidan, D. L. Hawksworth, G. Hestmark, K. Hosaka, R. A. Humber, K. Hyde, J. E. Ironside, U. Koljalg, C. P. Kurtzman, K.-H. Larsson, R. Lichtwardt, J. Longcore, J. Miadlikowska, A. Miller, J.-M. Moncalvo, S. Mozley-Standridge, F. Oberwinkler, E. Parmasto, V. Reeb, J. D. Rogers, C. Roux, L. Ryvarden, J. P. Sampaio, A. Schuessler, J. Sugiyama, R. G. Thorn, L. Tibell, W. A. Untereiner, C. Walker, Z. Wang, A. Weir, M. Weiss, M. M. White, K. Winka, Y.-J. Yao, and N. Zhang. A higher-level phylogenetic classification of the Fungi. *Mycological Research*, (in press):1–98, 2007.
- [374] D. S. Hibbett. A phylogenetic overview of the Agaricomycotina. *Mycologia*, 98:917–925, 2007.
- [375] S. Higuchi, M. Kawamura, I. Miyajima, H. Akiyama, K. Kosuge, M. Kato, and H. Nozaki. Morphology and phylogenetic position of a mat-forming green plant from acidic rivers in Japan. *Journal of Plant Research*, 116:461–467, 2003.
- [376] P. M. Hine, S. M. Bower, G. R. Meyer, N. Cochenec-Laureau, and F. C. J. Berthe. Ultrastructure of *Mikrocytos mackini*, the cause of Denman Island disease in oysters *Crassostrea* spp. and *Ostrea* spp. in British Columbia, Canada. *DISEASES OF AQUATIC ORGANISMS*, 45:215–227, 2001.
- [377] R. P. Hirt, B. Healy, C. R. Vossbrinck, E. U. Canning, and T. M. Embley. A mitochondrial hsp70 orthologue in *vairimorpha necatrix*:

molecular evidence that microsporidia once contained mitochondria. *Curr Biol*, 7(12):995–998, 1998.

- [378] R. P. Hirt, J. J. M. Logsdon, B. Healy, M. W. Dorey, W. F. Doolittle, and T. M. Embley. Microsporidia are related to fungi: Evidence from the largest subunit of rna polymerase ii and other proteins. *Proc. Natl. Acad. Sci. USA*, 96(2):580–585, 1999.
- [379] M. T. Holder, M. V. Erdmann, T. P. Wilcox, R. L. Caldwell, and D. M. Hillis. Two living species of coelacanths? *Proc. Natl. Acad. Sci. USA*, 96(22):12616–12620, 1999.
- [380] R. E. Holttum. The phylogenetic classification of ferns. *Bot. J. Linn. Soc.*, 67(suppl. 1):1–10, 1973.
- [381] D. Honda, T. Yokochi, T. Nakahara, S. Raghukumar, A. Nakagiri, K. Schaumann, and T. Higashihara. Molecular phylogeny of labyrinthulids and thraustochytrids based on the sequencing of 18s ribosomal rna gene. *J. Euk. Microbiol.*, 46(6):637–647, 1999.
- [382] D. Honda, A. Yokota, and J. Sugiyama. Detection of seven major evolutionary lineages in cyanobacteria based on the 16S rRNA gene sequence analysis with new sequences of five marine synechococcus strains. *J. Mol. Evol.*, 48:723–739, 1999.
- [383] Y. Hongoh, P. Deevong, S. Hattori, T. Inoue, S. Noda, N. Noparatnarporn, T. Kudo, and M. Ohkuma. Phylogenetic Diversity, Localization, and Cell Morphologies of Members of the Candidate Phylum TG3 and a Subphylum in the Phylum Fibrobacteres, Recently Discovered Bacterial Groups Dominant in Termite Guts. *Appl. Environ. Microbiol.*, 72(10):6780–6788, 2006.
- [384] M. Hoppenrath and B. S. Leander. Dinoflagellate, Euglenid, or Cercomonad? The Ultrastructure and Molecular Phylogenetic Position of *Protaspis grandis* n. sp. *J. Eukaryot. Microbiol.*, 53(5):1–16, 2006.
- [385] M. Hoppenrath and B. S. Leander. Ebriid Phylogeny and the Expansion of the Cercozoa. *Protist*, 30(in press):1–12, 2006.

- [386] D. S. Horner, P. G. Foster, and T. M. Embley. Iron hydrogenases and the evolution of anaerobic eukaryotes. *Mol. Biol. Evol.*, 17(11):1695–1709, 2000.
- [387] D. S. Horner, R. P. Hirt, and T. M. Embley. A single eubacterial origin of eukaryotic pyruvate:ferredoxin oxidoreductase genes: Implications for the evolution of anaerobic eukaryotes. *Mol. Biol. Evol.*, 16(9):1280–1291, 1999.
- [388] S. Horn, K. Ehlers, G. Fritsch, M. C. Gil-Rodriguez, C. Wilhelm, and R. Schnetter. *Synchroma grande* spec. nov. (Synchromophyceae class. nov., Heterokontophyta): An Amoeboid Marine Alga with Unique Plastid Complexes. *Protist*, 23(in press):21–23, 2007.
- [389] D. E. Howland and G. M. Hewitt. Phylogeny of the coleoptera based on mitochondrial cytochrome oxidase i sequence data. *Insect Mol Biol*, 4(3):203–215, 1995.
- [390] H. Huber, M. J. Hohn, R. Rachel, T. Fuchs, V. C. Wimmer, and K. O. Stetter. A new phylum of archaea represented by a nanosized hyperthermophilic symbiont. *Nature*, 417:63–67, 2002.
- [391] J. Huerta-Cepas, H. Dopazo, J. Dopazo, and T. Gabaldyn. The human phylome. *Genome Biology*, 2007(6):R109, 2007.
- [392] P. Hugenholtz, B. M. Goebel, and N. R. Pace. Impact of culture-independent studies on the emerging phylogenetic view of bacterial diversity. *J. Bacteriol.*, 180(18):4765–4774, 1998.
- [393] P. Hugenholtz and E. Stackebrandt. Reclassification of *Sphaerobacter thermophilus* from the subclass Sphaerobacteridae in the phylum Actinobacteria to the class Thermomicrobia (emended description) in the phylum Chloroflexi (emended description). *Int J Syst Evol Microbiol*, 54(6):2049–2051, 2004.
- [394] P. Hugenholtz, G. W. Tyson, R. I. Webb, A. M. Wagner, and L. L. Blackall. Investigation of Candidate Division TM7, a Recently Recognized Major Lineage of the Domain Bacteria with No Known Pure-Culture Representatives. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 67(1):411–419, 2001.

- [395] P. Hugenholtz. Exploring prokaryotic diversity in the genomic era. *Genome Biology*, 3(2), 2002.
- [396] J. M. Hughes and A. J. Baker. Phylogenetic relationships of the enigmatic hoatzin (*Opisthocomus hoazin*) resolved using mitochondrial and nuclear gene sequences. *Mol Biol Evol*, 16(9):1300–1307, 1999.
- [397] M. Hugler, H. Huber, S. J. Molyneaux, C. Vetriani, and S. M. Sievert. Autotrophic CO₂ fixation via the reductive tricarboxylic acid cycle in different lineages within the phylum Aquificae: evidence for two ways of citrate cleavage. *Environ. Microbiol.*, 9(1):81–92, 2007.
- [398] Huynen et al. Lateral gene transfer, genome surveys, and the phylogeny of prokaryotes, 1999.
- [399] J. Hyvonen, T. A. Hedderson, G. L. S. Merrill, J. G. Gibbings, and S. Koskinen. On phylogeny of the polytrichales. *Bryologist*, 101(4):489–504, 1999.
- [400] K. ichiro Ishida and B. R. Green. Second- and third-hand chloroplasts in dinoflagellates: Phylogeny of oxygen-evolving enhancer 1 (psbo) protein reveals replacement of a nuclear-encoded plastid gene by that of a haptophyte tertiary endosymbiont. *Proc. Natl. Acad. Sci. USA*, 99:9294–9299, 2002.
- [401] Y. Inagaki, Y. Hayashi-Ishimaru, M. Ehara, I. Igarashi, and T. Ohama. Algae or protozoa: phylogenetic position of euglenophytes and dinoflagellates as inferred from mitochondrial sequences. *J. Mol. Evol.*, 45:295–300, 1997.
- [402] *International Code of Botanical Nomenclature (Tokyo Code)*. Koeltz Scientific Books, Konigstein, 1994.
- [403] G. G. Iribet, D. L. Distel, M. Polz, and W. Sterrer. Triploblastic relationships with emphasis on the acoelomates and the position of gnathostomulida, cycliophora, plathelminthes, and chaetognatha: A combined approach of 18s rdna sequences and morphology. *Systematic Biology*, 49(3539–3562), 2000.

- [404] M. Irimia, I. Maeso, D. Penny, J. Garcia-Fernàndez, and S. W. Roy. Rare Coding Sequence Changes Are Consistent With Ecdysozoa, Not Coelomata. *Molecular Biology and Evolution*, 24(in press), 2007.
- [405] K.-I. Ishida, Y. Cao, M. Hasegawa, N. Okada, and Y. Hara. The origin of chlorarachniophyte plastids, as inferred from phylogenetic comparisons of amino acid sequences of EF-TU. *J. Mol. Evol.*, 45:682–687, 1998.
- [406] K. J. Ishida, T. Nakayama, and Y. Kana. Taxonomic studies on the chlorarachiniophyta. *Phyc. Research*, 44(1):37–45, 1996.
- [407] K. Ishida, B. R. Green, and T. Cavalier-Smith. Diversification of a chimaeric algal group, the chlorarachniophytes: Phylogeny of nuclear and nucleomorph small-subunit rRNA genes. *Mol. Biol. Evol.*, 16(3):321–331., 1998.
- [408] R. Jain, M. C. Rivera, and J. A. Lake. Horizontal gene transfer among genomes: The complexity hypothesis. *Proc. Natl. Acad. Sci. USA*, 96:3801–3806, 1999.
- [409] T. Y. James, F. Kauff, C. L. Schoch, P. B. Matheny, V. Hofstetter, C. J. Cox, G. Celio, C. Gueidan, E. Fraker, J. Miadlikowska, H. T. Lumbsch, A. Rauhut, . V. Reeb, A. E. Arnold, A. Amtoft, J. E. Stajich, K. Hosaka, G.-H. Sung, D. Johnson, B. O'Rourke, M. Crockett, M. Binder, J. M. Curtis, J. C. Slot, . Z. Wang, A. W. Wilson, A. Schussler, J. E. Longcore, K. O'Donnell, S. Mozley-Standridge, D. Porter, P. M. Letcher, M. J. Powell, J. W. Taylor, M. M. White, G. W. Griffith, D. R. Davies, R. A. Humber, J. B. Morton, J. Sugiyama, A. Y. Rossman, J. D. Rogers, D. H. Pfister, D. Hewitt, K. Hansen, S. Hambleton, R. A. Shoemaker, J. Kohlmeyer, B. Volkmann-Kohlmeyer, R. A. Spotts, M. Serdani, P. W. Crous, K. W. Hughes, K. Matsuura, E. Langer, G. Langer, . . . W. A. Untereiner, R. Lucking, B. Budel, D. M. Geiser, A. Aptroot, P. Diederich, I. Schmitt, M. Schultz, R. Yahr, D. S. Hibbett, F. Lutzoni, D. J. McLaughlin, J. W. Spatafora, and R. Vilgalys. Reconstructing the early evolution of Fungi using a six-gene phylogeny. *Nature*, 443:818–822, 2006.
- [410] T. Y. James, P. M. Letcher, J. E. Longcore, S. E. Mozley-Standridge, D. Porter, M. J. Powell, G. W. Griffith, and R. Vilgalys. A molecular

phylogeny of the flagellated fungi (Chytridiomycota) and description of a new phylum (Blastocladiomycota). *Mycologia*, 98:860–871, 2007.

- [411] C. Jeffrey. Kingdoms, codes and classifications. *Kew Bull.*, 32(3):403–416, 1982.
- [412] C. Jenkins and J. A. Fuerst. Phylogenetic analysis of evolutionary relationships of the planctomycete division of the domain bacteria based on amino acid sequences of elongation factor tu. *J. Mol. Evol.*, 52:405–418, 2001.
- [413] U. Jondelius, K. Larsson, and O. Raikova. Cleavage in *Nemertoderma westbladi* (Nemertodermatida) and its phylogenetic significance. *Zoomorphology*, 123:221–225, 2004.
- [414] W. G. Jones, K. D. Hill, and J. M. Allen. *Wollemia nobilis*, a new living australian genus and species in the araucariaceae. *Telopea*, 6(2/3), 1997.
- [415] J.-P. Jostensen, S. Sperstad, S. Johansen, and B. Landfald. Molecular-phylogenetic, structural and biochemical features of a cold-adapted, marine ichtyosporean near the animal-fungal divergence, described from in vitro cultures. *Europ. J. Protistol.*, 38:93–104, 2002.
- [416] C. N. M. Jr. Implication of fossil conifers for the phylogenetic relationships of living. *Bot. Rev.*, 65(3):239–277, 1999.
- [417] J. F. S. Jr, I. N. Ras, C. D. Cunha, and A. S. Rosado. Novel Bacterial Phylotypes in Endodontic Infections. *J Dent Res*, 84(6):565–569, 2005.
- [418] E. O. Kajander. Nanobacteria–propagating calcifying nanoparticles. *Lett. Appl. Microbiol.*, 42(6):549–552, 2006.
- [419] S. Karlin, L. Brocchieri, J. Mrrzek, A. M. Campbell, and A. M. Spormann. A chimeric prokaryotic ancestry of mitochondria and primitive eukaryotes. *Proc. Natl. Acad. Sci. USA*, 96(16):9190–9195, 1999.
- [420] S. Karlin and L. Brocchieri. Heat shock protein 60 sequence comparisons: Duplications, lateral transfer, and mitochondrial evolution. *PNAS*, 97(No 21):11348–11353, 2000.

- [421] T. Katayama, H. Wada, H. Furuya, N. Satoh, and M. Yamamoto. Phylogenetic position of the dicyemid mesozoa inferred from 18s rdna sequences. *Biol Bull*, 189(2):81–90, 1995.
- [422] T. Katayama, M. Yamamoto, H. Wada, and N. Satoh. Phylogenetic position of acoel turbellarians inferred from partial 18s rdna sequences. *Zoolog Sci*, 10(3):529–536, 1993.
- [423] H. Kawaia, S. Maebaa, H. Sasakib, K. Okudac, and E. C. Henry. Schizocladia ischiensis: A New Filamentous Marine Chromophyte Belonging to a New Class, Schizocladiphyceae. *Protist*, 154:211–228, 2003.
- [424] P. J. Keeling, J. A. Deane, C. Hink-Schauer, S. E. Douglas, U.-G. Maier, and G. I. Mcfadden. The secondary endosymbiont of the cryptomonad guillardia theta contains alpha-, beta-, and gamma-tubulin genes. *Mol. Biol. Evol.*, 16(9):1308–1313, 1999.
- [425] P. J. Keeling, J. A. Deane, and G. I. McFadden. The phylogenetic position of alpha- and beta-tubulins from the chlorarachnion host and cercozonas (cercozoa). *J. Euk. Microbiol.*, 45(5):561–570, 1999.
- [426] P. J. Keeling and W. F. Doolittle. Evidence that eukaryotic triosephosphate isomerase is of alpha-proteobacterial origin. *Proc. Natl. Acad. Sci. USA*, 94(No 4):1270–1275, 1997.
- [427] P. J. Keeling, M. A. Luker, and J. D. Palmer. Evidence from beta-tubulin phylogeny that microsporidia evolved from within the fungi. *Mol. Biol. Evol.*, 17(1):23–31, 2000.
- [428] P. J. Keeling and G. I. McFadden. Origins of microsporidia. *Trends Microbiol*, 6(1):19–23, 1998.
- [429] P. J. Keeling. Foraminifera and cercozoa are related in actin phylogeny: Two orphans find a home? *Mol. Bil. Evol.*, 18:1551–1557, 2001.
- [430] D. G. Kelch. Phylogeny of podocarpaceae: comparison of evidence from morphology and 18S rDNA. *Amer. J. Bot.*, 85:986, 1998.
- [431] P. Kenrick and P. R. Crane. The origin and early evolution of plants on land. *Nature*, 389(6646):33–40, 1997.

- [432] M. L. Kent et al. Recent advances in our knowledge of the myxozoa. *J. Eukar. Micr.*, 48:395–413, 2001.
- [433] C. B. Kim, S. Y. Moon, S. R. Gelder, and W. Kim. Phylogenetic relationships of annelids, molluscs, and arthropods evidenced from molecules and morphology. *J. Mol. Evol.*, 43:207–215, 1996.
- [434] E. Kim, A. G. B. Simpson, and L. E. Graham. Evolutionary relationships of apusomonads inferred from taxon-rich analyses of six nuclear-encoded genes. *Mol. Biol. Evol.*, 18:608–262, 2006.
- [435] E. Kim, L. W. Wilcox, M. W. Fawley, and L. E. Graham. PHYLOGENETIC POSITION OF THE GREEN FLAGELLATE MESOSTIGMA VIRIDE BASED ON α -TUBULIN AND β -TUBULIN GENE SEQUENCES. *Int. J. Plant Sci.*, 167(4):873–883, 2006.
- [436] J. Kirkpatrick, B. Oakley, C. Fuchsman, S. Srinivasan, J. T. Staley, and J. W. Murray. Diversity and Distribution of Planctomycetes and Related Bacteria in the Suboxic Zone of the Black Sea. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 72(4):3079–3083, 2006.
- [437] V. Kirzhner, A. Bolshoy, Z. Volkovich, A. Korol, and E. Nevo. Large-scale genome clustering across life based on a linguistic approach. *BioSystems*, 81(2005), 2005.
- [438] V. Kirzhner, A. Paz, Z. Volkovich, E. Nevo, and A. Korol. Different Clustering of Genomes Across Life Using the A-T-C-G and Degenerate R-Y Alphabets: Early and Late Signaling on Genome Evolution? *J Mol Evol*, 64:448–456, 2007.
- [439] P. Kivic and P. L. Wolne. An evolution of possible phylogenetic relationship between euglenophyta and kinetoplastida. *Orig. life*, 13(314):269–288, 1984.
- [440] K.J.Peterson and D.J.Eernisse. Animal phylogeny and the ancestry of bilaterians: inferences from morphology and 18s dna gene sequences. *Evol. Dev.*, 3:170–205, 2001.
- [441] D. Klaveness, K. Shalchian-Tabrizi, H. A. Thomsen, W. Eikrem, and K. S. Jakobsen. *Telonema antarcticum* sp. nov., a common marine

phagotrophic flagellate. *International Journal of Systematic and Evolutionary Microbiology*, 55(1):2595–2604, 2005.

- [442] R. G. Kleineidam, G. Pesole, H. J. Breukelman, J. J. Beintema, and R. A. Kastelein. Inclusion of cetaceans within the order artiodactyla based on phylogenetic analysis of pancreatic ribonuclease genes. *J. Mol. Evol.*, 48:360–368, 1999.
- [443] A. H. Knoll and S. B. Carroll. Early animal evolution: Emerging views from comparative biology and geology. *Science*, 284(5423):2129–2137, 1999.
- [444] M. Kobayashi, H. Furuya, and P. W. H. Holland. Dicyemids are higher animals. *Nature*, 401:762, 1994.
- [445] M. Kobayashi, H. Furuya, and P. W. Holland. Evolution: Dicyemids are higher animals. *Nature*, 401:762, 1999.
- [446] S. Koehler et al. A plastid of probably green algal origin in apicomplexian parasites. *Science*, 275(5305):1485–1489, 1997.
- [447] S. Koenemann, F. R. Schram, A. Bloechl, T. M. Iliffe, M. Hoenemann, and C. Heldd. Post-embryonic development of remipede crustaceans. *EVOLUTION & DEVELOPMENT*, 9(2):117–121, 2007.
- [448] J. Kohlmeyer, J. W. Spatafora, and B. Volkmann-Kohlmeyer. Lulworthiales, a new order of marine ascomycota. *Mycologia*, 92(3):453–458, 2000.
- [449] S. Kojima. Paraphyletic status of polychaeta suggested by phylogenetic analysis based on the amino acid sequences of elongation factor-1. *Mol. Phyl. Evol.*, 9(2):255–261, 1998.
- [450] K. Kolodziej and T. Stoeck. Cellular Identification of a Novel Uncultured Marine Stramenopile (MAST-12 Clade) Small-Subunit rRNA Gene Sequence from a Norwegian Estuary by Use of Fluorescence In Situ Hybridization-Scanning Electron Microscopy. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 73(8):2718–2726, 2007.
- [451] E. V. Koonin, A. R. Mushegian, M. Y. Galperin, and D. R. Walker. Comparison of archaeal and bacterial genomes: computer analysis of

protein sequences predicts novel functions and suggest a chimeric origin of the archaea. *Mol. Microbiol.*, 26(4):619–637, 1997.

- [452] P. Korall, P. Kenrick, and J. P. Therrien. Phylogeny of selaginellaceae: evaluation of generic/subgeneric relationships based on rbcL gene sequences. *Intern. J. Plant Sci.*, 160(3):585–594, 1999.
- [453] D. Kordi and F. Gubenek. Unusual horizontal transfer of a long interspersed nuclear element between distant vertebrate classes. *Proc. Natl. Acad. Sci. USA*, 95(18):10704–10709, 1998.
- [454] M. Kostka, V. Hampl, I. Cepicka, and J. Flegr. Phylogenetic position of *Protoopalina intestinalis* based on SSU rRNA gene sequence. *Molecular Phylogenetics and Evolution*, 33:220–224, 2004.
- [455] H. D. Kranz et al. The origin of land plants: phylogenetic relationships among charophytes, bryophytes, and vascular plants inferred from complete small subunit RNA sequences. *J. Mol. Evol.*, 41(74/84), 1995.
- [456] R. M. Kristensen and P. Funch. Cyclophora is a new phylum with affinities to entoprocta and ectoprocta. *Nature*, 378(6558):721–714, 1995.
- [457] R. M. Kristensen. An Introduction to Loricifera, Cyclophora, and Micrognathozoa. *INTEG. AND COMP. BIOL.*, 42(2002):641–651, 2002.
- [458] J. Kristiansen. The ‘tridentata parasite’ of *mallomonas teilingii* (synurophyceae) — a new dinophyte? — or what? *Arch. fur Protistenkunde*, 143(1/3):195–214, 1993.
- [459] J. S. Kroll, K. E. Wilks, J. L. Farrant, and P. R. Langford. Natural genetic exchange between haemophilus and neisseria: Intergeneric transfer of chromosomal genes between major human pathogens. *Proc. Natl. Acad. Sci. USA*, 95(21):12381–12385, 1998.
- [460] K. A. Kron. Exploring alternative systems of classification. *Aliso*, 15(No 2):105–112, 1997.
- [461] A. Kudryavtsev, D. Bernhard, M. Schlegel, E. E.-Y. Chao, and T. Cavalier-Smith. 18S Ribosomal RNA Gene Sequences of *Cochliopodium* (Himatismenida) and the Phylogeny of Amoebozoa. *Science*, 156:215–224, 2005.

- [462] S. Kuehn, L. Medlin, and G. Eller. Phylogenetic Position of the Parasitoid Nanoflagellate *Pirsonia* inferred from Nuclear-Encoded Small Subunit Ribosomal DNA and a Description of *Pseudopirsonia* n. gen. and *Pseudopirsonia mucosa* (Drebes) comb. nov. *Protist*, 155:143–156, 2004.
- [463] P. Kugrens, B. L. Clay, C. J. Meyer, and R. E. Lee. Ultrastructure and description of cyanophora *biloba*, sp. nov., with additional observations on *c. paradoxa* (glaucophyta). *J. Phycol.*, 35(4):844–854, 1999.
- [464] S. Kuhn, M. Lange, and L. K. Medlin. Phylogenetic position of *cryothe-comonas* inferred from nuclear-encoded small subunit ribosomal rna. *Protist*, 151:337–345, 2000.
- [465] S. Kumar and A. Rzhetsky. Evolutionary relationships of eukaryotic kingdoms. *J. Mol. Evol.*, 42(2):183–193, 1996.
- [466] Y. Kumazawa and M. Nishida. Complete mitochondrial DNA sequences of the green turtle and blue-tailed mole skink: Statistical evidence for archosaurian affinity of turtles. *Mol. Biol. Evol.*, 16(6):784–792, 1999.
- [467] V. Kunin, D. Ahren, L. Goldovsky, P. Janssen, and C. A. Ouzounis. Measuring genome conservation across taxa: divided strains and united kingdoms. *Nucl. Acids Res.*, 33(2):616–621, 2005.
- [468] V. Kunin, L. Goldovsky, N. Darzentas, and C. A. Ouzounis. The net of life: Reconstructing the microbial phylogenetic network. *Genome Research*, pages 1–6, 2005.
- [469] T. Kunisawa. Dichotomy of major bacterial phyla inferred from gene arrangement comparisons. *Journal of Theoretical Biology*, 239(2006):367–375, 2006.
- [470] Y. Kunitomo, I. Sarashina, M. Iijima, K. Endo, and K. Sashida. Molecular phylogeny of acantharian and polycystine radiolarians based on ribosomal DNA sequences, and some comparisons with data from the fossil record. *European Journal of PROTISTOLOGY*, (in press):1–11, 2006.

- [471] S. Kuraku, D. Hoshiyama, K. Katoh, H. Suga, and T. Miyata. Monophyly of lampreys and hagfishes supported by nuclear dna-coded genes. *J. Mol. Evol.*, 49:729–735, 1999.
- [472] K. Kusche, H. Ruhberg, and T. Burmester. A hemocyanin from the Onychophora and the emergence of respiratory proteins. *Proc. Natl. Acad. Sci. USA*, 99(16):10545–10548, 2002.
- [473] J. Kusumi, Y. Tsumura, H. Yoshimaru, and H. Tachida. Phylogenetic relationships in taxodiaceae and cupressaceae sensu stricto based on matk gene, chl1 gene, trnl-trnf igs region, and trnl intron sequences1. *Amer. J. Bot.*, 87(No 10):1480–1488, 2000.
- [474] N. C. Kyrpides and G. J. Olsen. Archaeal and bacterial hyperthermophiles: horizontal gene exchange or common ancestry? *TIG*, 15(No 8), 1999.
- [475] N. Kyrpides, R. Overbeek, and C. Ouzounis. Universal protein families and the functional content of the last universal common ancestor. *J. Mol. Evol.*, 49:413–423, 1999.
- [476] V. K., L. R. D., H.-E. K., and D. J. J. The soil flagellate proleptomonas faecicola: Cell organisation and phylogeny suggest that the only described free-living trypanosomatid is not a kinetoplastid but has cercomonad affinities. *Protist*, 153:9–24, 2002.
- [477] B. Labedan, A. Boyen, et al. The evolutionary history of carbamoyl-transferases: A complex set of paralogous genes was already present in the last universal common ancestor. *J. Mol. Evol.*, 49:461–473, 1999.
- [478] J. A. Lake, C. W. Herbold, M. C. Rivera, J. A. Servin, and R. G. Skophammer. Rooting the Tree of Life using Non-ubiquitous Genes. *Mol. Biol. Evol.*, 2:1–18, 2006.
- [479] Land and Norrevang. *The morphology of Lamellibranchia (Annelids, Vestimentifera)*. Kobenhavn, 1975.
- [480] B. F. Lang, G. Burger, C. J. O’Kelly, R. Cedergren, G. B. Golding, C. Lemieux, D. Sankoff, M. Turmel, and M. W. Gray. An ancestral mitochondrial dna resembling a eubacterial genome in miniature. *Nature*, 387(6632):493–497, 1997.

- [481] B. F. Lang, E. Seif, M. W. Gray, C. J. O'Kelly, and G. Burger. A comparative genomics approach to the evolution of eukaryotes and their mitochondria. *J. Euk. Microbiol.*, 46(4):320–326, 1999.
- [482] E. Lara, A. Chatzinotas, and A. G. B. Simpson. Andalucia (n. gen.)—the Deepest Branch Within Jakobids (Jakobida; Excavata), Based on Morphological and Molecular Study of a New Flagellate from Soil. *J. Eukaryot. Microbiol.*, 53:112–120, 2006.
- [483] D. V. Lavrov, W. M. Brown, and J. L. Boore. Phylogenetic position of the Pentastomida and (pan)crustacean relationships. *Proc. R. Soc. Lond. B*, 271:537–544, 2004.
- [484] A. Lazcano and S. L. Miller. On the origin of metabolic pathways. *J. Mol. Evol.*, 49:424–431, 1999.
- [485] B. S. Leander and P. J. Keeling. Early evolutionary history of dinoflagellates and apicomplexans (alveolata) as inferred from hsp90 and actin phylogenies. *J. Phycol.*, 40:341–350, 2004.
- [486] B. S. Leander and P. A. Ramey. Cellular Identity of a Novel Small Subunit rDNA Sequence Clade of Apicomplexans: Description of the Marine Parasite *Rhytidocystis polygordiae* n. sp. (Host: *Polygordius* sp., Polychaeta). *J. Eukaryot. Microbiol.*, 53:1–12, 2006.
- [487] C. A. Leander. The labyrinthulomycota is comprised of three distinct lineages. *Mycologia*, 93:459–464, 2001.
- [488] G. F. Leedale. How many are the kingdoms of organisms. *Taxon*, 23(2–3), 1974.
- [489] M. S. Y. Lee. Molecular clock calibrations and metazoan divergence dates. *J. Mol. Evol.*, 49:385–391, 1999.
- [490] R. E. Lee, P. Kurgens, and A. P. Mylnikov. Feeding apparatus of the colourless flagellate *katablepharis* (cryptophyceae). *J. Phycol.*, 27:725–733, 1991.
- [491] D. D. Leipe, L. Aravind, and E. V. Koonin. Did dna replication evolve twice independently. *Nucleic Acids Research*, 27(17):3389–3401, 1999.

- [492] D. D. Leipe, S. M. Tong, C. L. Goggin, S. B. Slemenda, N. J. Pieniazek, and M. L. Sogin. 16s-like rDNA sequences from *Developayella elegans*, *Labyrinthuloides haitianus*, and *Proteromonas lacertae* confirm that the stramenopiles are a primarily heterotrophic group. *Eur. J. Protistol.*, 32:449–458, 1996.
- [493] C. Lemieux, C. Otis, and M. Turmel. Ancestral chloroplast genome in *Mesostigma viride* reveals an earthy branch of green plant evolution. *Nature*, 403:649–652, 2000.
- [494] C. Lemieux, C. Otis, and M. Turmel. A clade uniting the green algae *Mesostigma viride* and *Chlorokybus atmophyticus* represents the deepest branch of the Streptophyta in chloroplast genome-based phylogenies. *BMC Biology*, 5(2):1–17, 2007.
- [495] N. P. Levine, J. O. Corliss, F. E. G. Cox, and Others. A new revised classification of protozoa. the committee of systematics and evolution of the society of protozoologists. *J. Protozool.*, 27(1):37–58, 1980.
- [496] C. Levi. La classification des porifera grant, 1836 en 1996. *Bull. Soc. Zool. Fr.*, 97(122):255–259, 1996.
- [497] L. A. Lewis and R. M. Mccourt. Green algae and the origin of land plants. *American Journal of Botany*, 91(10):1535–1556, 2004.
- [498] L. A. Lewis, B. D. Mishler, and R. Vilgalys. Phylogenetic relationships of the liverworts (hepaticae), a basal embryophyte lineage, inferred from nucleotide sequence data of the chloroplast gene *rbcL*. *Mol. Phyl. Evol.*, 7(3):377–393, 1997.
- [499] S. P. Leys, E. Cheung, and N. Boury-Esnaulty. Embryogenesis in the glass sponge *Oopsacas minuta*: Formation of syncytia by fusion of blastomeres. *Integrative and Comparative Biology*, 46(2):104–117, 2006.
- [500] S. P. Leys. The Significance of Syncytial Tissues for the Position of the Hexactinellida in the Metazoa. *INTEGR. COMP. BIOL.*, 43:19–27, 2003.
- [501] S. L’Haridon, A.-L. Reysenbach, B. J. Tindall, P. Schönheit, A. Banta, U. Johnsen, P. Schumann, A. Gambacorta, E. Stackebrandt, and

C. Jeanthon. *Desulfurobacterium atlanticum* sp. nov., *Desulfurobacterium pacificum* sp. nov. and *Thermovibrio guaymasensis* sp. nov., three thermophilic members of the Desulfurobacteriaceae fam. nov., a deep branching lineage within the Bacteria. *International Journal of Systematic and Evolutionary Microbiology*, 56:2843–2852, 2006.

- [502] M.-F. Liaud, C. Lichter, K. Apt, W. Martin, and R. Cerff. Compartment-specific isoforms of *tpi* and *gapdh* are imported into diatom mitochondria as a fusion protein: Evidence in favor of a mitochondrial origin of the eukaryotic glycolytic pathway. *Mol. Biol. Evol.*, 17(2):213–223, 2000.
- [503] Lichtwardt. [trichomycetes]. *Mycologia*, 65(1):1–20, 1973.
- [504] M. Liaud et al. Evolutionary origin of cryptomonad microalgae: two novel chloroplast/cytosol-specific GAPDH genes as potential markers of ancestral endosymbiont and host cell components. *J. Mol. Evol.*, 44(1):28–37, 1997.
- [505] J. T. Lim and U. W. Hwang. The Complete Mitochondrial Genome of *Pollicipes mitella* (Crustacea, Maxillopoda, Cirripedia): Non-Monophyly of Maxillopoda and Crustacea. *Mol. Cells*, 22(3):314–322, 2006.
- [506] E. W. Linton, D. Hittner, C. Lewandowski, T. Auld, and R. E. Triemer. A molecular study of euglenoid phylogeny using small subunit rDNA. *J. Euk. Microbiol.*, 46(2):217–223, 1999.
- [507] D. L. Lipscomb and J. O. Corliss. [stephanopogon]. *Science*, 215(4530):303, 1982.
- [508] D. L. Lipscomb, J. S. Farris, M. Kallersjö, and A. Tehler. Support, ribosomal sequences and phylogeny of the eukaryotes. *Cladistics*, 14:303–338, 1998.
- [509] R. W. Litaker, P. A., A. Coloni, M. G. Levy, and E. J. Noga. The phylogenetic relationship of *Pfiesteria piscicida*, *Cryptoperidiniopsis* sp. *amyloodinium ocellatum* and a *Pfiesteria*-like dinoflagellate to other dinoflagellates and apicomplexans. *Journal of Phycology*, 35(6):1379–1389, 1999.

- [510] D. T. J. Littlewood, K. Rohde, R. A. Bray, and E. A. Herniou. Phylogeny of the platyhelminthes and the evolution of parasitism. *Mol. Phyl. Evol.*, pages 257–287, 1999.
- [511] D. T. T. Littlewood, K. Rohde, and K. A. Clough. The interrelationships of all major groups of platyhelminthes: phylogenetic evidence from morphology and molecules. *Biol. J. Linn. Soc.*, 66(1):75–114, 1999.
- [512] F.-G. R. Liu and M. M. Miyamoto. Phylogenetic assessment of molecular and morphological data for eutherian mammals. *Syst. Biol.*, 48(1):54–64, 1999.
- [513] Y. J. Liu, M. C. Hodson, and B. D. Hall. Loss of the flagellum happened only once in the fungal lineage: phylogenetic structure of Kingdom Fungi inferred from RNA polymerase II subunit genes. *BMC Evolutionary Biology*, 2006:1–13, 2006.
- [514] Y. J. Liu, S. Whelen, B. D. H. O. Botany, and U. O. Washington. Phylogenetic relationships among ascomycetes: Evidence from an rna polymerase ii subunit. *Mol. Biol. Evol.*, 16(12):1799–1808, 1999.
- [515] D. Longet, F. Burki, J. Flakowski, C. Berney, S. Polet, J. Fahrni, and J. Pawlowski. Multigene Evidence for Close Evolutionary Relations between Gromia and Foraminifera. *Acta Protozool.*, 43:303–311, 2004.
- [516] P. Lopez-Garcia, C. Brochier, D. Moreira, and F. Rodriguez-Valera. Comparative analysis of a genome fragment of an uncultivated mesopelagic crenarchaeote reveals multiple horizontal gene transfers. *Environ. Microbiol.*, 6(1):19–34, 2004.
- [517] P. Lopez-Garcia, F. Rodrigues-Valera, and D. Moreira. Toward the monophyly of haeckel’s radiolaria: 18s rna environmental data support the sisterhood of polycystinea and radiolaria. *Mol. Biol. Evol.*, 19:118–121, 2002.
- [518] P. Lopez, P. Forterre, and H. Philippe. The root of the tree of life in the light of the covarion model. *J. Mol. Evol.*, 49:496–508, 1999.
- [519] P. D. Lorch and J. M. A. Eadie. Power of the concentrated changes test for correlated evolution. *Syst. Biol.*, 48(1):170–191, 1999.

- [520] K. Lotman, M. Pekkarinen, and J. Kasesalu. Morphological observations on the life cycle of *dermocystidium cyprini eervinka* and *lom*. *Acta Protozool.*, 39:125–134, 2000.
- [521] P. Ltpez-Garcsa. Dna supercoiling and temperature adaptation: A clue to early diversification of life? *J. Mol. Evol.*, 49:439–452, 1999.
- [522] M. Ludwig, R. Schulz-Friedrich, and J. Appel. Occurrence of hydrogenases in cyanobacteria and anoxygenic photosynthetic bacteria: implications for the phylogenetic origin of cyanobacterial and algal hydrogenases. *J Mol Evol*, 63(6):758–768, 2006.
- [523] W. Ludwig and H.-P. Klenk. *Overview: A phylogenetic backbone and taxonomic framework for prokaryotic systematics*, pages 49–65. Springer-Verlag, Berlin, 2001.
- [524] D. H. Lynn and E. B. Small. An update of the systematics in the phylum ciliophora dofflein, 1901: the implications of kinetid diversity. *BioSystems*, 21:317–322, 1988.
- [525] D. H. Lynn. Morphology or molecules: How do we identify the major lineages of ciliates (Phylum Ciliophora)? *Europ. J. Protistol.*, 39:356–364, 2003.
- [526] L. Y. Mackey, B. Winnepenminckx, d. R. Wachter, T. Backeljau, P. Em-schermann, and J. R. Garey. 18s rrna suggests that entoprocta are protostomes, unrelated to ectoprocta. *J Mol Evol*, 42(5):552–559, 1996.
- [527] S. Magallon and M. J. Sanderson. Relationships among seed plants inferred from highly conserved genes: sorting conflicting phylogenetic signals among ancient lineages. *American Journal of Botany*, 89(12):1991–2006, 2002.
- [528] Z. L. K. Magombo. The Phylogeny of Basal Peristomate Mosses: Evidence from cpDNA, and Implications for Peristome Evolution. *Systematic Botany*, 28(1):24–38, 2003.
- [529] C. L. Mah. A new species of *Xyloplax* (Echinodermata: Asteroidea: Concentricycloidea) from the northeast Pacific: comparative morphology and a reassessment of phylogeny. *Invertebrate Biology*, 125(2):136–153, 2006.

- [530] U.-G. Maier, M. Fraunholz, S. Zauner, S. Penny, and S. Douglas. A nucleomorph-encoded *cbx* and the phylogeny of rubisco regulators. *Mol. Biol. Evol.*, 17(4):576–583, 2000.
- [531] K. S. Makarova, L. Aravind, M. Y. Galperin, N. V. Grishin, R. L. Tatusov, Y. I. Wolf, and E. V. Koonin. Comparative genomics of the archaea (euryarchaeota): Evolution of conserved protein families, the stable core, and the variable shell. *Genome Research*, 9:608–628, 1999.
- [532] O. Malek, K. Lattig, R. Hiesel, A. Brennicke, and V. Knoop. Rna editing in bryophytes and a molecular phylogeny of land plants. *EMBO J*, 15(6):1403–1411, 1996.
- [533] J. M. Mallatt, J. R. Garey, and J. W. Shultz. Ecdysozoan phylogeny and Bayesian inference: first use of nearly complete 28S and 18S rRNA gene sequences to classify the arthropods and their kin. *Molecular Phylogenetics and Evolution*, 31:178–191, 2004.
- [534] J. Mallatt and G. Giribet. Further use of nearly complete 28S and 18S rRNA genes to classify Ecdysozoa: 37 more arthropods and a kinorhynch. *Molecular Phylogenetics and Evolution*, 40(2006):772–794, 2006.
- [535] J. Mallatt and C. J. Winchell. Testing the new animal phylogeny: First use of combined large-subunit and small-subunit rRNA gene sequences to classify the protostomes. *Mol. Biol. Evol.*, 19:289–301, 2002.
- [536] J. Mallatt and C. J. Winchell. Ribosomal RNA genes and deuterostome phylogeny revisited: More cyclostomes, elasmobranchs, reptiles, and a brittle star. *Molecular Phylogenetics and Evolution*, 43:1005–1022, 2007.
- [537] H. Mannen and S. S.-L. Li. Molecular evidence for a clade of turtles. *Mol. Phyl. Evol.*, 13(1):144–148, 1999.
- [538] S. M. Manton. *The Arthropoda: habits, functional morphology and evolution*. Oxford Univ. Press, Oxford, 1977.
- [539] M. Manuel, C. Borchiellini, E. Alivon, Y. L. Parco, J. Vacelet, and N. Boury-Esnault. Phylogeny and Evolution of Calcareous Sponges: Monophyly of Calcinea and Calcaronea, High Level of Morphological

Homoplasy, and the Primitive Nature of Axial Symmetry. *Syst. Biol.*, 52(3):311–333, 2003.

- [540] L. Margulis and R. H. Whittaker. Protist classification and the kingdoms of organisms. *BioSystems*, 10(1):3–18, 1978.
- [541] L. Margulis. Archaeal-eubacterial mergers in the origin of eukarya: Phylogenetic classification of life. *Proc. Natl. Acad. Sci. USA*, 93(3):1071–1076, 1996.
- [542] B. Marin and M. Melkonian. Mesostigmatophyceae, a new class of streptophyte green algae revealed by ssu rna sequence comparison. *Protist*, 150:399–417, 1999.
- [543] B. Marin, E. C. M. Nowack, and M. Melkonian. A Plastid in the Making: Evidence for a Second Primary Endosymbiosis. *Protist*, 156:425–432, 2005.
- [544] B. Marin, E. C. M. Nowack, G. Glockner, and M. Melkonian. The ancestor of the Paulinella chromatophore obtained a carboxysomal operon by horizontal gene transfer from a Nitrococcus-like gamma-proteobacterium. *BMC Evolutionary Biology*, 2007(85):1–24, 2007.
- [545] P. Martin, I. Kaygorodova, D. Y. Sherbakov, and E. Verheyen. Rapidly evolving lineages impede the resolution of phylogenetic relationships among clitellata (annelida). *Mol. Phyl. Evol.*, 15(3):355–368, 2000.
- [546] K. Masahiro. The phylogenetic relationship of ophioglossaceae. *Taxon*, 367(2):381–386, 1988.
- [547] D. A. Maslov, S. Yasuhira, and L. Simpson. Phylogenetic affinities of diplomonads within the euglenozoa as inferred from the ssu rna gene and partial coi protein sequences. *Protist*, 150(1):33–42, 1999.
- [548] R. Massana, J. Castresana, V. Balague, L. Guillou, K. Romari, A. Groisillier, K. Valentin, and C. Pedros-Alio. Phylogenetic and Ecological Analysis of Novel Marine Stramenopiles. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 70(6):3528–3534, 2004.
- [549] S. Mattson and T. Cedhagen. *Schizocladus sublitoralis* gen. et sp. n. (protozoa: Sarcodina: Schizocladea cl. nov.) from the scandinavian sublitoral. *Sarsia*, pages 279–285, 1992.

- [550] D. Q. Matus, R. R. Copley, C. W. Dunn, A. Hejnol, H. Eccleston, K. M. Halanych, M. Q. Martindale, and M. J. Telford. Broad taxon and gene sampling indicate that chaetognaths are protostomes. *Curr. Biol.*, 15(16):R575–R576, 2006.
- [551] D. Q. Matus, K. Pang, H. Marlow, C. W. Dunn, G. H. Thomsen, and M. Q. Martindale. Molecular evidence for deep evolutionary roots of bilaterality in animal development. *Proc. Natl. Acad. Sci. USA*, 103(30):11195–11200, 2006.
- [552] E. Mayr. Two empires or three? *Proc. Natl. Acad. Sci. (USA)*, 95:9720–9723, 1998.
- [553] R. M. May. How many species? *Phil. Trans. R. Soc. Lond.*, 330:293–304, 1990.
- [554] D. Mchugh. Molecular evidence that echiurans and pogonophorans are derived annelids. *Proc. Natl. Acad. Sci. USA*, 94(No 15):8006–8009, 1997.
- [555] A. E. Mckie, T. Edlind, J. Walker, J. C. Mottram, and G. H. Coombs. The primitive protozoon trichomonas vaginalis contains two methionine -lyase genes that encode members of the -family of pyridoxal 5'-phosphate-depen dent enzymes. *J Biol Chem.*, 273(10):5549–5556, 1998.
- [556] M. Medina, A. G. Collins, J. W. Taylor, J. W. Valentine, J. H. Lipps, L. Amaral-Zettler, and M. L. Sogin. Phylogeny of Opisthokonta and the evolution of multicellularity and complexity in Fungi and Metazoa. *International Journal of Astrobiology*, 2(3):203–211, 2003.
- [557] F. V. Mercer, L. Bogorad, and R. Mullens. Studies with cyanidium caldarium. I. the fine structure and systematic position of the organism. *J. Cell. Biol.*, 13(3):393–403, 1981.
- [558] Merola. Revision of cyanidium caldarium. *Giorn. Bot. Ital.*, 115(4–5):189–186, 1981.
- [559] B. Meyer-Berthaud, S. E. Scheckler, and J.-L. Bousquet. The development of archaeopteris: new evolutionary characters from the structural

analysis of an early famennian trunk from southeast morocco1. *Amer. J. Bot.*, 87:456–468, 2000.

- [560] J. T. Michel. Phyletic lines in modern ferns. *Ann. Miss. Bot. Gard.*, 61:474–482, 1974.
- [561] J. P. Mignot and G. Brugerolle. Du flagelle phagotrophe colponema loxodes stein. *Protistologica*, XI(No 4):429–444, 1975.
- [562] K. A. Mikrjukov and A. P. Mylnikov. The fine structure of a carnivorous multiflagellar protist, multicilia marina cienkowski, 1881 (flagellata incertae sedis). *Europ. J. Protistol.*, 34:391–401, 1998.
- [563] K. A. Mikrjukov and A. P. Mylnikov. A study of the structure and the life cycle of gymnophrys cometa cienkowski, 1876 (gymnophrea cl. n.) with remarks on the taxonomy of the amoeba-flagellated genera gymnophrys and borkovia. *Acta Protozool.*, 37:179–189, 1998.
- [564] K. A. Mikrjukov. Structure, function, and formation of extrusive organelles - microtoxicysts in the rhizopod penardia cometa. *Proto-plasma*, 188:186–191, 1995.
- [565] K. A. Mikrjukov. On the biology of heliozoa: The origin of radial forms in the benthic sarcodines. *Rus. J. Zool.*, 2(No 1):15–24, 1998.
- [566] K. A. Mikrjukov. Taxonomy and phylogeny of heliozoa. ii. the order dimorphida siemensma, 1991 (cercomonadea classis n.): Diversity and relatedness with cercomonads. *Acta Protozool.*, 39:99–115, 2000.
- [567] K. A. Mikrjukov. Taxonomy and phylogeny of heliozoa. i. the order desmothoracida hertwig et lesser, 1874. *Acta Protozool.*, 39:81–97, 2000.
- [568] K. Mikrjukov and A. Mylnikov. Fine structure of an unusual rhizopod, penardia cometa, containing extrusomes and kinetosomes. *Eur. J. Protistol.*, 31:90–96, 1995.
- [569] D. P. Mindell, M. D. Sorenson, D. E. Dimcheff, M. Hasegawa, J. C. Ast, and T. Yuri. Interordinal relationships of birds and other reptiles bases on whole mitochondrial genomes. *Syst. Biol.*, 48(1):138–152, 1999.

- [570] G. S. Min, S. H. Kim, and W. Kim. Molecular phylogeny of arthropods and their relatives: polyphyletic origin of arthropodization. *Mol Cells*, 8(1):75–83, 1998.
- [571] A. Miquelis, J. F. Martin, E. W. Carson, G. Brun, and A. Gilles. Performance of 18s rdna helix e23 for phylogenetic relationships within and between the rotifera-acanthocephala clades. *C R Acad Sci III*, 323(10):925–941, 2000.
- [572] M. L. Miroshnichenko, N. A. Kostrikina, N. A. Chernyh, N. V. Pimenov, T. P. Tourova, A. N. Antipov, S. Spring, E. Stackebrandt, and E. A. Bonch-Osmolovskaya. *Caldithrix abyssi* gen. nov., sp. nov., a nitrate-reducing, thermophilic, anaerobic bacterium isolated from a Mid-Atlantic Ridge hydrothermal vent, represents a novel bacterial lineage. *International Journal of Systematic and Evolutionary Microbiology*, 53:323–329, 2003.
- [573] B. D. Mishler and S. P. Churchill. A cladistic approach to the phylogeny of the “bryophytes”. *Brittonia*, 36:406–424, 1984.
- [574] I. P. Miskin, P. Farrimond, and I. M. Head. Identification of novel bacterial lineages as active members of microbial populations in a freshwater sediment using a rapid RNA extraction procedure and RT-PCR. *Microbiology*, 145:1977–1987, 1999.
- [575] H. Miyashita, H. Ikemoto, N. Kurano, S. Miyachi, and M. Chihara. *Acaryochloris marina* gen. et sp. nov. (Cyanobacteria), an oxygenic photosynthetic prokaryote containing chl d as a major pigment. *J. Phycol.*, 39(2003):1247–1253, 2003.
- [576] T. Miyoshi, T. Iwatsuki, and T. Naganuma. Phylogenetic Characterization of 16S rRNA Gene Clones from Deep-Groundwater Microorganisms That Pass through 0.2-Micrometer-Pore-Size Filters. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 71(2):10841088, 2005.
- [577] O. Moestrup and M. Sengco. Ultrastructural studies on *bigelowiella natans*, gen. et sp. nov., a chlorarachniophyte flagellate. *J. Phycol.*, 37:624–646, 2001.
- [578] E. F. Mongodin, K. E. Nelson, S. Daugherty, R. T. DeBoy, J. Wister, H. Khouri, J. Weidman, D. A. Walsh, R. T. Papke, G. S. Perez, A. K.

Sharma, C. L. Nesb, D. MacLeod, E. Baptiste, W. F. Doolittle, R. L. Charlebois, B. Legault, and F. Rodriguez-Valera. The genome of *Salinibacter ruber*: Convergence and gene exchange among hyperhalophilic bacteria and archaea. *Proc. Natl. Acad. Sci. USA*, 102(50):18147–18152, 2005.

- [579] A. E. Montegut-Felkner and R. E. Triemer. Phylogeny of *diplonema ambulator* (larsen and patterson). 1. homologies of the flagellar apparatus. *Eur. J. Prot.*, 30(No 2):227–237, 1994.
- [580] A. S. Monteiro, B. Okamura, and P. W. H. Holland. Orphan worm finds a home: *Buddenbrockia* is a myxozoan. *Mol. Biol. Evol.*, 19:968–971, 2002.
- [581] C. Montgelard, S. Ducrocq, and E. Douzery. What is a *suiforme* (artiodactyla)? *Mol. Phyl. Evol.*, 9(3):528–532, 1998.
- [582] D. Moreira and P. Lopez-Garcia. Symbiosis between methanogenic archaea and delta-proteobacteria as the origin of eukaryotes: the syntrophic hypothesis. *J. Mol. Evol.*, 47:517–530, 1998.
- [583] D. Moreira, S. von der Heyden, D. Bass, P. Lopez-Garcia, E. Chao, and T. Cavalier-Smith. Global eukaryote phylogeny: Combined small- and large-subunit ribosomal DNA trees support monophyly of Rhizaria, Retaria and Excavata. *Molecular Phylogenetics and Evolution*, 44:255–266, 2007.
- [584] L. Morin. Long branch attraction effects and the status of “basal eukaryotes”: Phylogeny and structural analysis of the ribosomal rna gene cluster of the free-living diplomonad *trepomonas agilis*. *J. Euk. Microbiol.*, 47(2):167–177, 2000.
- [585] M. Moriya, T. Nakayama, and I. Inouye. Ultrastructure and 18s rDNA sequence analysis of *wobblia lunata* gen. et sp. nov., a new heterotrophic flagellate (stramenopiles, incertae sedis). *Protist*, 151:41–55, 2000.
- [586] M. Moriya, T. Nakayama, and I. Inouye. A New Class of the Stramenopiles, *Placididea Classis nova*: Description of *Placidia cafeteriopsis* gen. et sp. nov. *Protist*, 153:143–156, 2002.

- [587] S. Moriya, K. Tanaka, M. Ohkuma, S. Sugano, and T. Kudo. Diversification of the microtubule system in the early stage of eukaryote evolution: Elongation factor 1alpha and alpha-tubulin protein phylogeny of termite symbiotic oxymonad and hypermastigote protists. *J. Mol. Evol.*, 52:6–16, 2001.
- [588] D. J. Morris and A. Adams. Sacculogenesis of Buddenbrockia plumatellae (Myxozoa) within heinvertebrate host Plumatella repens (Bryozoa) with comments on the evolutionary relationships of the Myxozoa. *International Journal for Parasitology*, (in press):1–9, 2007.
- [589] S. T. Moss. The ultrastructure, taxonomy and phylogeny of trichomycetes. In *15th Int. Bot. Congr., Yokogama: Aug. 28 – Sep. 3 1993: Abstracts*, page 9, Yokogama, 1993.
- [590] S. K. Mouchaty, A. Gullberg, A. Janke, and U. Arnason. The phylogenetic position of the talpidae within eutheria based on analysis of complete mitochondrial sequences. *Mol. Biol. Evol.*, 17(1):60–67, 2000.
- [591] K. M. Muller, M. C. Oliveira, R. G. Sneath, and D. Bhattacharya. Ribosomal rna phylogeny of the bangiophycidae (rhodophyta) and the origin of secondary plastids. *Amer. J. Bot.*, 88:1390–1400, 2001.
- [592] J. Muona. Abstracts of the 21st Annual Meeting of the Willi Hennig Society. *Cladistics*, 19:148–163, 2003.
- [593] F. A. Murphy, C. M. Fauquet, D. H. L. Bishop, S. A. Ghabrial, A. W. Jarvis, G. P. Martelli, M. A. Mayo, and M. D. S. (eds.). Classification and nomenclature of viruses. *Sixth Report of the International Committee on Taxonomy of Viruses*, 1995.
- [594] P. Nakamura. Phylogenetic bridge of prokaryota to eukaryota: characters of pre-rhodophyta. *Mem. Konan Univ. Sci. Ser.*, 43(1):1–10, 1996.
- [595] T. N. Nazina, N. M. Shestakova, A. A. Grigor'yan, E. M. Mikhailova, T. P. Tourova, A. B. Poltarau, C. Feng, F. Ni, and S. S. Belyaev. Phylogenetic Diversity and Activity of Anaerobic Microorganisms of High-Temperature Horizons of the Dagang Oil Field (P. R. China). *Microbiology*, 75(1):55–65, 2006.

- [596] T. J. Near, J. R. Garey, and S. A. Nadler. Phylogenetic relationships of the acanthocephala inferred from 18S ribosomal DNA sequences. *Mol. Phyl. Evol.*, 10(3):287–298, 1998.
- [597] E. Negrisol, A. Minelli, and G. Valle. The Mitochondrial Genome of the House Centipede *Scutigera* and the Monophyly Versus Paraphyly of Myriapods. *Mol. Biol. Evol.*, 21(4):770–780, 2004.
- [598] K. E. Nelson, R. A. Clayton, et al. Evidence for lateral gene transfer between archaea and bacteria from genome sequence of *thermotoga maritima*. *Nature*, 399(6734):323–329, 1999.
- [599] C. L. Nesbo, M. Dlutek, O. Zhaxybayeva, and W. F. Doolittle. Evidence for Existence of "Mesotogas," Members of the Order Thermotogales Adapted to Low-Temperature Environments. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 72(7):5061–5068, 2006.
- [600] W. A. Newman. Origin of the Ostracoda and their maxillopodan and hexapodan affinities. *Hydrobiologia*, 538(121):1–21, 2005.
- [601] A. E. Newton, C. J. Cox, J.G.Duckett, J.A.Wheeler, B.Goffinet, T.A.J.Hedderson, and B.D.Mishler. Evolution of the major moss lineages: Phylogenetic analyses based on multiple gene sequences and morphology. *Bryologist*, 103:187–211, 2000.
- [602] A. E. Newton and E. de Luna. A survey of morphological characters for phylogenetic study of the transition to pleurocarpy. *The Bryologist*, 102(4):651–682, 1999.
- [603] C. Nielsen, G. Haszprunar, B. Ruthensteiner, and A. Wanninger. Early development of the aplacophoran mollusc *Chaetoderma*. *Acta Zoologica*, 88:231–247, 2007.
- [604] C. Nielsen, N. Scharff, and D. Eibye-Jacobsen. Cladistic analyses of the animal kingdom. *Biol. J. Linn. Soc.*, 57:385–410, 1996.
- [605] C. Nielsen. Animal phylogeny in the light of trocaea theory. *Biol. J. Linn. Soc.*, 25:243–299, 1985.
- [606] C. Nielsen. Defining phyla: morphological and molecular clues to metazoan evolution. *EVOLUTION & DEVELOPMENT*, 5(4):386–393, 2003.

- [607] C. Nielsen. Proposing a solution to the ArticulataEcdysozoa controversy. *Zoologica Scripta*, 32:475–482, 2003.
- [608] C. Nielsen. Trochophora Larvae: Cell-Lineages, Ciliary Bands and Body Regions. 2. Other Groups and General Discussion. *JOURNAL OF EXPERIMENTAL ZOOLOGY*, 304B:401–447, 2005.
- [609] M. Nikaido, A. P. Rooney, and N. Okada. Phylogenetic relationships among cetartiodactyls based on insertions of short and long interspersed elements: Hippopotamuses are the closest extant relatives of whales. *Proc. Natl. Acad. Sci. USA*, 96(18):10261–10266, 1999.
- [610] N. Nikoh and T. Fukatsu. Interkingdom host jumping underground: Phylogenetic analysis of entomoparasitic fungi of the genus cordyceps. *Mol. Biol. Evol.*, 17(4):629–638, 2000.
- [611] S. I. Nikolaev, C. Berney, J. F. Fahrni, I. Bolivar, S. Polet, A. P. Mylnikov, V. V. Aleshin, N. B. Petrov, and J. Pawlowski. The twilight of Heliozoa and rise of Rhizaria, an emerging supergroup of amoeboid eukaryotes. *Proc. Natl. Acad. Sci. USA*, 101(21), 2004.
- [612] S. I. NIKOLAEV, C. BERNEY, J. FAHRNI, A. P. MYLNIKOV, V. V. ALESHIN, N. B. PETROV, and J. PAWLOWSKI. Gymnophrys cometa and lecythium sp. are core cercozoa: Evolutionary implications. *Acta Protozool.*, 42:183–190, 2003.
- [613] S. I. Nikolaev, C. Berney, N. B. Petrov, A. P. Mylnikov, J. F. Fahrni, and J. Pawlowski. Phylogenetic position of Multicilia marina and the evolution of Amoebozoa. *International Journal of Systematic and Evolutionary Microbiology*, 56:1449–1458, 2006.
- [614] H. Nishida, P. A. Blanz, and J. Sugiyama. The higher fungus protomyces inouyei has two group i introns in the 18s rrna gene. *J Mol Evol*, 37(1):25–28, 1993.
- [615] H. Nishida and J. Sugiyama. Phylogenetic relationships among taphrina, saitoella, and other higher fungi. *Mol Biol Evol*, 10(2):431–436, 1993.

- [616] T. Nishiyama and M. Kato. Molecular phylogenetic analysis among bryophytes and tracheophytes based on combined data of plastid coded genes and the 18s rRNA gene. *Mol. Biol. Evol.*, 16(8):1027–1036, 1999.
- [617] A. Nishi, K. I. Ishida, and H. Endoh. Reevaluation of the Evolutionary Position of Opalinids Based on 18S rDNA, and α - and β -Tubulin Gene Phylogenies. *J Mol Evol*, 60:695–705, 2005.
- [618] M. Noren and U. Jandelius. Xenoturbella: molluscan DNA ... and molluscan embryogenesis. *Nature*, 390(6655):31–32, 1997.
- [619] J. E. Norman and M. V. Ashley. Phylogenetics of perissodactyla and tests of the molecular clock. *J. Mol. Evol.*, 50:11–21, 2000.
- [620] B. B. Normark, A. R. McCune, and R. G. Harrison. Phylogenetic relationships of neopterygian fishes, inferred from mitochondrial DNA sequences. *Mol Biol Evol*, 8(6):819–834, 1991.
- [621] T. Noto and H. Endoh. A "chimera" theory on the origin of dicyemid mesozoans: evolution driven by frequent lateral gene transfer from host to parasite. *BioSystems*, 73(2004):73–83, 2004.
- [622] F. Not, K. Valentin, K. Romari, C. Lovejoy, R. Massana, K. Toebe, D. Vaultot, and L. K. Medlin. Picobiliphytes: A Marine Picoplanktonic Algal Group with Unknown Affinities to Other Eukaryotes. *Science*, 315:253–255, 2007.
- [623] M. J. Novacek. 100 million years of land vertebrate evolution: the cretaceous-early tertiary transition. *Ann. Miss. Bot. Gard.*, 86(2):230–258, 1999.
- [624] H. Nozaki, M. Iseki, M. Hasegawa, K. Misawa, T. Nakada, N. Sasaki, and M. Watanabe. Phylogeny of Primary Photosynthetic Eukaryotes as Deduced from Slowly Evolving Nuclear Genes. *Mol. Biol. Evol.*, (in press):1–10, 2007.
- [625] H. Nozaki, M. Matsuzaki, M. Takahara, O. Misumi, H. Kuroiwa, M. Hasegawa, T. Shin, Y. Kohara, N. Ogasawara, and T. Kuroiwa. The Phylogenetic Position of Red Algae Revealed by Multiple Nuclear Genes from Mitochondria-Containing Eukaryotes and an Alternative Hypothesis on the Origin of Plastids. *J Mol Evol*, 56:485–497, 2003.

- [626] H. Nozaki. A new scenario of plastid evolution: plastid primary endosymbiosis before the divergence of the "Plantae," emended. *J Plant Res*, 118:113–0033, 2005.
- [627] P. Nyvall and M. Pedersen. *Thalassochytrium gracilariopsisidis* (chytridiomycota), gen. et sp. nov., endosymbiotic in *gracilariopsis* sp. (rhodophyceae). *J. Phycol.*, 35(1):176–185, 1999.
- [628] M. Obst and P. Funch. Dwarf Male of Symbion pandora (Cycliophora). *JOURNAL OF MORPHOLOGY*, 255:261–278, 2003.
- [629] S. Ogishima and H. Tanaka. Missing link in the evolution of Hox clusters. *Gene*, 387:21–30, 2007.
- [630] M. Ohkuma, T. Sato, S. Noda, S. Ui, T. Kudo, and Y. Hongoh. The candidate phylum ‘Termite Group 1’ of bacteria: phylogenetic diversity, distribution, and endosymbiont members of various gut agellated protists. *FEMS Microbiol. Ecol.*, 60(2007):351–0198, 2006.
- [631] N. Ohta, N. Sato, H. Nozaki, and T. Kuroiwa. Analysis of the cluster of ribosomal protein genes in the plastid genome of a unicellular red alga cyanidioschyzon merolae: translocation of the str cluster as an early event in the rhodophyte-chromophyte lineage of plastid evolution. *J. Mol. Evol.*, 45:688–695, 1997.
- [632] N. Okamoto and I. Inouye. The Katablepharids are a Distant Sister Group of the Cryptophyta: A Proposal for Katablepharidophyta Divisio Nova/ Kathablepharida Phylum Novum Based on SSU rDNA and Beta-Tubulin Phylogeny. *Protist*, 156:163–179, 2005.
- [633] N. Okamoto and I. Inouye. *Hatena arenicola* gen. et sp. nov., a Katablepharid Undergoing Probable Plastid Acquisition. *Protist*, 27:1–19, 2006.
- [634] B. Okamura, A. Curry, T. S. Wood, and E. U. Canning. Ultrastructure of *Buddenbrockia* identifies it as a myxozoan and verifies the bilaterian origin of the Myxozoa. *Parasitology*, 124:215–223, 2002.
- [635] C. J. O’Kelly, M. A. Farmer, and T. A. Nerad. Ultrastructure of *trimastix pyriformis* (klebs) bernard et al.: Similarities of *trimastix* species with *retortamonad* and *jakobid* flagellates. *Protist*, 150:149–162, 1999.

- [636] C. J. O’Kelly and T. A. Nerad. *Malawimonas jakobiformis* n. gen., n. sp. (malawimonadidae n. fam.): A jakoba-like heterotrophic nanoflagellate with discoidal mitochondrial cristae. *J. Euk. Microbiol.*, 46(5):522–531, 1999.
- [637] C. O’Kelly. The jakobid flagellates: structural features of jakoba, reclinomonas and histiona and implications for the early diversification of eucaryotes. *J. Euk. Microbiol.*, 40(5):627–636, 1993.
- [638] M. A. O’Leary and J. H. Geisler. The position of cetacea within mammalia: phylogenetic analysis of morphological data from extinct and extant taxa. *Syst. Biol.*, 48(3):491–522, 1999.
- [639] L. S. Olive. *The Mycetozoans*. N. Y.;L., 1975.
- [640] G. I. Olsen, C. R. Woese, and R. Overbure. [phylogeny of simbiosis]. *J. Bacteriol.*, 176:1–6, 1994.
- [641] M. V. Omelchenko, Y. I. Wolf, E. K. Gaidamakova, V. Y. Matrosova, A. Vasilenko, M. Zhai, M. J. Daly, E. V. Koonin, and K. S. Makarova. Comparative genomics of thermus thermophilus and deinococcus radiodurans :divergent routes of adaptation to thermophily and radiation resistance. *BMC Evolutionary Biology*, 5(57), 2005.
- [642] *Origin of major invertebrate groups*. Acad. Press, L., 1979.
- [643] J. Otsuka, G. Terai, and T. Nakano. Phylogeny of organisms investigated by the base-pair changes in the stem regions of small and large ribosomal subunit RNAs. *J. Mol. Evol.*, 48:218–235, 1999.
- [644] K. Padian and L. M. Chiappe. The origin and early evolution of birds. *Biol. Rev.*, 73(1):1–42, 1998.
- [645] F. C. Page and R. L. Blanton. The heterolobosea (sarcodina, rhizopoda), a new class uniting the shizopyrenida and the acrasidae (acrasida). *Protistologica*, 21(1), 1985.
- [646] F. Page. The classification of “naked” amoebae (phylum rhizopoda). *Arch. fur Protistenkunde*, 133:199–217, 1987.

- [647] R. E. Palma and A. E. Spotorno. Molecular systematics of marsupials based on the rrna 12s mitochondrial gene: The phylogeny of didelphimorphia and of the living fossil microbiotheriid dromiciops gliroides thomas. *Mol. Phyl. Evol.*, 13(3):525–535, 1999.
- [648] C. W. D. Pamphilis, N. D. Young, and A. D. Wolfe. Evolution of plastid gene rps2 in a lineage of hemiparasitic and holoparasitic plants: Many losses of photosynthesis and complex patterns of rate variation. *Proc. Natl. Acad. Sci. USA*, 94(No 14):7367–7372, 1998.
- [649] D. Papillon, Y. Perez, X. Caubit, a, and Y. L. Parco. Identification of Chaetognaths as Protostomes Is Supported by the Analysis of Their Mitochondrial Genome. *Molecular Biology and Evolution*, 21(11):2122–2129, 2004.
- [650] B. Paquin and B. F. Lang. The mitochondrial dna of allomyces macrogynus: the complete genomic sequence from an ancestral fungus. *J Mol Biol*, 255(5):688–701, 1996.
- [651] L. W. Parfrey, E. Barbero, E. Lasser, M. Dunthorn, D. Bhattacharya, D. J. Patterson, and L. A. Katz. Evaluating Support for the Current Classification of Eukaryotic Diversity. *PLoS Genetics*, 2(12):2062–2073, 2006.
- [652] J.-K. Park, K.-H. Kim, S. Kang, W. Kim, K. S. Eom, and D. T. J. Littlewood. A common origin of complex life cycles in parasitic flatworms: evidence from the complete mitochondrial genome of Microcotyle sebastis (Monogenea: Platyhelminthes). *BMC Evolutionary Biology*, 7(11):1–42, 2007.
- [653] J.-K. Park, H. S. Rho, R. M. Kristensen, W. Kim, and G. Giribet. First Molecular Data on the Phylum Loricifera An Investigation into the Phylogeny of Ecdysozoa with Emphasis on the Positions of Loricifera and Priapulida. *ZOOLOGICAL SCIENCE*, 23:943–954, 2006.
- [654] J. S. Park, A. G. B. Simpson, W. J. Lee, and B. C. Cho. Ultrastructure and Phylogenetic Placement within Heterolobosea of the Previously Unclassified, Extremely Halophilic Heterotrophic Flagellate Pleurostomum flabellatum (Ruinen 1938). *Protist*, (in press), 2007.

- [655] D. P. Pashley, B. A. McPherson, and E. A. Zimmer. Systematics of holometabolous insect orders based on 18s ribosomal rna. *Mol Phylogenet Evol*, 2(2):132–142, 1993.
- [656] Y. J. Passamaneck and K. M. Halanych. Evidence from Hox genes that bryozoans are lophotrochozoans. *EVOLUTION & DEVELOPMENT*, 6(4):275–281, 2004.
- [657] Y. J. Passamaneck, C. Schander, and K. M. Halanych. Investigation of molluscan phylogeny using large-subunit and small-subunit nuclear rRNA sequences. *Molecular Phylogenetics and Evolution*, 32:25–38, 2004.
- [658] Y. Passamaneck and K. M. Halanych. Lophotrochozoan phylogeny assessed with LSU and SSU data: Evidence of lophophorate polyphyly. *Molecular Phylogenetics and Evolution*, pages 1–9, 2006.
- [659] N. J. Patron, Y. Inagaki, and P. J. Keeling. Multiple Gene Phylogenies Support the Monophyly of Cryptomonad and Haptophyte Host Lineages. *Current Biology*, (in press), 2007.
- [660] D. J. Patterson. On the organization and affinities of the amoeba, *Pompholyxophrys punicea* archer, based on ultrastructural examination of individual cells from wild material. *J. Protozool.*, 32(No 2):241–246, 1985.
- [661] D. J. Patterson. *The actinophryid Heliozoa (Sarcodina, Actinopoda) as Chromophyta*, pages 49–67. Cambridge, 1986.
- [662] D. J. Patterson. The current status of the free-living heterotrophic flagellates. *J. Euk. Microbiol.*, 40(No 5):606–609, 1993.
- [663] D. J. Patterson. Protozoa: evolution and systematics. In *Hausmann K., Hulsmann N. Progress in protozoology. Proceedings of the IX International Congress of Protozoology*, pages 1–14, Berlin, 1993.
- [664] D. J. Patterson. The diversity of eukaryotes. *Amer. Nat.*, 65:S96–S124, 1999.
- [665] D. Patterson. The fine structure of *Opalina ranarum* (family opalinidae): opalinid phylogeny and classification. *Protistologica*, 21(4):413–428, 1985.

- [666] D. Patterson. [thraustochytridiales]. *BioSystems*, 21(3–4):370–377, 1988.
- [667] Patterson and Fenchel. Protist associated with detritus. *Mar. Ecol. Prog. Ser.*, 62:11–19, 1990.
- [668] Patterson. *Mem. Inst. Oswaldo Cruz*, 83(No 1 Suppl.):593–594, 1988.
- [669] J. Pawlowski, I. Bolivar, J. F. Fahrni, T. Cavalier-Smith, and M. Gouy. Early origin of foraminifera suggested by SSU rRNA gene sequences. *Mol. Biol. Evol.*, 13(3):445–450, 1996.
- [670] J. Pawlowski and M. Holzmann. Molecular phylogeny of foraminifera — a review. *Europ. J. Protistol.*, 38:1–10, 2002.
- [671] J. Pawlowski, J. I. Montoya-Burgos, J. F. Fahrni, J. Wuest, and L. Zaninetti. Origin of the mesozoa inferred from 18s rRNA gene sequences. *Mol. Biol. Evol.*, 13:1128–1132, 1996.
- [672] H. Paxton. Molting polychaete jaws—ecdysozoans are not the only molting animals. *EVOLUTION & DEVELOPMENT*, 7(4):337–340, 2005.
- [673] M. Pekkarinen, J. Lom, C. Murphy, M. Ragan, and I. Dykova. Phylogenetic Position and Ultrastructure of Two Dermocystidium Species (Ichthyosporea) from the Common Perch (*Perca fluviatilis*). *Acta Protozool.*, 42:287–307, 2003.
- [674] D. Penny, M. Hasegawa, P. J. Waddell, and M. D. Hendy. Mammalian evolution: timing and implications from using the logdeterminant transform for proteins of differing amino acid composition. *Syst. Biol.*, 48(1):76–93, 1999.
- [675] M. Perron, D. J. Perry, C. Andalo, and J. Bousquet. Evidence from sequence-tagged-site markers of a recent progenitor-derivative species pair in conifers. *Proc. Natl. Acad. Sci.*, 97(21):11331–11336, 2000.
- [676] J. Petersen, R. Teich, H. Brinkmann, and R. Cerff. A “Green” Phosphoribulokinase in Complex Algae with Red Plastids: Evidence for a Single Secondary Endosymbiosis Leading to Haptophytes, Cryptophytes, Heterokonts, and Dinoflagellates. *J Mol Evol*, 62:143–157, 2006.

- [677] N. B. Petrov and N. S. Vladychenskaya. Phylogeny of Molting Protostomes (Ecdysozoa) as Inferred from 18S and 28S rRNA Gene Sequences. *Molecular Biology*, 39(4):503–513, 2005.
- [678] E. Peyretilade, V. Broussolle, P. Peyret, G. Motonier, M. Gouy, and C. P. Vivares. Microsporidia, amitochondrial protists, possess a 70-kda heat shock protein gene of mitochondrial evolutionary origin. *Mol. Biol. Evol.*, 15(6):683–689., 1998.
- [679] H. Philippe and P. Forterre. The rooting of the universal tree of life is not reliable. *J. Mol. Evol.*, 49:509–523, 1999.
- [680] R. E. G. Pichi Sermoli. Tentamen pteridophytorum genera in taxonomicum ordinem redigendi. *Webbia*, 31(2):313–512, 1977.
- [681] R. E. G. Pichi Sermoli. Report of the subcommittee for family names of pteridophyta. *Taxon*, 30:163–168, 1981.
- [682] G. Pilato, M. G. Binda, O. Biondi, V. D’Urso, O. Lisi, A. Marletta, S. Maugeri, V. Nobile, G. Rappazzo, G. Sabella, F. Sammartano, G. Turrisi, and F. Viglianisi. The clade Ecdysozoa, perplexities and questions. *Zoologischer Anzeiger*, 244:43–50, 2005.
- [683] S. Polet, C. Berney, J. Fahrni, and J. Pawlowski. Small-Subunit Ribosomal RNA Gene Sequences of Phaeodarea Challenge the Monophyly of Haeckel’s Radiolaria. *Protist*, 155:53–63, 2004.
- [684] D. Potter, G. W. Saunders, and R. A. Andersen. Phylogenetic relationships of the raphidophyceae and xanthophyceae as inferred from nucleotide sequences of the 18s ribosomal rna gene. *Amer. J. Bot.*, 84(No 8):966–972, 1997.
- [685] H. R. Preisig. Systematics and evolution of the algae: Phylogenetic relationships of taxa within the different groups of algae. *Progr. in Botany*, 60:369–412, 1999.
- [686] K. M. Pryer, E. Schuettpelz, P. G. Wolf, H. Schneider, A. R. Smith, and R. Cranfill. Phylogeny and evolution of ferns (monilophytes) with a focus on the early leptosporangiate divergences. *American Journal of Botany*, 91(10):1582–1598, 2004.

- [687] K. M. Pryer, A. R. Smith, and J. E. Skog. Phylogenetic relationships of extant ferns based on evidence from morphology and rbcL sequences. *Amer. Fern Journ.*, 85:205–282, 1995.
- [688] K. M. Pryer. Phylogeny of marsileaceous ferns and relationships of the fossil *Hydropteris pinnata* reconsidered. *Intern. J. Plant Sci.*, 160(5):931–954, 1999.
- [689] K. Pryer, H. Schneider, A. Smith, R. Cranfill, P. Wolf, J. Hunt, and S. Sipes. Horsetails and ferns are a monophyletic group and the closest living relatives to seed plants. *Nature*, 409:618–622, 2001.
- [690] Y.-L. Qiu, Y. Cho, J. C. Cox, and J. D. Palmer. The gain of three mitochondrial introns identifies liverworts as the earlier land plants. *Nature*, 394:671–674, 1998.
- [691] Y.-L. Qiu, L. Li, B. Wang, Z. Chen, O. Dombrowska, J. Lee, L. Kent, R. Li, R. W. Jobson, T. A. Hendry, D. W. Taylor, C. M. Testa, and M. Ambrosy. A nonflowering land plant phylogeny inferred from nucleotide sequences of seven chloroplast, mitochondrial, and nuclear genes. *Int. J. Plant Sci.*, 168(5):691–708, 2007.
- [692] Y.-L. Qiu, L. Li, B. Wang, Z. Chen, V. Knoop, M. Groth-Malonek, O. Dombrowska, J. Lee, L. Kent, J. Rest, G. F. Estabrook, T. A. Hendry, D. W. Taylor, C. M. Testa, M. Ambros, B. Crandall-Stotler, R. J. Duff, M. Stech, W. Frey, D. Quandt, and C. C. Davis. The deepest divergences in land plants inferred from phylogenomic evidence. *Proc. Natl. Acad. Sci. USA*, 103(42):15511–15516, 2006.
- [693] C. J. Quinn, R. A. Price, and P. A. Gadek. Familial concepts and relationships in the conifers based on rbcL and matK sequence comparisons. *Kew Bulletin*, 57:513–531, 2002.
- [694] R. Radek, G. Klein, and V. Storch. The spore of the unicellular organism *nephridiophaga blatellae*: ultrastructure and substances of the spore wall. *Acta Protozool.*, 41:169–181, 2002.
- [695] M. A. Ragan, C. L. Goggins, R. J. Cawthorns, L. Cerenius, A. V. C. Jamieson, S. M. Plourdes, T. G. Rand, K. So:derha:ll, and R. R. Gutell. A novel clade of protistan parasites near the animal-fungal divergence. *Proc. Natl. Acad. Sci. USA*, 93(21):11907–11912, 1996.

- [696] E. V. Raikova. Polypodium hydriforme infection in the eggs of acipenseriform fishes. *J. Appl. Ichthyol.*, 18:405–415, 2002.
- [697] E. V. Raikova. Cytomorphological characters of Polypodium hydriforme and problems of myxozoan and cnidarian phylogeny. *Cytologia*, 47(10):933–939, 2005.
- [698] M. Raineri. Are protochordates chordates? *Biological Journal of the Linnean Society*, 87:261–284, 2006.
- [699] M. S. Rappe and S. J. Giovannoni. The uncultured microbial majority. *Annu. Rev. Microbiol.*, 57:369–394, 2003.
- [700] A.-S. Rasmussen and U. Arnason. Molecular studies suggest that cartilaginous fishes have a terminal position in the piscine tree. *Proc. Natl. Acad. Sci. USA*, 96:2177–2182, 1999.
- [701] D. Redecker, R. Kodner, and L. E. Graham. Glomalean fungi from the ordovician. *Science*, 289(5486):1920, 2000.
- [702] D. Redecker, J. B. Morton, and T. D. Bruns. Ancestral lineages of arbuscular mycorrhizal fungi (glomales). *Mol. Phyl. Evol.*, 14(2):276–284, 2000.
- [703] K. S. Reece, M. E. Siddall, N. A. Stokes, and E. M. Bureson. Molecular phylogeny of the Haplosporidia based on two independent gene sequences. *J. Parasitol.*, 90(5):1111–1122, 2004.
- [704] K. S. Reece et al. Phylogenetic analysis of perkinsus based on actine gene sequences. *J. Parasitol.*, 83(3):417–423, 1997.
- [705] J. C. Regier, J. W. Shultz, and R. E. Kambic. Phylogeny of Basal Hexapod Lineages and Estimates of Divergence Times. *Ann. Entomol. Soc. Am.*, 97(3):411–419, 2004.
- [706] J. C. Regier, J. W. Shultz, and R. E. Kambic. Pancrustacean phylogeny: hexapods are terrestrial crustaceans and maxillopods are not monophyletic. *Proc. R. Soc. B*, 272:395–401, 2005.
- [707] J. C. Regier and J. W. Shultz. Molecular phylogeny of the major arthropod groups indicates polyphyly of crustaceans and a new hypothesis for the origin of hexapods. *Mol Biol Evol*, 14(9):902–913, 1997.

- [708] J. C. Regier, H. M. Wilson, and J. W. Shultz. Phylogenetic analysis of Myriapoda using three nuclear protein-coding genes. *Molecular Phylogenetics and Evolution*, 34:147–158, 2005.
- [709] A. Remane, V. Storch, and U. Welsch. *Systematische Zoologie. Stamme des Tierreiches*. Iena, 1976.
- [710] A. Reyes-Prieto and D. Bhattacharya. Phylogeny of Calvin cycle enzymes supports Plantae monophyly. *Mol. Phyl. Evol*, pages 1–24, 2007.
- [711] D. W. Rice and J. D. Palmer. An Exceptional Horizontal Gene Transfer in Plastids: Gene Replacement by a Distant Bacterial Paralog and Evidence that Haptophyte and Cryptophyte Plastids are Sisters. *BMC Biology*, 4(31):4–31, 2006.
- [712] T. A. Richards and T. Cavalier-Smith. Myosin domain evolution and the primary divergence of eukaryotes. *Nature*, 436(25):1113–1115, 2005.
- [713] S. Richter. The Tetraconata concept: hexapod-crustacean relationships and the phylogeny of Crustacea. *Org. Divers. Evol.*, 2(2002):217–237, 2002.
- [714] R. M. Rieger. A new group of interstitial annelids, lobatocerebridae new. fam. and its signification for metazoan phylogeny. *Zoomorphologie*, 94(1):41–84, 1980.
- [715] R. M. Rieger. Neue organisatiostypen aus der sandlückenraumfauna: die lobatocerebriden und jennaria pulchra. *Verh. Dtsch. Zool.*, 84:247–259, 1991.
- [716] N. W. Riser. Arynchonemertes axi gen. n., sp. n. — an insight into basic acoelomate bilaterian organology. *Bull. Marine Sci.*, 45(2):531–538, 1988.
- [717] C. E. Robertson, J. K. Harris, J. R. Spear, and N. R. Pace. Phylogenetic diversity and ecology of environmental Archaea. *Current Opinion in Microbiology*, 8:638–642, 2005.
- [718] N. RodrOguez-Ezpeleta, H. Brinkmann, S. C. Burey, B. Roure, G. Burger, W. Lffelhardt, H. J. Bohnert, H. Philippe, and B. F. Lang. Monophyly of Primary Photosynthetic Eukaryotes: Green Plants, Red Algae, and Glaucophytes. *Current Biology*, 15:1325–1330, 2005.

- [719] A. J. Roger, H. G. Morrison, and M. L. Sogin. Primary structure and phylogenetic relationships of a malate dehydrogenase gene from giardia lamblia. *J. Mol. Evol.*, 48(1999):750–755, 2000.
- [720] A. J. Roger, O. Sandblom, W. F. Doolittle, and H. Philippe. An evaluation of elongation factor 1 alpha as a phylogenetic marker for eukaryotes. *Mol Biol Evol*, 16(2):218–233, 1999.
- [721] A. J. Roger, M. W. Smith, R. F. Doolittle, and W. F. Doolittle. Evidence for the heterolobosea from phylogenetic analysis of genes encoding glyceraldehyde-3-phosphate dehydrogenase. *J. Euk. Microbiol.*, 43(No 6):475–485, 1996.
- [722] A. J. Roger, S. G. Svrdrd, J. Tovar, C. G. Clark, M. W. Smith, F. D. Gillin, and M. L. S. and. A mitochondrial-like chaperonin 60 gene in giardia lamblia: Evidence that diplomonads once harbored an endosymbiont related to the progenitor of mitochondria. *Proc. Natl. Acad. Sci. USA*, 95(1):229–234, 1998.
- [723] I. B. Rogozin, Y. I. Wolf, L. Carmel, and E. V. Koonin. Ecdysozoan Clade Rejected by Genome-Wide Analysis of Rare Amino Acid Replacements. *Mol. Biol. Evol.*, 24(4):1080–1090, 2007.
- [724] G. Rosenberg, S. Tillier, A. Tillier, G. Kuncio, R. Hanlon, M. Masselot, and C. Williams. Ribosomal rna phylogeny of selected major clades in the mollusca. *Journal of Molluscan Studies.*, 63(3):301–309, 1999.
- [725] K. D. Rose. On the origin of the order artiodactyla. *Proc. Natl. Acad. Sci. USA*, 93(4):1705–1709, 1996.
- [726] L. J. Rothschild. *The Influence of UV Radiation on Protistan Evolution*, 46(5):548–555, 1999.
- [727] G. W. Rothwell and K. C. Nixon. How does the inclusion of fossil data change our conclusions about the phylogenetic history of euphyllophytes? *Int. J. Plant Sci.*, 167(3):737–749, 2006.
- [728] G. W. Rouse. Trochophore concepts: ciliary bands and the evolution of larvae in spiralian metazoa. *Biol. J. Linn. Soc.*, 66(4):411–464, 1999.

- [729] V. Rousset, F. Pleijel, G. W. Rouse, C. Erseusd, and M. E. Siddall. A molecular phylogeny of annelids. *Mar. Biol.*, 22:1–23, 2006.
- [730] V. Rousset, G. W. Rouse, M. E. Siddall, A. Tillier, and F. Pleijel. The phylogenetic position of Siboglinidae (Annelida) inferred from 18S rRNA, 28S rRNA and morphological data. *Cladistics*, 20:518–533, 2004.
- [731] I. Ruiz-Trillo, C. E. Lane, J. M. Archibald, and A. J. Roger. Insights into the Evolutionary Origin and Genome Architecture of the Unicellular Opisthokonts *Capsaspora owczarzaki* and *Sphaeroforma arctica*. *J. Eukaryot. Microbiol.*, 53(5):1–6, 2006.
- [732] I. Ruiz-Trillo, M. Loukota, C. Ribera, U. Jondelius, J. Baguna, and M. Riutort. A phylogenetic analysis of myosin heavy chain type ii sequence corroborates that acoela and nemertodermatida are basal bilaterians. *Proc. Natl. Acad. Sci. USA*, 99:11246–11251, 2002.
- [733] I. Ruiz-Trillo, M. Riutort, D. T. J. Littlewood, E. A. Herniou, and J. Bagufe. Acoel flatworms: Earliest extant bilaterian metazoans, not members of platyhelminthes. *Science*, 283(5409):1919–1923, 1999.
- [734] r. i. t. M. S. M. Zaballos, A. Lopez-Lopez, L. Ovreas, S. G. Bartual, G. D’Auria, J. C. Alba, B. Legault, R. Pushker, F. L. Daae, and F. Rodriguez-Valera. Comparison of prokaryotic diversity at oshore oceanic locations reveals a diereent microbiota in the Mediterranean Sea. *FEMS Microbiol. Ecol.*, 56:389–405, 2006.
- [735] M. B. Saffo. Phylogenetic affinities of the enigmatic protist *Nephromyces*. Developing an integrated approach for phylogenetic analysis of a complex tripartite marine symbiosis. *presentation*, 2004.
- [736] M. Saffo. The enigmatic protist *nephromyces*. *BioSystems*, 14:487–490, 1981.
- [737] M. Sakaguchi, T. Nakayama, T. Hashimoto, and I. Inouye. Phylogeny of the Centrohelida Inferred from SSU rRNA, Tubulins, and Actin Genes. *J Mol Evol*, 61:765–775, 2005.

- [738] O. Sakarya, , K. A. Armstrong, M. Adamska, M. Adamski, I.-F. Wang, B. Tidor, B. M. Degnan, T. H. Oakley, and K. S. Kosik. A Post-Synaptic Scaffold at the Origin of the Animal Kingdom. *PLoS One*, 2(e506):1–9, 2007.
- [739] J. F. Saldarriaga, M. L. McEwan, N. M. Fast, F. J. R. Taylor, and P. J. Keeling. Multiple protein phylogenies show that *Oxyrrhis marina* and *Perkinsus marinus* are early branches of the dinoflagellate lineage. *International Journal of Systematic and Evolutionary Microbiology*, 53:355–365, 2003.
- [740] J. F. Saldarriaga, F. J. R. M. Taylor, T. Cavalier-Smith, S. Menden-Deuer, and P. J. Keeling. Molecular data and the evolutionary history of dinoflagellates. *European Journal of Protistology*, 40:1–27, 2004.
- [741] B. A. Salisbury. Misinformative characters and phylogeny shape. *Syst. Biol.*, 48(1):153–169, 1999.
- [742] J. Samuelson. Why of metronidazol is active against both bacteria and parasites. *Antimicrobial Agents and Chemotherapy*, 43(No 7):1533–1541, 1999.
- [743] M. J. Sanderson, M. F. Wojciechowski, J.-M. Hu, T. S. Khan, and S. G. Brady. Error, bias, and long-branch attraction in data for two chloroplast photosystem genes in seed plants. *Mol. Biol. Evol.*, 17(5):782–797, 2000.
- [744] P. Sangwan, X. Chen, P. Hugenholtz, and P. H. Janssen. *Chthoniobacter flavus* gen. nov., sp. nov., the First Pure-Culture Representative of Subdivision Two, Spartobacteria classis nov., of the Phylum Verrucomicrobia. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 70(10):5875–5881, 2004.
- [745] S. Saruhashi, K. Hamada, T. Horiike, and T. Shinozawa. Determination of whole prokaryotic phylogeny by the development of a random extraction method. *Gene*, 392(1–2):157–163, 2007.
- [746] G. W. Saunders and M. H. Hommersand. Assessing red algal supraordinal diversity and taxonomy in the context of contemporary systematic data. *American Journal of Botany*, 91(10):1494–1507, 2004.

- [747] G. W. Saunders, D. Potter, and R. A. Andersen. Phylogenetic affinities of the sarcinochrysidales and chrysomeridales (heterokonta) based on analysis of molecular and combined data. *J. Phycol.*, 33(2):310–318, 1997.
- [748] A. H. Scheltema, K. Kerth, and A. M. Kuzirian. Original Molluscan Radula: Comparisons Among Aplacophora, Polyplacophora, Gastropoda, and the Cambrian Fossil *Wiwaxia corrugata*. *JOURNAL OF MORPHOLOGY*, 257:219–245, 2003.
- [749] M. Scheuermayer, T. A. M. Gulder, G. Bringmann, and U. Hentschel. *Rubritalea marina* gen. nov., sp. nov., a marine representative of the phylum 'Verrucomicrobia', isolated from a sponge (Porifera). *Int J Syst Evol Microbiol*, 56(9):2119–2124, 2006.
- [750] B. Schierwater and K. Kuhn. Homology of hox genes and the zootype concept in early metazoan evolution. *Mol. Phyl. Evol.*, 9(3):375–381, 1998.
- [751] C. Schleper, G. Jurgens, and M. Jonuscheit. Genomic studies of uncultivated archaea. *Nat Rev Microbiol*, 3(6):479–488, 2005.
- [752] P. D. Schloss and J. Handelsman. Status of the Microbial Census. *MICROBIOLOGY AND MOLECULAR BIOLOGY REVIEWS*, 68(4):686–691, 2004.
- [753] A. Schmidt-Rhaesa. Two Dimensions of Biodiversity Research Exemplified by Nematomorpha and Gastrotricha. *INTEG. AND COMP. BIOL.*, 42:633–640, 2002.
- [754] A. Schmidt-Rhaesa. Perplexities concerning the Ecdysozoa: A reply to Pilato et al. *Zoologischer Anzeiger*, 244:205–208, 2006.
- [755] M. Schmidt and H. A. Schneider-Poetsch. The evolution of gymnosperms redrawn by phytochrome genes: The gnetatae appear at the base of the gymnosperms. *J. Mol. Evol.*, 54:715–724, 2002.
- [756] J. Schmitz, M. Ohme, and H. Zischler. The complete mitochondrial genome of *tupaia belangeri* and the phylogenetic affiliation of scandentia to other eutherian orders. *Mol. Biol. Evol.*, 17(9):1334–1343, 2000.

- [757] E. Schnepf and M. Schweikert. Pirsonia, phagotrophic nanophlagellates incertae sedis, feeding on marine diatoms: host recognition, attachment and fine structure. *Arch. fur Protistenkunde*, 147:361–371, 1997.
- [758] W. Schoenborn, H. Doerfelt, W. Foissner, L. Krienitz, and U. Schner. A fossilized microcenosis in triassic amber. *J. Euk. Microbiol.*, 46(6):571–584, 1999.
- [759] G. Scholtz and G. D. Edgecombe. The evolution of arthropod heads: reconciling morphological, developmental and palaeontological evidence. *Dev Genes Evol*, 216:395–415, 2006.
- [760] G. Scholtz. The Articulata hypothesis or what is a segment? *Org. Divers. Evol.*, 2:197–215, 2002.
- [761] F. R. Schram and S. Koenemann. Are the crustaceans monophyletic? pages 319–329, 2004.
- [762] A. Schulze, E. B. Cutler, and G. Giribet. Phylogeny of sipunculan worms: A combined analysis of four gene regions and morphology. *Molecular Phylogenetics and Evolution*, 42:171–192, 2007.
- [763] K. Seipel and V. Schmid. Evolution of striated muscle: Jellyfish and the origin of triploblasty. *Developmental Biology*, 282:14–26, 2005.
- [764] K. Seipel and V. Schmid. Mesodermal anatomies in cnidarian polyps and medusae. *Int. J. Dev. Biol.*, 50:589–599, 2006.
- [765] Y. Sekiguchi, T. Yamada, S. Hanada, A. Ohashi, H. Harada, and Y. Kamagata. *Anaerolinea thermophila* gen. nov., sp. nov. and *caldilinea aerophila* gen. nov., sp. nov., novel filamentous thermophiles that represent a previously uncultured lineage of the domain bacteria at the subphylum level. *International Journal of Systematic and Evolutionary Microbiology*, 53:1843–1851, 2003.
- [766] L. F. Sempere, C. N. Cole, M. A. Mcpeek, Γ, and K. J. Peterson. The Phylogenetic Distribution of Metazoan microRNAs: Insights into Evolutionary Complexity and Constraint. *JOURNAL OF EXPERIMENTAL ZOOLOGY*, (306B):575–588, 2006.

- [767] H. Setoguchi, T. A. Osawa, J.-C. Pintaud, T. Jaffre, and J.-M. Veillon. Phylogenetic relationships within araucariaceae based on rbcL gene sequences. *Amer. J. Bot.*, 85(No 11):1507–1516, 1998.
- [768] K. Shalchian-Tabrizi, W. Eikrem, D. Klaveness, D. Vaultot, M. A. Minge, F. L. Gall, K. Romari, J. Throndsen, A. Botnen, R. Massana, H. A. Thomsen, and K. S. Jakobsen. Telonemia, a new protist phylum with affinity to chromist lineages. *Proc. R. Soc. B*, 49:37–49, 2006.
- [769] K. Shalchian-Tabrizi, H. Kauserud, R. Massana, D. Klaveness, and K. S. Jakobsen. Analysis of Environmental 18S Ribosomal RNA Sequences reveals Unknown Diversity of the Cosmopolitan Phylum Telonemia. *Protist*, 49:37–49, 2007.
- [770] A. J. Shaw. Phylogeny of the sphagnopsida based on chloroplast and nuclear dna sequences. *Bryologist*, 103(2):277–306, 2000.
- [771] J. Shaw and K. Renzaglia. Phylogeny and diversification of bryophytes. *American Journal of Botany*, 91(10):1557–1581, 2004.
- [772] R. Shmid. Armen takhtajan latest system of angiosperm classification. *Taxon*, 47:245–248, 1998.
- [773] D. S. Shu, C. Morris, and X. L. Zhang. A pikaia-like chordata from the lower cambrian of china. *Nature*, 384(6605):157–158, 1996.
- [774] M. E. Siddall et al. “total evidence” refutes the inclusion of perkinsus species in the phylum apicomplexa. *Parasitology*, 115(2):165–176, 1997.
- [775] M. E. Siddal et al. The demise of a phylum of protists: phylogeny of myxozoa and other parasitic cnidaries. *J. Parasitol.*, 81:961–967, 1995.
- [776] B. L. Siemer, W. T. Stam, J. L. Olsen, and P. M. Pedersen. Phylogenetic relationships of the brown algal orders ectocarpales, chordariales, dictyosiphonales, and tilopteridales (phaeophyceae) based on RUBISCO large subunit and spacer sequences. *J. Phycol.*, 34(6):1038–1048, 1998.
- [777] A. Y. Signorovitch, L. W. Buss, and S. L. Dellaporta. Comparative genomics of large mitochondria in placozoans. *PLoS Genet*, 3(1):e13, 2007.

- [778] J. D. Silberman, C. G. Clark, L. S. Diamond, and M. L. Sogin. Phylogeny of the genera entamoeba and endolimax as deduced from small-subunit ribosomal rna sequences. *Mol. Biol. Evol.*, 16(12):1740–1751, 1999.
- [779] J. D. SILBERMAN, A. G. COLLINS, L.-A. GERSHWIN, P. J. JOHNSON, and A. J. ROGER. Ellobiopsids of the Genus Thalassomyces are Alveolates. *J. Eukaryot. Microbiol.*, 51(2):246–252, 2004.
- [780] A. G. B. Simpson, C. Bernard, T. Fenchel, and D. J. Patterson. The organisation of mastigamoeba schizophrenia n. sp.: More evidence of ultrastructural idiosyncrasy and simplicity in pelobont protists. *Eur. J. Protistol.*, 33:87–98, 1997.
- [781] A. G. B. Simpson et al. The ultrastructure and systematic position of the euglenozoon postgaardi mariagerensis fenchel et al. *Arch. für Protistenkunde*, 147:213–225, 1997.
- [782] A. G. B. Simpson, J. Lukes, and A. J. Roger. The evolutionary history of kinetoplastids and their kinetoplasts. *Mol. Biol. Evol.*, 19(12):2071–2083, 2002.
- [783] A. G. B. SIMPSON and D. J. PATTERSON. On core jakobids and excavate taxa: The ultrastructure of jakoba incarcerationata. *J. Euk. Micr.*, 48:480–492, 2001.
- [784] A. G. B. Simpson, R. Radek, J. B. Dacks, and C. J. O’Kelly. How oxymonads lost their groove: An ultrastructural comparison of monocercomonoides and excavate taxa. *J. Eukar. Micr.*, 49:239–248, 2002.
- [785] A. G. B. Simpson and A. J. Roger. Protein phylogenies robustly resolve the deep-level relationships within Euglenozoa. *Molecular Phylogenetics and Evolution*, 30:201–212, 2004.
- [786] A. G. B. Simpson. The identity and composition of the euglenozoa. *Arch. Prot.*, 148:318–328, 1997.
- [787] A. G. B. Simpson. Cytoskeletal organization, phylogenetic affinities and systematics in the contentious taxon Excavata (Eukaryota). *International Journal of Systematic and Evolutionary Microbiology*, 53:1759–1777, 2003.

- [788] A. Simpson and D. J. Patterson. The ultrastructure of *carpediemonas membranifera* (eukaryota) with reference to the “excavate hypothesis”. *Eur. J. Prot.*, 35:353–370, 1999.
- [789] G. P. Sims, A. Rogerson, and R. Aitken. Primary and secondary structure of the small-subunit ribosomal RNA of the naked, marine amoeba *vannella anglica*: Phylogenetic implications. *J. Mol. Evol.*, 48:740–749, 1999.
- [790] *A sinoptic classification of living organisms*. Oxford, 1984.
- [791] R. G. Skophammer, J. A. Servin, C. W. Herbold, and J. A. Lake. Evidence for a Gram Positive, Eubacterial Root of the Tree of Life. *Mol. Biol. Evol.*, 2:1–19, 2007.
- [792] J. Slapeta, D. Moreira, and P. Lopez-Garcia. The extent of protist diversity: insights from molecular ecology of freshwater eukaryotes. *Proc. R. Soc. B*, 272:2073–2081, 2005.
- [793] M. A. Sleight. Progress in understanding the phylogeny of flagellates. *Cytology*, 37(No 11):985–1009, 1995.
- [794] G. S. Slyusarev’ and M. Ferraguti. Sperm structure of *Rhupatura Zitturalis* (Orthonectida). *Invertebrate Biology*, 94(2):1–94, 2002.
- [795] G. S. Slyusarev and R. M. Kristensen. Fine structure of the ciliated cells and ciliary rootlets of *Intoshia variabili* (Orthonectida). *Zoomorphology*, 122:33–39, 2003.
- [796] G. S. Slyusarev. The fine structure of the muscle system in the female of the orthonectid *Intoshia variabili* (Orthonectida). *Acta Zoologica*, 84:107–111, 2003.
- [797] E. Small and D. Lynn. A new macrosystem of the phylum ciliophora. *BioSystems*, 14:387–401, 1981.
- [798] A. Smirnov, C. Berney, S. Nikolaev, X. Pochon, and J. Pawlowski. *Molecular phylogeny of amoeboid protists*, 2005.
- [799] A. R. Smith, K. M. Pryer, E. Schuettpelz, P. Korall, H. Schneider, and P. G. Wolf. A classification for extant ferns. *TAXON*, 55(3):705–731, 2006.

- [800] J. P. S. Smith. Primitive or progenetic? presence of splanchnic musculature in *stenostomum teniocaudatum* and *catenula confusa*. *Amer. Zool.*, 36(5):192, 1996.
- [801] J. F. Smothers et al. Molecular evidence that the myxozoan protists are metazoan. *Science*, 265:1629–1776, 1994.
- [802] M. L. Sogin, H. G. Morrison, G. Hinkle, and J. D. Silberman. Ancestral relationships of the major eukaryotic lineages. *Microbiologia*, 12(1):17–28, 1996.
- [803] M. L. Sogin and J. D. Silberman. Evolution of the protists and protistan parasites from the perspective of molecular systematics. *Int J Parasitol*, 28(1):11–20, 1998.
- [804] T. Sokolova, J. Hanel, R. U. Onyenwoke, A.-L. Reysenbach, A. Banta, R. Geyer, J. M. Gonzalez, W. B. Whitman, and J. Wiegel. Novel chemolithotrophic, thermophilic, anaerobic bacteria *Thermolithobacter ferrireducens* gen. nov., sp. nov. and *Thermolithobacter carboxydivorans* sp. nov. *Extremophiles*, 11:97207–90751, 2007.
- [805] D. E. Soltis, P. S. Soltis, and M. J. Zanis. Phylogeny of seed plants based on evidence from eight genes. *American Journal of Botany*, 89(10):1670–1681, 2002.
- [806] P. S. Soltis, D. E. Soltis, P. G. Wolf, D. L. Nickrent, S.-M. Chaw, and R. L. Chapman. The phylogeny of land plants inferred from 18s rDNA sequences: Pushing the limits of rDNA signal? *Mol. Biol. Evol.*, 16(12):1774–1784, 1999.
- [807] M. V. Sorensen and G. Giribet. A modern approach to rotiferan phylogeny: Combining morphological and molecular data. *Molecular Phylogenetics and Evolution*, 30:1–24, 2006.
- [808] M. V. Sorensen, W. Sterrer, and G. Giribet. Gnathostomulid phylogeny inferred from a combined approach of four molecular loci and morphology. *Cladistics*, 22:32–58, 2006.
- [809] M. V. Sorensen and W. Sterrer. New characters in the gnathostomulid mouth parts revealed by scanning electron microscopy. *J. Morph.*, 253:310–334, 2002.

- [810] M. V. Sorensen. Further Structures in the Jaw Apparatus of *Limnognathia maerski* (Micrognathozoa), With Notes on the Phylogeny of the Gnathifera. *JOURNAL OF MORPHOLOGY*, 255:131–145, 2003.
- [811] U. Sorhannus. A “total evidence” analysis of the phylogenetic relationships among the photosynthetic stramenopiles. *Cladistics*, 17:227–241, 2001.
- [812] V. Soria-Carrasco, M. Valens-Vadell, A. Pena, J. Anton, R. Amann, J. Castresana, and R. Rossello-Mora. Phylogenetic position of *Salinibacter ruber* based on concatenated protein alignments. *Syst Appl Microbiol*, 30(3):171–179, 2007.
- [813] G. South and A. Whittick. *Introduction to phycology*. Oxford, 1987.
- [814] J. W. Spatafora, G.-H. Sung, D. Johnson, C. Hesse, B. O. Rourke, M. Serdani, R. Spotts, F. Lutzoni, V. Hofstetter, J. Miadlikowska, V. Reeb, C. Gueidan, E. Fraker, T. Lumbsch, R. Lücking, I. Schmitt, K. Hosaka, A. Aptroot, C. Roux, A. N. Miller, D. M. Geiser, J. Hafellner, G. Hestmark, A. E. Arnold, B. Büdel, A. Rauhut, D. Hewitt, W. A. Untereiner, M. S. Cole, C. Scheidegger, M. Schultz, H. Sipman, and C. L. Schoch. A five-gene phylogeny of Pezizomycotina. *Mycologia*, 98:1018–1028, 2007.
- [815] E. A. Sperling and K. J. Peterson. Poriferan Paraphyly and its Implications for Precambrian Paleobiology. *Journal of Geological Society*, (in press), 2007.
- [816] *Speziellezoologie. Erster Teil: Einzeller und Wirbellose Tiere*. Gustav Fisher Verlag, Stuttgart; Jena; N. Y., 1996.
- [817] M. S. Springer, H. M. Amrine, A. Burk, and M. J. Stanhope. Additional support for afrotheria and paenungulata, the performance of mitochondrial versus nuclear genes and the impact of data partitions with heterogeneous base composition. *Syst. Biol.*, 48(1):65–75, 1999.
- [818] T. Stach, S. Dupont, O. Israelson, G. Fauville, H. Nakano, T. Kenneby, and M. Thorndyke. Nerve cells of *Xenoturbella bocki* (phylum uncertain) and *Harrimania kupfferi* (Enteropneusta) are positively immunoreactive to antibodies raised against echinoderm neuropeptides. *J. Mar. Biol. Ass. U.K.*, 85:1519–1524, 2005.

- [819] T. Stach and J. M. Turbeville. Phylogeny of Tunicata inferred from molecular and morphological characters. *Molecular Phylogenetics and Evolution*, 25:408–428, 2002.
- [820] M. J. Stanhope, O. Madsen, V. G. Waddell, G. C. Cleven, W. W. de Jong, and M. S. Springer. Highly congruent molecular support for a diverse superordinal clade of endemic african mammals. *Mol. Phyl. Evol.*, 9(3):501–508, 1998.
- [821] M. J. Stanhope, M. R. Smith, V. G. Waddell, C. A. Porter, M. S. Shivji, and M. Goodman. Mammalian evolution and the interphotoreceptor retinoid binding protein (IRBP) gene: convincing evidence for several superordinal clades. *J. Mol. Evol.*, 43:83–92, 1996.
- [822] M. J. Stanhope, V. G. Waddell, O. Madsen, W. de Jong, S. B. Hedges, G. C. Cleven, D. Kao, and M. S. S. and. Molecular evidence for multiple origins of insectivora and for a new order of endemic african insectivore mammals. *Proc. Natl. Acad. Sci. USA*, 95(17):9967–9972, 1998.
- [823] S. E. Stanley and R. G. Harrison. Cytochrome b evolution in birds and mammals: An evaluation of the avian constraint hypothesis. *Mol. Biol. Evol.*, 16(11):1575–1585, 1999.
- [824] Y. I. Starobogatov. The position of flagellated protists in the system of lower eukaryotes. *Cytology*, 37(No 11):1030–1052, 1995.
- [825] A. Stechmann and T. Cavalier-Smith. Rooting the eukaryote tree by using a derived gene fusion. *Science*, 297:89–91, 2002.
- [826] A. Stechmann and T. Cavalier-Smith. Rooting the Eukaryote Tree by Using a Derived Gene Fusion. *Science*, 297(5):90–92, 2002.
- [827] A. Stechmann and T. Cavalier-Smith. Phylogenetic Analysis of Eukaryotes Using Heat-Shock Protein Hsp90. *J Mol Evol*, 57:408–419, 2003.
- [828] A. Stechmann and T. Cavalier-Smith. The root of the eukaryote tree pinpointed. *Curr Biol*, 13(17):665–666, 2003.
- [829] E. T. Steenkamp, J. Wright, and S. L. Baldauf. The Protistan Origins of Animals and Fungi. *Mol. Biol. Evol.*, 23(1):93–106, 2006.

- [830] S. Stefanoviac, M. Jager, J. Deutsch, J. Broutin, and M. Masselot. Phylogenetic relationships of conifers inferred from partial 28S rRNA gene sequences. *Amer. J. Bot.*, 85, 1998.
- [831] G. Steiner and H. Dreyer. Molecular phylogeny of Scaphopoda (Mollusca) inferred from 18S rDNA sequences: support for a Scaphopoda Cephalopoda clade. *Zoologica Scripta*, 32(4):343–356, 2003.
- [832] K. O. Stetter. Hyperthermophiles in the history of life. *Philos Trans R Soc Lond B Biol Sci*, 361(1474):1837–1842, 2006.
- [833] D. W. Stevenson. Abstracts of the 22nd Annual Meeting of the Willi Hennig Society. *Cladistics*, 20:76–100, 2004.
- [834] T. B. Stibitz, D. Bhattacharya, and P. J. Keeling. Symbiotic origin of a novel actin gene in the cryptophyte *pyrenomonas helgolandii*. *Mol. Biol. Evol.*, 17(11):1731–1738, 2000.
- [835] J. W. Stiller, E. C. S. Duffield, and B. D. Hall. Amitochondriate amoebae and the evolution of dna-dependent rna polymerase ii. *Proc. Natl. Acad. Sci. USA*, 95(20):11769–11774, 1998.
- [836] J. W. Stiller and B. D. Hall. The origin of red algae: Implications for plastid evolution. *Proc. Natl. Acad. Sci. USA*, 94(No 9):4520–4525, 1997.
- [837] J. W. Stiller and B. D. Hall. Sequences of the largest subunit of RNA polymerase ii from two red algae and their implications for rhodophyte evolution. *J. Phycol.*, 34(5):857–864, 1998.
- [838] U. Stingl, R. Radek, H. Yang, and A. Brune. "Endomicrobia": Cytoplasmic Symbionts of Termite Gut Protozoa Form a Separate Phylum of Prokaryotes. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 71(3):1473–1479, 2005.
- [839] N. J. Strausfeld, C. M. Strausfeld, R. Loesel, D. Rowell, and S. Stowe. Arthropod phylogeny: onychophoran brain organization suggests an archaic relationship with a chelicerate stem lineage. *Proc. R. Soc. B*, 16:1–10, 2006.

- [840] T. H. Struck, N. Schult, T. Kusen, E. Hickman, C. Bleidorn, D. McHugh, and K. M. Halanych. Annelid phylogeny and the status of Sipuncula and Echiura. *BMC Evolutionary Biology*, 7(57):1–11, 2007.
- [841] M. C. Strueder-Kypke, A.-D. G. Wright, D. H. Lynn, and S. I. Fokin. Phylogenetic relationships of the subclass peniculia (oligohymenophorea, ciliophora) inferred from small subunit rRNA gene sequences. *J. Euk. Microbiol.*, 47(4):419–429, 2000.
- [842] H. Suga, D. Hoshiyama, S. Kuraku, K. Katoh, K. Kubokawa, and T. Miyata. Protein tyrosine kinase cdnas from amphioxus, hagfish, and lamprey: Isoform duplications around the divergence of cyclostomes and gnathostomes. *J. Mol. Evol.*, 49:601–608, 1999.
- [843] J. Sugiyama, K. Hosaka, and S.-O. Suh. Early diverging Ascomycota: phylogenetic divergence and related evolutionary enigmas. *Mycologia*, 98:996–1005, 2007.
- [844] S. O. Suh and J. Sugiyama. Phylogeny among the basidiomycetous yeasts inferred from small subunit ribosomal dna sequence. *J Gen Microbiol*, 139(7):1595–1598, 1993.
- [845] K. Sytsma. Phylogeny of the genus coleochaete (coleochaetales, charophyta) and related taxa inferred by analysis of the chloroplast gene rbcL. *J. Phycol.*, 38:394–403, 2002.
- [846] K. Takishita, M. Tsuchiya, M. Kawato, K. Oguri, H. Kitazato, and T. Maruyama. Genetic Diversity of Microbial Eukaryotes in Anoxic Sediment of the Saline Meromictic Lake Namako-ike (Japan): On the Detection of Anaerobic or Anoxic-tolerant Lineages of Eukaryotes. *Protist*, 20:237–0061, 2006.
- [847] A. Tartar, D. G. Boucias, J. J. Becnel, and B. J. Adams. Comparison of plastid 16S rRNA (rrn16) genes from *Helicosporidium* spp.: evidence supporting the reclassification of Helicosporidia as green algae (Chlorophyta). *Nature*, 53:1719–1723, 2003.
- [848] C. M.-J. Taupin and R. Leberman. Archaeobacterial seryl-tRNA synthetases: Adaptation to extreme environments and evolutionary analysis. *J. Mol. Evol.*, 48:408–420, 1999.

- [849] F. J. Taylor. Problems in the development of an explicit hypothetical phylogeny of the lower eucaryotes. *BioSystems*, 10(112):67–69, 1978.
- [850] F. J. Taylor. Ultrastructure as a control for protistan molecular phylogeny. *Am Nat*, 154(4):125–136, 1999.
- [851] J. W. Taylor. Molecular phylogenetic classification of fungi. *Arch Med Res*, 26(3):307–314, 1995.
- [852] T. T. Taylor. The origin of land plants. *Taxon*, 37(4):805–833, 1988.
- [853] A. Tehler, J. S. Farris, D. L. Lipscomb, and M. Kallersjo. Phylogenetic analyses of the fungi based on large rdna data sets. *Mycologia*, 92:459–474, 2000.
- [854] M. J. Telford, E. A. Herniou, R. B. Russell, and D. T. J. Littlewood. Changes in mitochondrial genetic codes as phylogenetic characters: Two examples from the flatworms. *Proc. Natl. Acad. Sci.*, 97(21):11359–11364, 2000.
- [855] M. J. Telford and P. W. Holland. The phylogenetic affinities of the chaetognaths: a molecular analysis. *Mol Biol Evol*, 10(3):660–676, 1993.
- [856] M. J. Telford and R. H. Thomas. Expression of homeobox genes shows chelicerate arthropods retain their deutocerebral segment. *Proc. Natl. Acad. Sci. USA*, 95(18):10671–10675, 1998.
- [857] M. J. Telford. Affinity for arrow worms. *Nature*, 431:254–256, 2004.
- [858] M. J. Telford. Animal phylogeny. *Curr. Biol.*, 16(23):R981–R985, 2006.
- [859] J. G. M. Thewissen and S. I. Madar. Ankle morphology of the earliest cetaceans and its implications for the phylogenetic relations among ungulates. *Syst. Biol.*, 48(1):16–20, 1999.
- [860] *The origins and relationships of lower invertebrates*. Oxford, 1985.
- [861] M. Thollesson and J. L. Norenburg. Ribbon worm relationships: a phylogeny of the phylum Nemertea. *Proc. R. Soc. Lond. B*, 270:407–415, 2003.

- [862] H. B. Thomsen and J. Larsen. The ultrastructure of commation gen. n. (stramenopiles i. s.), a genus of heterothrophic flagellate from antarctic waters. *Eur. J. Protistol.*, 29(4):462–477, 1993.
- [863] L. Tibell and M. Wedin. Mycocaliciales, a new order for nonlichenized calicioid fungi. *Mycologia*, 92(3):577–581, 2000.
- [864] D. Timothy, J. Littlewood, M. J. Telford, K. A. Clough, and K. Rohde. Gnathostomulida-an enigmatic metazoan phylum from both morphological and molecular perspectives. *Mol. Phyl. Evol.*, 9(1):72–79, 1998.
- [865] M. A. Todaro, M. J. Telford, A. E. Lockyer, and D. T. J. Littlewood. Interrelationships of the Gastrotricha and their place among the Metazoa inferred from 18S rRNA genes. *Zoologica Scripta*, 35(3):251–259, 2006.
- [866] A. Tomitani, A. H. Knoll, C. M. Cavanaugh, and T. Ohno. The evolutionary diversification of cyanobacteria: Molecular phylogenetic and paleontological perspectives. *Proc. Natl. Acad. Sci. USA*, 103(14):2–15, 2006.
- [867] S. M. Tong. *Developayella elegans* nov. gen., nov. spec., a new type of heterotrophic flagellate from marine plankton. *Eur. J. Protistol.*, 31:24–31, 1995.
- [868] V. M. Tuinen, C. G. Sibley, and S. B. Hedges. Phylogeny and biogeography of ratite birds inferred from dna sequences of the mitochondrial ribosomal genes. *Mol Biol Evol*, 15(4):370–376, 1998.
- [869] J. M. Turbeville, J. R. Schulz, and R. A. Raff. Deuterostome phylogeny and the sister group of the chordates: evidence from molecules and morphology. *Mol Biol Evol*, 11(4):648–655, 1994.
- [870] J. M. Turbeville and D. M. Smith. The partial mitochondrial genome of the *Cephalothrix rufifrons* (Nemertea, Palaeonemertea): Characterization and implications for the phylogenetic position of Nemertea. *Molecular Phylogenetics and Evolution*, 2006.
- [871] J. M. Turbeville. Progress in Nemertean Biology: Development and Phylogeny. *INTEG. AND COMP. BIOL.*, 42:692–703, 2002.

- [872] M. Turmel, C. Otis, and C. Lemieux. The complete chloroplast dna sequence of the green alga *nephroselmis olivacea*: Insights into the architecture of ancestral chloroplast genomes. *Proc. Natl. Acad. Sci. USA*, 96(18):10248–10253, 1999.
- [873] S. Turner, K. M. Pryer, V. P. W. Miao, and J. D. Palmer. Investigating deep phylogenetic relationships among cyanobacteria and plastids by small subunit rna sequence analysis. *J. Euk. Microbiol.*, 46(4):327–338, 1999.
- [874] E. Urbach, D. L. Robertson, and S. W. Chisholm. Multiple evolutionary origins of prochlorophytes within the cyanobacterial radiation. *Nature*, 355(6357):267–270, 1992.
- [875] I. Ustinova, L. Krienitz, and V. A. R. Huss. *Hyaloraphidium curvatum* is not a green alga, but a lower fungus; *amoebidium parasiticum* is not a fungus, but a member of the drips. *Protist*, 151(3), 2000.
- [876] J. W. Valentine. Cleavage patterns and the topology of the metazoan tree of life. *Proc. Natl. Acad. Sci. USA*, 94(No 15):8001–8005, 1997.
- [877] G. van der Auwera and R. de Wachter. Large-subunit rna sequence of the chytridiomycete *blastocladiella emersonii*, and implications for the evolution of zoosporic fungi. *J Mol Evol*, 43(5):476–483, 1996.
- [878] Y. van de Peer and R. de Wachter. Evolutionary relationships among the eukaryotic crown taxa taking into account site-to-site rate variation in 18s rRNA. *J. Mol. Evol.*, 45:619–630, 1997.
- [879] Y. van de Peer, S. A. Rensing, U.-G. Maier, and R. de Wachter. Substitution rate calibration of small subunit ribosomal rna identifies chlorarachniophyte endosymbionts as remnants of green algae. *Proc. Natl. Acad. Sci. USA*, 93(15):7732–7736, 1996.
- [880] Y. van de Peer, G. van der Auwera, and R. de Wachter. The evolution of stramenopiles and alveolates as derived by rate calibration of small ribosomal subunit RNA. *J. Mol. Evol.*, 42:201–210, 1996.
- [881] M. A. M. van Dijk, E. Paradis, F. Catzeflis, and W. W. D. Jong. The virtues of gaps: Xenarthran (edentate) monophyly supported by a unique deletion in alphaA-crystallin. *Syst. Biol.*, 48(1):94–106, 1999.

- [882] M. van Tuinen, C. G. Sibley, and S. B. Hedges. The early history of modern birds inferred from dna sequences of nuclear and mitochondrial ribosomal genes. *Mol. Biol. Evol.*, 17(3):451–457, 2000.
- [883] F. Vavre, F. Fleury, D. Lepetit, P. Fouillet, and M. Boulchtreau. Phylogenetic evidence for horizontal transmission of wolbachia in host-parasitoid associations. *Mol. Biol. Evol.*, 16(12):1711–1723, 1999.
- [884] T. Vellai, K. Takacs, and G. Vida. A new aspect to the origin and evolution of eukaryotes. *J. Mol. Evol.*, 46:499–507, 1998.
- [885] E. J. M. Verhagen, M. Zölffel, G. Brugerolle, and D. Patterson. *Adriamonas peritocrescens* gen. nov., sp. nov., a new free-living soil flagellate. *Eur. J. Prot.*, 30(No 3):305–306, 1994.
- [886] A. Vienne and P. Pontarotti. Metaphylogeny of 82 gene families sheds a new light on chordate evolution. *International Journal of Biological Sciences*, 2(2):32–37, 2006.
- [887] Virus taxonomy: Classification and nomenclature of viruses. In *6th Report of the International Committee on Taxonomy of Viruses. Archives of Virology*, volume Suppl. 10, page 586, Wien; N. Y., 1995. Springer Verlag.
- [888] von C. D. Dohlen and N. A. Moran. Molecular phylogeny of the homoptera: a paraphyletic taxon. *J Mol Evol*, 41(2):211–223, 1995.
- [889] C. von Mering and et al. Quantitative Phylogenetic Assessment of Microbial Communities in Diverse Environments. *Science*, 315(2007):1126–1130, 2007.
- [890] N. Vors. Marine heterotrophic amoebae, flagellates and heliozoa from belize (central america) and tenerife (canary islands), with descriptions of new species, *luffisphaera bulbochaete* n. sp., *l. longihastis* n. sp., *l. turiformis* n. sp. and *paulinella intermedia* n. sp. *J. Euk Microbiol.*, 40(No 3):272–287, 1993.
- [891] C. R. Vossbrinck and B. A. Debrunner-Vossbrinck. Molecular phylogeny of the Microsporidia: ecological, ultrastructural and taxonomic considerations. *FOLIA PARASITOLOGICA*, 52, 2005.

- [892] C. P. Vossbrink et al. [RNA and microsporidia]. *Nature*, (326):411–414, 1987.
- [893] Vossbrink and Woese. Eucaryotic ribosomes that lacked 5,8S RNA. *Nature*, (3201):287–288, 1986.
- [894] H. Wada and N. Satoh. Phylogenetic relationships among extant classes of echinoderms, as inferred from sequences of 18s rdna, coincide with relationships deduced from the fossil record. *J Mol Evol*, 38(1):41–49, 1994.
- [895] H. Wada. Evolutionary history of free-swimming and sessile lifestyles in urochordates as deduced from 18S rDNA molecular phylogeny. *Mol. Biol. Evol.*, 15(9):1189–1194., 1998.
- [896] P. J. Waddell, Y. Cao, M. Hasegawa, and D. P. Mindell. Assessing the cretaceous superordinal divergence times within birds and placental mammals by using whole mitochondrial protein sequences and an extended statistical framework. *Syst. Biol.*, 48(1):119–137, 1999.
- [897] P. J. Waddell, Y. Cao, J. Hauf, and M. Hasegawa. Using novel phylogenetic methods to evaluate mammalian mtDNA, including amino acid-invariant sites-logdet plus site stripping, to detect internal conflicts in the data, with special reference to the positions of hedgehog, armadillo and elephant. *Syst. Biol.*, 48(1):31–53, 1999.
- [898] C. M. Wade, K. F. Darling, D. Kroon, and A. J. Leigh-Brown. Early evolutionary origin of the planktic foraminifera inferred from small subunit rDNA sequence comparisons. *J. Mol. Evol.*, 43:672–677, 1996.
- [899] A. Waeschenbach, M. J. Telford, J. S. Porter, and D. T. J. Littlewood. The complete mitochondrial genome of *Flustrellidra hispida* and the phylogenetic position of Bryozoa among the Metazoa. *Molecular Phylogenetics and Evolution*, 40:195–207, 2006.
- [900] M. Wagner and M. Horn. The Planctomycetes, Verrucomicrobia, Chlamydiae and sister phyla comprise a superphylum with biotechnological and medical relevance. *Curr. Opin. Biotechnol.*, 17:241–249, 2006.

- [901] P. O. Wainright et al. Monophyletic origin of the metazoa. *Science*, 260:340–342, 2000.
- [902] A. E. Wakefield, S. E. Peters, S. Banerji, P. D. Bridge, G. S. Hall, D. L. Hawksworth, L. A. Guiver, A. G. Allen, and J. M. Hopkin. Pneumocystis carinii shows dna homology with the ustomycetous red yeast fungi. *Mol Microbiol*, 6(14):1903–1911, 1992.
- [903] G. Walker, J. B. Dacks, and T. M. Embley. Ultrastructural Description of Breviata anathema, N. Gen., N. Sp., the Organism Previously Studied as “Mastigamoeba invertens”. *J. Eukaryot. Microbiol.*, 53(2):65–78, 2006.
- [904] G. Walker. Meeting Report: 16th Meeting of the International Society for Evolutionary Protistology; Wroclaw, Poland, August 2–5, 2006 (ISEP XVI). *Protist*, 158:5–19, 2007.
- [905] R. Walker. Bacterial phylogeny with particular reference to mycoplasma. *J. of Biol. Education*, 24(No 2):77–80, 1990.
- [906] A. Wallberg, M. Thollesson, J. S. Farris, and U. Jondelius. The phylogenetic position of the comb jellies (Ctenophora) and the importance of taxonomic sampling. *Cladistics*, 20(2004):558–578, 2004.
- [907] R. E. Waller, P. J. Keeling, G. G. van Dooren, and G. I. MacFadden. Comment on ‘a green algal apicoplast ancestor’. *Science*, 301:49a, 2003.
- [908] D. Waloszek, A. Maas, J. Chen, and M. Stein. Evolution of cephalic feeding structures and the phylogeny of Arthropoda. *Palaeogeography*, (in press):1–24, 2007.
- [909] X.-Q. Wang, Y. Han, and D.-Y. Hong. A molecular systematic study of cathaya, a relic genus of the pinaceae in china. *Pl. Syst. Evol.*, 213(3–4), 1998.
- [910] X. Wang and D. V. Lavrov. Mitochondrial Genome of the Homoscleromorph Oscarella carmela (Porifera, Demospongiae) Reveals Unexpected Complexity in the Common Ancestor of Sponges and Other Animals. *Molecular Biology and Evolution*, 24(2):363–373, 2007.

- [911] Z.-Q. Wang. A new permian gnetalean cone as fossil evidence for supporting current molecular phylogeny. *Annals of Botany*, 94:281–288, 2004.
- [912] A. Wanninger. Immunocytochemistry of the Nervous System and the Musculature of the Chordoid Larva of Symbion pandora (Cycliophora). *JOURNAL OF MORPHOLOGY*, 265:237–243, 2005.
- [913] R. F. Watkins and A. T. Beckenbach. Partial sequence of a sponge mitochondrial genome reveals sequence similarity to cnidaria in cytochrome oxidase subunit II and the large ribosomal RNA subunit. *J. Mol. Evol.*, 48:542–554, 1999.
- [914] G. Webster, R. J. Parkes, J. C. Fry, and A. J. Weightman. Widespread Occurrence of a Novel Division of Bacteria Identified by 16S rRNA Gene Sequences Originally Found in Deep Marine Sediments. *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*, 70(9):57085713, 2004.
- [915] P. H. Weekers, J. Kleyn, and G. D. Vogels. Phylogenetic position of psalteriomonas lanterna deduced from the SSU rDNA sequence. *J. Euk. Microbiol.*, 44(5):467–470, 1997.
- [916] L. M. Weiss, T. D. Edlind, C. R. Vossbrinck, and T. Hashimoto. Microsporidian molecular phylogeny: the fungal connection. *J Eukaryot Microbiol*, 46(5):17–18, 1999.
- [917] L. M. Weiss. Molecular phylogeny and diagnostic approaches to microsporidia. *Contrib Microbiol*, 6:209–235, 2000.
- [918] D. B. M. Welch. Bayesian and maximum likelihood analyses of rotifer-acanthocephalan relationships. *Hydrobiologia*, 546:47–54, 2005.
- [919] K. Wenderoth, J. Marquardt, M. Fraunholz, Y. van de Peer, J. Wastl, and U.-G. Maier. The taxonomic position of chlamydomyxa labyrinthuloides. *European J. Phycol.*, 34:97–108, 1999.
- [920] J. A. Wheeler. Molecular phylogenetic reconstructions of the marchantoid liverwort radiation. *Bryologist*, 103:314–333, 2000.

- [921] M. M. White, T. Y. James, K. O. Donnell, M. J. Cafaro, Y. Tanabe, and J. Sugiyama. Phylogeny of the Zygomycota based on nuclear ribosomal sequence data. *Mycologia*, 98:872–884, 2007.
- [922] M. F. Whiting, J. C. Carpenter, Q. D. Wheeler, and W. C. Wheeler. The strepsiptera problem: phylogeny of the holometabolous insect orders inferred from 18S and 28S ribosomal DNA sequences and morphology. *Syst. Biol.*, 46(1):1–68, 1997.
- [923] R. H. Whittaker. New concepts of kingdoms of organisms. *Science*, 163(3863):150–160, 1969.
- [924] B. Wickstead and K. Gull. A "Holistic" Kinesin Phylogeny Reveals New Kinesin D Families and Predicts Protein Functions. *Molecular Biology of the Cell*, 17:1734–1743, 2006.
- [925] M. Wiens, A. Krasko, C. I. Müller, and W. E. G. Müller. Molecular evolution of apoptotic pathways: Cloning of key domains from sponges (bcl-2 homology domains and death domains) and their phylogenetic relationships. *J. Mol. Evol.*, 50:520–531, 2000.
- [926] N. Wikstroem, P. Kenrick, and M. Chase. Epiphytism and terrestrialization in tropical huperzia (lycopodiaceae). *Plant. Syst. Evol.*, 218:221–243, 1999.
- [927] N. Wikstroem and P. Kenrick. Relationships of lycopodium and lycopodiella based on combined plastid rbcL gene and trnL intron sequence data. *Systematic Botany*, 25(3):495–510, 2000.
- [928] M. A. Wills. Crustacean disparity through the phanerozoic: comparing morphological and stratigraphic data. *Biol. J. Linn. Soc.*, 65(4):455–500, 1998.
- [929] C. J. Winchell, J. Sullivan, C. B. Cameron, B. J. Swalla, and J. Mallett. Evaluating hypotheses of deuterostome phylogeny and chordate evolution with new lsu and ssu ribosomal dna data. *Mol. Biol. Evol.*, 19:762–776, 2002.
- [930] M. Wink. Phylogeny of old and new world vultures (aves: Accipitridae and cathartidae) inferred from nucleotide sequences of the mitochondrial cytochrome b gene. *Z Naturforsch*, 50(1112):868–882, 1995.

- [931] B. Winnepeninckx, T. Backeljau, and d. R. Wachter. Phylogeny of protostome worms derived from 18s rna sequences. *Mol Biol Evol*, 12(4):641–649, 1995.
- [932] B. Winnepeninckx, G. Steiner, T. Backeljau, and d. R. Wachter. Details of gastropod phylogeny inferred from 18s rna sequences. *Mol Phylogenet Evol*, 9(1):55–63, 1998.
- [933] A. Wirz, S. Pucciarelli, C. Miceli, P. Tongiorgi, and M. Balsamo. Novelty in phylogeny of gastrotricha: Evidence from 18s rna gene. *Molecular Phylogenetics and Evolution*, 13(2):1055–7903, 1999.
- [934] C. Withein. The existence of chlorophyll c in the b-contained, light-harvesting complex of the green alga mantoniella squamata. *Bot. Acta*, 101:7–10, 1987.
- [935] C. R. Woese et al. Grampositive bacteria: possible photosynthetic ancestry. *Science*, 220(4715), 1985.
- [936] C. R. Woese, G. J. Olsen, M. Ibba, and D. Soll. Aminoacyl-tRNA synthetases, the genetic code and the evolutionary process. *Micr. Mol. Biol. Rev.*, 64:2020–236, 2000.
- [937] C. R. Woese. Default taxonomy: Ernst mayr’s view of the microbial world. *Proc. Natl. Acad. Sci. (USA)*, 95:11043–11046, 1998.
- [938] C. R. Woese. Interpreting the universal phylogenetic tree. *Proc. Natl. Acad. Sci.*, 97(15):8392–8396, 2000.
- [939] R. Woese et al. Towards a natural system of living organisms. *Proc. Natl. Acad. Sci.*, 87:4576–4579, 1990.
- [940] P. G. Wolf, S. D. Sipes, M. R. White, M. L. Martines, K. M. Pryer, A. R. Smith, and K. Ueda. Phylogenetic relationships of the enigmatic fern families hymenophyllopsidaceae and lophosoriaceae: evidence from rbcL nucleotide sequences. *Plant Systematics and Evolution*, 219:3–4, 1999.
- [941] P. G. Wolf, P. S. Soltis, and D. E. Soltis. Phylogenetic relationships of dennstaedtioid ferns: evidence from rbcL sequences. *Mol Phylogenet Evol*, 3(4):383–392, 1994.

- [942] P. G. Wolf. Evaluation of atpb nucleotide sequences for phylogenetic studies of ferns and other pteridophytes. *Amer. J. Bot.*, 84(No 10):1429–1440, 1997.
- [943] R. Wolf and M. E. Markiw. Biology contravenes in the myxozoa: new discoveries show alternation of invertebrate and vertebrate hosts. *Science*, 225:1449–1452, 1984.
- [944] Y. I. Wolf, R. I. B., G. N. V., T. R. L., and K. E. V. Genome trees constructed using five different approaches suggest new major bacterial clades. *BMC Evol. Biol.*, 1, 2001.
- [945] C. S. Wu, Y. N. Wang, S. M. Liu, and S. M. Chaw. Chloroplast Genome (cpDNA) of *Cycas taitungensis* and 56 Cp Protein-coding Genes of *Gnetum parvifolium*: Insights into CpDNA Evolution and Phylogeny of Extant Seed Plants. *Mol Biol Evol.*, (in press), 2007.
- [946] G. Wu, A. G. McArthur, A. Fiser, A. Ali, M. L. Sogin, and M. Müller. Core histones of the amitochondriate protist, *giardia lamblia*. *Mol. Biol. Evol.*, 17(8):1156–1163, 1999.
- [947] S. W., L. K., M. O., and P. H. Analysis of phylogenetic relationships among ascomycota with yeast phases using ribosomal dna sequences and cell wall sugars. *Org. Div. Evol.*, 2:1–17, 2002.
- [948] C. Xiao and S. S. Desser. Molecular characterization of myxozoan parasites from lake sasajewun, algonquin park, ontario, by riboprinting. *J. Euk. Microbiol.*, 47(1):85–89, 2000.
- [949] S. Xiao and A. H. Knoll. Phosphatized animal embryos from the neoproterozoic doushantuo formation at weng’an, guizhou, south china. *Journal of Paleontology*, 74(5):767–788, 2000.
- [950] J. Xiong, K. Inoue, and C. E. Bauer. Tracking molecular evolution of photosynthesis by characterization of a major photosynthesis gene cluster from *heliobacillus mobilis*. *Proc. Natl. Acad. Sci. USA*, 95:14851–14856, 1998.
- [951] L. Xu, H. Chen, R. Zhang, X. Hu, Z. Zhang, and Z. W. Luo. Average gene length is highly conserved in prokaryotes and eukaryotes and diverges only between the two kingdoms. *Life Sci.*, 12:44–121, 2006.

- [952] Y. x. Luan, J. M. Mallatt, R. d. Xie, Y. m. Yang, and W. y. Yin. The Phylogenetic Positions of Three Basal-Hexapod Groups (Protura, Diplura, and Collembola) Based on Ribosomal RNA Gene Sequences. *Mol. Biol. Evol.*, 22(7):1579–1592, 2005.
- [953] T. Yamada, Y. Sekiguchi, S. Hanada, H. Imachi, A. Ohashi, H. Harada, and Y. Kamagata. *Anaerolinea thermolimosa* sp. nov., *Levilinea saccharolytica* gen. nov., sp. nov. and *Leptolinea tardivitalis* gen. nov., sp. nov., novel filamentous anaerobes, and description of the new classes *Anaerolineae* classis nov. and *Caldilineae* classis nov. in the bacterial phylum Chloroflexi. *Int J Syst Evol Microbiol*, 56(6):1331–1340, 2006.
- [954] T. K. H. N. Yamazaki. Polyphyletic origin of land plants: Bryophytes are fungi with chloroplasts. In *Botany 2007*. 2006.
- [955] D. Yang, I. Kusser, A. K. E. Kжркке, B. F. Koop, and A. T. Matheson. The structure and evolution of the ribosomal proteins encoded in the *spc* operon of the archaeon (crenarchaeota) *sulfolobus acidocaldarius*. *Mol. Phyl. Evol.*, 12(2):177–185, 1999.
- [956] S. Yang, R. F. Doolittle, and P. E. Bourne. Phylogeny determined by protein domain content. *Proc. Natl. Acad. Sci. USA*, 102(2):373–378, 2005.
- [957] A. M. Yates and A. A. Warren. The phylogeny of the “higher” temnospondyls (vertebrata: Choanata) and its implications for the monophyly and origins of the stereospondyli. *Zool. J. Linn. Soc.*, pages 77–121, 1998.
- [958] H. S. Yoon. Defining the major lineages of red algae (rhodophyta). *J. Phycol.*, 42(2006):482–492, 2006.
- [959] T. Yuasa, O. Takahashi, J. K. Dolven, S. Mayama, A. Matsuoka, D. Honda, and K. R. BjIrklund. Phylogenetic position of the small solitary phaeodarians (Radiolaria) based on 18S rDNA sequences by single cell PCR analysis. *Marine Micropaleontology*, page 11, 2006.
- [960] T. Yuasa, O. Takahashi, D. Honda, and S. Mayama. Phylogenetic analyses of the polycystine Radiolaria based on the 18s rDNA sequences of the Spumellarida and the Nassellarida. *European Journal of Protistology*, 41(2005):287–298, 2005.

- [961] N. Yubuki, Y. Inagaki, T. Nakayama, and I. Inouye. *J. Eukaryot. Microbiol.*, pages 1–10, 2007.
- [962] Z. G. Yu, L. Q. Zhou, V. V. Anh, K. H. Chu, S. C. Long, and J. Q. Deng. Phylogeny of prokaryotes and chloroplasts revealed by a simple composition approach on all protein sequences from complete genomes without sequence alignment. *J Mol Evol*, 60:538–545, 2005.
- [963] P. Zalar, G. S. de Hoog, H.-J. Schroers, J. M. Frank, and N. Gunde-Cimerman. Taxonomy and phylogeny of the xerophilic genus *Wallemia* (*Wallemiomycetes* and *Wallemiales*, cl. et ord. nov.). *Antonie van Leeuwenhoek*, 87:311–328, 2005.
- [964] R. Zardoya and A. Meyer. Evolutionary relationships of the coelacanth, lungfishes, and tetrapods based on the 28s ribosomal rna gene. *Proc. Natl. Acad. Sci. USA*, 93(No 11):5449–5454, 1996.
- [965] R. Zardoya and A. Meyer. Complete mitochondrial genome suggests diapsid affinities of turtles. *Proc. Natl. Acad. Sci. USA*, 95(24):14226–14231, 1998.
- [966] S. Zauner, M. Fraunholz, J. Wastl, S. Penny, M. Beaton, T. Cavalier-Smith, U.-G. Maier, and S. Douglas. Chloroplast protein and centrosomal genes, a trna intron, and odd telomeres in an unusually compact eukaryotic genome, the cryptomonad nucleomorph. *Proc. Natl. Acad. Sci. USA*, 97(1):200–205, 2000.
- [967] L. Zeng and B. J. Swalla. Molecular phylogeny of the protochordates: chordate evolution. *Can. J. Zool.*, 83:24–33, 2005.
- [968] L. A. A. Zettler, T. A. Nerad, C. J. O’Kelly, M. T. Peglar, P. M. Gillevet, J. D. Silberman, and M. L. Sogin. A molecular reassessment of the leptomyxid amoebae. *Protist*, 151:275–282, 2000.
- [969] L. A. Zettler, M. L. Sogin, and D. A. Caron. Phylogenetic relationships between the acantharea and the polycystinea: A molecular perspective on haeckel’s radiolaria. *Proc. Natl. Acad. Sci. USA*, 94(No 21):11411–11416, 1997.
- [970] H. Zhang, Y. Sekiguchi, S. Hanada, P. Hugenholtz, H. Kim, Y. Kamagata, and K. Nakamura. *Gemmatimonas aurantiaca* gen. nov.,

sp. nov., a gram-negative, aerobic, polyphosphate-accumulating micro-organism, the first cultured representative of the new bacterial phylum gemmatimonadetes phyl. nov. *International Journal of Systematic and Evolutionary Microbiology*, 53:1155–1163, 2003.

- [971] Z. Zhang, B. R. Green, and T. Cavalier-Smith. Single gene circles in dinoflagellate chloroplast genomes. *Nature*, 400(6740):155–159, 1999.
- [972] Z. Zhang, B. R. Green, and T. Cavalier-Smith. Phylogeny of ultra-rapidly evolving dinoflagellate chloroplast genes: A possible common origin for sporozoan and dinoflagellate plastids. *J Mol Evol*, 51:26–40, 2000.
- [973] G. Zhu and J. S. Keithly. What is cryptosporidium? *J. Euk. Microbiol.*, 1998.
- [974] M. Zoelfel and O. Skibba. Multiflagellated protist paramastix conifera skuja 1948 (protista incertae sedis). *Nova Hedwigia*, 65(1–4):443–452, 1997.
- [975] J. Zrzavy, V. Hypsa, and D. F. Tietz. Myzostomida are not annelids: Molecular and morphological support for a clade of animals with anterior sperm flagella. *Cladistics*, 17:170–198, 2001.
- [976] J. Zrzavy. Gastrotricha and metazoan phylogeny. *Zoologica Scripta*, 32(1):61–81, 2002.
- [977] J. Zrzavy. Myxozoa, Polypodium, and the origin of the Bilateria: The phylogenetic position of “Endocnidozoa” in light of the rediscovery of Buddenbrockia. *Cladistics*, 19(2003):164–169, 2003.
- [978] J. Zrzawy. Gastrotricha and metazoan phylogeny. *Zoologica Scripta*, 32(1):61–81, 2003.
- [979] *Organelles, Genomes and Eukaryote Phylogeny: An Evolutionary Synthesis in the Age of Genomics*, volume Systematics Association Special Volume, No. 68. CRC, 2004.
- [980] Glass sponges and bilaterian animals share derived mitochondrial genomic features: a common ancestry or parallel evolution?

Russian References

- [1] В. И. Агол. О системе вирусов. *Усп. совр. биол.*, 77:9, 1974.
- [2] И. А. Аксарина. Probivalvia — новый класс древнейших моллюсков. In *Новые данные по геологии и полезным ископаемым Западной Сибири*, volume Вып. 3, pages 77–86. Томск, 1968.
- [3] И. Е. Амлинский. *Некоторые проблемы становления многоклеточности*. М., 1967.
- [4] А. В. Андрианов and В. В. Малахов. Сравнительно-морфологический анализ организации головохоботных червей, филогения и система типа serphalorhyncha. 5. филогения и система. *Зоол. журн.*, 74(вып. 7):19–27, 1995.
- [5] А. Антонов. Существуют ли молекулярные предпосылки ревизии филогении и системы наземных растений? *Журн. общ. биол.*, 59, 1998.
- [6] Ю. А. Арендт. Система иглокожих: Сообщ. 1,2. *Зоол. журн.*, 62(9–10):1301–1313, 1445–1456, 1983.
- [7] В. Н. Беклемишев. К построению системы животных. *Усп. совр. биол.*, 32, 1951.
- [8] В. Н. Беклемишев. *Основы сравнительной анатомии беспозвоночных*. В 2 т. М., 1964.
- [9] К. В. Беклемишев. Соотношение морфологических осей и таксономическая близость основных групп первичноротых животных. *Журн. общ. биол.*, 31(3):302–315, 1970.
- [10] К. В. Беклемишев. О возможных и осуществленных направлениях эволюции беспозвоночных. *Журн. общ. биол.*, 35:209, 1974.
- [11] К. В. Беклемишев. *Вариант эволюционного древа многоклеточных*. Наука, Л., 1976.
- [12] Л. Берг. *Система рыбообразных и рыб, ныне живущих и ископаемых*. М., 1955. Тр. ЗИН, т. 20.

- [13] А. Я. Вага. Филема органического мира. *Бот. журн.*, 37:639–647, 1952.
- [14] А. Е. Васильев. О примитивных чертах грибной клетки и происхождении эукариот. *Бот. журн.*, 70(9):1145–1156, 1985.
- [15] Н. Н. Воронцов. Системы органического мира и положение животных в них. *Зоол. журн.*, 66(11), 1987.
- [16] З. П. Герасимова and Л. Н. Серавин. Новая макросистема инфузорий. *Вестн. ЛГУ*, (3):29–38, 1977.
- [17] А. Гинецинская. *Трематоды, их жизненные циклы, биология и эволюция*. Л., 1968.
- [18] М. Б. Гниловская. О природе vendotaenides. In *Стратиграфия и палеонтология древнейшего фанерозоя*, page 58. М., 1984.
- [19] Е. Д. Голавлев and Г. К. Скрябин. Систематика микобактерий и родственных им микроорганизмов. *Изв. АН СССР. Сер. биол.*, (5), 1972.
- [20] М. В. Гусев and Г. Б. Гохлернер. *Свободный кислород и эволюция клетки*. М., 1980.
- [21] А. Г. Десницкий and А. В. Пиневиц. Происхождение энергодающих органелл клетки в связи с новыми данными по организации ядерного, хлоропластного и митохондриального геномов. *Вестн. ЛГУ*, 21(4):80–85, 1980.
- [22] А. Г. Десницкий. Хромосомы dinophyta. *Бот. журн.*, 75(11):1489–1496, 1990.
- [23] В. Догадина. О путях эволюции и родственных связях в пределах желто-зеленых водорослей (xanthophyta). *Бот. журн.*, 75(4):462–469, 1990.
- [24] В. Б. Дубинин. Хелицероносные животные и их положение в системе. *Зоол. журн.*, 38(8):1163–1189, 1959.
- [25] Б. Ф. Жуков. Ультраструктура клетки и некоторые вопросы систематики свободноживущих флагеллят. *Зоол. журн.*, 60(3), 1981.

- [26] Б. Ф. Жуков. *Атлас пресноводных гетеротрофных жгутиковых простейших*. Борок, 1990.
- [27] Г. А. Заварзин. *Фенотипическая систематика бактерий*. М., 1974.
- [28] Н. А. Заренков. *Членистоногие. Ракообразные. Ч. I, II*. М., 1982–83.
- [29] Д. К. Зеров. *Очерк филогении бессосудистых растений*. Киев, 1972.
- [30] О. М. Иванова-Казас. *Сравнительная эмбриология беспозвоночных: В 4-х т.* Л., 1972–1980.
- [31] А. В. Иванов and Ю. В. Мамкаев. *Ресничные черви. Филогенетические очерки*. Л., 1972.
- [32] А. В. Иванов. Neoripina и ее значение в филогении моллюсков. In *Вопросы теоретической и прикладной малакологии*, pages 164–173. Л., 1963.
- [33] А. В. Иванов. *Происхождение многоклеточных животных*. Л., 1968.
- [34] А. В. Иванов. О соотношении между protostomia и deuteristomia и система животного мира. *Зоол. журн.*, 55(8):1125–1137, 1976.
- [35] А. В. Иванов. О некоторых очередных задачах филогенетической морфологии беспозвоночных. In *Состояние и перспективы развития морфологии. Материалы всесоюзного совещания*, pages 59–70. М., 1979.
- [36] А. В. Иванов. Эволюция и систематика животных. *Журн. общ. биол.*, 44(1), 1983.
- [37] А. В. Иванов. Вопрос о происхождении bilateria. In *Современная эволюционная морфология*, pages 191–194. Киев, 1991.
- [38] А. В. Иванов. Marginaculata — новый тип животных из мела и палеозоя. *Палеонт. журн.*, (2):14–19, 1995.

- [39] М. Ф. Ивахненко. Некоторые особенности формирования тетрапод. In *Вопросы герпетологии*, pages 58–59. Л., 1981.
- [40] М. Ф. Ивахненко. Пермские парарептилии сср. In *Труды ПИН*, volume 223, 1987.
- [41] И. В. Исси. *Филогения и эволюция микроспоридий*, pages 30–43. Л., 1978.
- [42] А. Карпов and М. Ефремова. Электронно-микроскопическое исследование строения жгутикового аппарата хоаноцита губки *erhydrotia fluviatilis*. *Цитология*, 36(5):403–407, 1994.
- [43] А. Карпов. [thaumatomonas]. *Цитология*, 29(12):1349–1354, 1987.
- [44] А. Карпов. Краткий конспект системы эукариот. In *Экологическая морфология и пресноводные простейшие: Тез. докл. 2 Всес. симп. протозоологов. 12–15 сентября 1989 г.*, page 28, Ярославль, 1989.
- [45] А. Карпов. [arusomonas]. *Зоол. журн.*, 68(8):5–17, 1989.
- [46] А. Карпов. *Система протистов*. Омск, 1990.
- [47] А. Карпов. *Ультраструктура и систематика жгутиконосцев: Автореф. дис. ... докт. биол. наук*. Спб., 1992.
- [48] А. П. Касаткина and Г. И. Бурко. Chaetodonta — новый надтип животных и его положение в системе животного царства. *Докл. РАН*, 356(6):843–845, 1997.
- [49] Б. М. Козо-Полянский. К модернизации системы растительного мира. *Тр. Воронежск. ГУ*, 15. (Сб. работ, посв, 30-летию ВОСР), 1949.
- [50] Е. Н. Кондратьева. *Автотрофные прокариоты*. Изд-во МГУ, М., 1996.
- [51] А. А. Корх and А. Раутиан. Новое семейство манираптор (dinosauria: Saurishia) из позднего мела монголии. *Палеонт. журн.*, 1996.

- [52] М. В. Крылов. Новые таксоны в типе aricomplexa. *Паразитология*, 20(6):425–430, 1986.
- [53] М. В. Крылов. *Возбудители протозойных болезней домашних животных и человека. В 2-х т.* Спб., 1994.
- [54] Е. Н. Курочкин. *Основные этапы эволюции класса птиц: Автореф. дис. ... докт. биол. наук.* М., 1993.
- [55] О. Г. Кусакин and А. Л. Дроздов. *Филема органического мира*, volume Ч. 1: Пролегомены к построению филемы. Спб., 1994.
- [56] О. Г. Кусакин and Я. И. Старобогатов. К вопросу о наивысших таксономических категориях органического мира. *Вин.: Проблемы эволюции, Новосибирск*, 3:95–103, 1973.
- [57] И. Левушкин. []. *Журн. общ. биол.*, 36(5):692–709, 1976.
- [58] Н. А. Ливанов. Форониды, мшанки и брахиоподы. *Уч. зап. Казанского ГУ*, 123(кн. 11):55–81, 1963. Тр. общ. исп. прир. при КГУ, т. 66.
- [59] Н. А. Ливанов. О происхождении metazoa. *Зоол. журн.*, 49(4):15, 1970.
- [60] В. В. Малахов. Cephalorhyncha — новый тип животного царства, объединяющий griapulida, kinorhyncha, gordiacea и система первичнополостных червей. *Зоол. журн.*, 59(4), 1980.
- [61] В. В. Малахов. Проблемы построения общей системы многоклеточных. In *Современная эволюционная морфология*, pages 195–213. Киев, 1991.
- [62] Л. Маргелис. *Роль симбиоза в эволюции клетки.* Мир, М., 1983.
- [63] Г. И. Маркевич. Эволюция коловраток и проблема их положения в системе metazoa. In *Институт биологии внутренних вод. Труды*, volume 68 (71), pages 3–52, 1993.
- [64] Б. М. Медников. О реальности высших таксономических категорий позвоночных животных. *Журн. общ. биол.*, 35(5):6, 1974.

- [65] В. Мейен. Морфология проптеридофитов («псилофитов». *Бюлл. МОИП. Отд. биол.*, 83(2), 1978.
- [66] В. Мейен. Систематика, филогения и экология проптеридофитов. *Бюлл. МОИП. Отд. биол.*, 83(4), 1978.
- [67] В. Мейен. Органы размножения голосеменных и их эволюция по палеоботаническим данным. *Журн. общ. биол.*, 43(3), 1982.
- [68] В. Мейен. *Присхождение главных групп высших растений*, pages 127–163. М., 1984.
- [69] В. Мейен. *Основы палеоботаники. Справочное пособие*. М., 1987.
- [70] О. А. Мельников. К проморфологии членистых. *Журн. общ. биол.*, 38(3), 1977.
- [71] К. А. Микрюков and А. П. Мыльников. Новые данные о строении и жизненном цикле аталамидных амёб (protista, athalamida). *Зоол. журн.*, 75(9):1283–1293, 1996.
- [72] К. А. Микрюков and А. П. Мыльников. Протист multicilia marina sienk.: жгутиконосец или солнечник? *Докл. АН, Общая биология*, 346(1):136–139, 1996.
- [73] К. А. Микрюков. К биологии солнечных: феномен образования лучистых форм у саркодовых. *Зоол. журн.*, 77(2):147–157, 1998.
- [74] К. А. Микрюков. Изучение ультраструктуры и сравнение генов рибосомальной рнк как методы построения системы протистов. *Зоол. журн.*, 78(8):901–915, 1999.
- [75] К. А. Микрюков. Система и филогения солнечных. *Зоол. журн.*, 79(8):891–894, 2000.
- [76] Ю. Миничев and Я. И. Старобогатов. *О филогенетических взаимоотношениях внутри типа моллюсков*, pages 205–276. М., 1975.
- [77] Ю. Миничев and Я. И. Старобогатов. Подклассы брюхоногих моллюсков и их филогения. *Зоол. журн.*, 58(3), 1979.

- [78] И. М. Мирабдуллаев. Эволюция пластид и происхождение цианобактерий. *Журн. общ. биол.*, 46(4):483–490, 1985.
- [79] И. М. Мирабдуллаев. О перестройке системы эукариотных организмов. *Актуальные вопросы развития науки и техники в Узбекистане. Тезисы докл. науч. конф. Ташкент*, page 73, 1987.
- [80] И. М. Мирабдуллаев. Систематическое положение и происхождение архебактерий. *Изв. АН (Сер. биологическая)*, 2:175–185, 1988.
- [81] И. М. Мирабдуллаев. Проблемы классификации живого на уровне царств. *Журн. общ. биол.*, 50(6):725–736, 1989.
- [82] И. А. Мошкова. *Бурые водоросли — Phaeophyta*, pages 386–408. Киев, 1989.
- [83] А. П. Мыльников, З. М. Мыльникова, and А. И. Цветков. Особенности ультраструктуры хищных жгутиконосцев *katablepharis* sp. *Цитология*, 40(4):315–320, 1998.
- [84] А. П. Мыльников, З. П. Мыльникова, and А. И. Цветков. Ультраструктура хищного морского жгутиконосца *metopion fluens*. *Цитология*, 41:581–585, 1999.
- [85] А. П. Мыльников. [heteromita=cercomonas]. *Зоол. журн.*, 65(5):683–692, 1986.
- [86] А. П. Мыльников. [heteromita]. *Цитология*, 32:567–571, 1990.
- [87] Ю. Новожилов. [о систематике миксомицетов]. *Микология и фитопатология*, 12(5):7, 1978.
- [88] М. Ф. Осиповат. О филогении и классификации гребневигов. *Зоол. журн.*, 64(7):965–973, 1985.
- [89] М. Г. Петрушевская. О происхождении радиолярий. *Зоол. журн.*, 54(10):10, 1977.
- [90] М. Г. Петрушевская. *Саркодовые надкласса Actinopoda: система и филогения*, pages 10–17. М., 1981.

- [91] М. Г. Петрушевская. Acantharia — в надклассе саркодовых actinopoda или самостоятельный тип животного царства? *Зоол. журн.*, 61(11), 1982.
- [92] Е. В. Райкова. Цитологические парадоксы в цикле развития кишечного polypodium hydriforme — внутриклеточного паразита из ооцитов осетровых рыб. *Цитология*, 37(4):391–401, 1995.
- [93] И. Б. Райков. *Ядро простейших. Морфология и эволюция*. Ленинград, 1978.
- [94] А. П. Расницын. О ранней эволюции насекомых и происхождении pterygota. *Журн. общ. биол.*, 37(4):12, 1976.
- [95] Rass and Г. У. Линдберг. Современные представления о естественной системе ныне живущих рыб. *Вопросы ихтиологии*, 11(3):380–407, 1971.
- [96] К. Розов. Морфология, терминология и систематическое положение стенокотейд. *Тр. ин-та геол. и геогр. СО АН СССР*, Вып. 597:117–133, 1984.
- [97] А. Ш. Ромер. *Палеонтология позвоночных*. М., 1939.
- [98] В. А. Санина. Акразиевые — грибы или простейшие? *Зоол. журн.*, 76(11):1266–1276, 1997.
- [99] П. Г. Светлов. О первичной гетерономии тела позвоночных. *Арх. гистол. и эмбриол.*, 34(26):3–22, 1957.
- [100] В. Седова. *Основы цитологии водорослей*. Л., 1977.
- [101] В. Седова. Типы митоза и закономерности их распределения в различных отделах водорослей. *Бот. журн.*, 80(1):33–41, 1995.
- [102] Л. Н. Серавин. Макросистема жгутиконосцев. *Тр. ЗИН*, 94:4–22, 1980.
- [103] Л. Н. Серавин. Природа и происхождение губок. In *Тр. ЗИН*, volume 144, pages 94–112, 1986.

- [104] Л. Н. Серавин. Происхождение эукариотной клетки. *Цитология*, 28(6–9):563–575; 659–669; 779–789; 899–910, 1986.
- [105] Л. Н. Серавин. Паразитарная (эндосимбиотическая) гипотеза происхождения инфузорий. *Зоол. журн.*, 75(5):643–652, 1996.
- [106] И. И. Сидорова and К. Л. Тарасов. [о происхождении ascomycetes]. *Микология и фитопатология*, 11(5):5, 1977.
- [107] О. А. Скарлато and Я. И. Старобогатов. Основные черты эволюции и системы класса bivalvia. In *Тр. ЗИН*, volume 8, pages 5–38, 1979.
- [108] Н. Снигиревская et al. Новые находки древнейших высших растений в среднем ордовике южного казахстана. *Бот. журн.*, 77(4):1–9, 1992.
- [109] В. Е. Соколов. *Систематика млекопитающих. 1–3*. М., 1973–79.
- [110] Сорохтин and Ушаков. Влияние океана на состав атмосферы и климат земли. *Океанология*, 38(6):928–937, 1998.
- [111] Я. И. Старобогатов. Эволюция пелагических личинок первичноротых животных и проблема основных компонентов тела. *Зоол. журн.*, 58(2):149–160, 1979.
- [112] Я. И. Старобогатов. О системе трилобитообразных организмов. *Бюлл. МОИП. Отд. геол.*, 60(1):80–98, 1985.
- [113] Я. И. Старобогатов. К вопросу о числе царств эукариотных организмов. In *Труды ЗИН*, volume 144, pages 4–25, 1986.
- [114] Я. И. Старобогатов. Принцип основных компонентов тела и филогенетические отношения типов целомических животных. 1. основные компоненты тела, эволюция целомических образований и филогения вторичноротых. *Зоол. журн.*, 79(1):5–18, 2000.
- [115] А. Н. Студицкий. *Эволюционная морфология клетки*. М., 1981.
- [116] В. А. Сысоев. Морфология и систематическое положение хиолитов. *Палеонт. журн.*, (2):3–14, 1984.

- [117] Л. П. Татаринев. *Морфологическая эволюция териодонтов и общие вопросы филогенетики*. М., 1976.
- [118] Л. П. Татаринев. Переходные группы между классами позвоночных и закономерности их эволюции. *Журн. общ. биол.*, 37(1):30–40, 1976.
- [119] Л. П. Татаринев. Современные данные о происхождении птиц. *Орнитология*, 15:13, 1980.
- [120] А. Л. Тахтаджян, А. Кронквист, and В. Циммерман. Высшие таксоны embryobionta. *Бот. журн.*, 51(5):5, 1966.
- [121] А. Л. Тахтаджян. *Высшие растения. 1. От псилофитов до хвойных*. 1957.
- [122] А. Л. Тахтаджян. Высшие таксоны сосудистых растений, исключая цветковые. In *Проблемы палеоботаники*, pages 135–142. Наука, Л., 1986.
- [123] П. В. Терентьев. *Герпетология*. Л., 1961.
- [124] М. Д. Тер-Аванесов and В. В. Кушников. Прионы: инфекционные белки с генетическими свойствами. *Биохимия*, 64(12):1638–1647, 1999.
- [125] А. В. Успенская. *Цитология микроспоридий*. Л., 1984.
- [126] А. В. Успенская. Значение ядерного цикла тухозоа для понимания их эволюции. *Цитология*, 40(213):222–229, 1998.
- [127] М. А. Федонкин. Ранние этапы эволюции metazoa по палеоихнологическим данным. *Журн. общ. биол.*, 41(2):7, 1980.
- [128] М. А. Федонкин. Бескелетная фауна венда и ее место в эволюции метазоа. In *Тр. ПИН АН СССР*, volume 226, page 176, М., 1987. Наука.
- [129] Д. М. Федотов. *Эволюция и филогения беспозвоночных животных*. М., 1966.

- [130] А. В. Фурсенко. *Введение в изучение фораминифер*. Новосибирск, 1978.
- [131] А. П. Хохряков. Проблема многоклеточности и классификация высших таксонов растительного мира. *Журн. общ. биол.*, 49(4):527–540, 1988.
- [132] Ю. В. Чайковский. Опыт эко-физиологической макросистемы. In *Методы исследований в экологии и этологии*, pages 6–33. Изд. ИЭМЭЖ-НИВЦ, Пуццино, 1986.
- [133] А. В. Чернышев. О высших таксонах немертин с обзором системы подкласса апорла. *Зоол. журн.*, 74(1):7–17, 1995.
- [134] А. Г. Шаров. Происхождение и основные этапы эволюции членистоногих. 1. от аннелид к членистоногим. *Зоол. журн.*, 44(6):11, 1965.
- [135] М. А. Шишкин. Морфология древних земноводных и проблемы эволюции низших тетрапод. In *Тр. ПИН*, volume 137, 1973.
- [136] Р. Н. Шляков. *Печеночные мхи: морфология, филогения, классификация*. Л., 1975.
- [137] И. И. Шмальгаузен. *Происхождение наземных позвоночных*. М., 1964.
- [138] А. В. Янковский. Конспект новой системы типа ciliophora. In *Принципы построения макросистемы одноклеточных животных*. Тр. ЗИН, volume 94, pages 103–120, Л., 1980.