

## **curriculum vitae, William F. Martin**

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Institute for Molecular Evolution  
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Date of birth : 16.02.57 in Bethesda, Maryland, USA  
Familial status : Married, four children  
Nationality : German  
University degree : 1981-1985, Technische Universität Hannover, Germany: Biology  
Diplom thesis : 1985, Institut für Botanik, TU Hannover with Rüdiger Cerff: Botany  
PhD thesis : 1985-1988, Max-Planck-Institut für Züchtungsforschung, Cologne, with Heinz Saedler; degree conferred by the University of Cologne: Genetics  
Postdoc : 1988-1989, Max-Planck-Institut für Züchtungsforschung, Cologne  
Postdoc : 1989-1999, Institut für Genetik, Technische Universität Braunschweig  
Habilitation : 1992, TU Braunschweig, Germany, *venia legendi* for the field of Botany  
Full professor : 1999-2011 for "Ecological Plant Physiology" (C4), Universität Düsseldorf  
: 2011- for "Molecular Evolution" (C4), Universität Düsseldorf

### **Honours**

2013- Visiting Professor, Instituto de Tecnologia Química e Biológica, Oeiras, Portugal  
2012 Elected Member of EMBO (European Molecular Biology Organisation)  
2008 Elected Member of the Nordrhein-Westfälische Akademie der Wissenschaften  
2006 Elected Fellow of the American Academy for Microbiology  
2006-2009 Julius von Haast Fellow, New Zealand Ministry for Research, Science & Technology  
2000-2007 Foreign Associate, CIAR Programme in Evolutionary Biology

### **Awards**

2015: European Research Council Advanced Investigator Grant  
2009: European Research Council Advanced Investigator Grant  
1998: Miescher-Ishida Prize of the International Society of Endocytobiology  
1997: Technology Transfer Prize, Industrie und Handelskammer Braunschweig  
1990: Heinz-Maier-Leibnitz Prize of the Deutsche Forschungsgemeinschaft  
1989: Max-Planck postdoctoral stipend

### **Editorial service**

2009- Editor-in-Chief, *Genome Biology and Evolution*  
2004-2007 Editor-in-Chief, *Molecular Biology and Evolution*  
2015-2017 Editorial Board Member, *Microbial Genomics*  
2008-2011 Editorial Board Member, *Marine Genomics*  
2015- Editorial Board Member, *Scientific Reports*  
2014- Editorial Board Member, *Life*

2012- Scientific Advisory Committee, *Marine Genomics*  
 2007- Editorial Board Member, *Biology Direct*  
 2001- Faculty 1000 Member for Plant Genomes and Evolution  
 2012-2013 Editorial Board Member, *Central European Journal of Biology*  
 2005-2014 Editorial Board Member, *Environmental Microbiology*  
 2005-2012 Editorial Advisory Board, *BioEssays*  
 2003-2008 Editorial Board Member, *Plant Biology*  
 1999-2004 Editorial Board Member, *European Journal of Phycology*  
 1998-2008 Editorial Board Member, *Molecular Biology and Evolution*  
 1995-2008 Editorial Board Member, *Gene*

### Positions of trust

2017 Member of the Scientific Advisory Board of CBRC, KAUST  
 2016-2019 Elected member of the Senate of the University of Düsseldorf  
 2016 - Member, European Science Foundation College of Expert Reviewers  
 2010 Science Advisory Committee, Helmholtz Alliance Planetary Evolution and Life  
 2007-2012 Selection Committee for the Heinz-Maier-Leibnitz Prize of the DFG  
 2004-2007 Elected member of the Senate of the University of Düsseldorf

### Other affiliations

Instituto de Tecnologia Química e Biológica  
 Universidade Nova de Lisboa  
 2780-157 Oeiras  
 Portugal

### Funded research projects

	<b>period</b>	
European Research Council Advanced Grant "eMicrobevol"	2015–2019	€ 2,400,000
European Research Council Advanced Grant "Networkorigins"	2009–2013	€ 2,000,000

German Research Foundation (DFG)

Collaborative Research Centre CRC-Tr1 "Endosymbiosis"

· Project A3: Comparative genome analysis	2010–2012
· Project A3: Comparative genome analysis	2007–2009
· Project A3: Comparative genome analysis	2004–2006
· Project A3: Comparative genome analysis	2001–2003
· Project C3: The mitochondrion of <i>Euglena</i>	2010–2012
· Project C3: The mitochondrion of <i>Euglena</i>	2007–2009
· Project C3: The mitochondrion of <i>Euglena</i>	2004–2006
· Project C3: The mitochondrion of <i>Euglena</i>	2001–2003
· Project A10: Plant genome analysis	2010–2012
· Project A10: Plant genome analysis	2007–2009

DFG Priority Programme grants:

· Ma1426/1-3 SPP285 Plant molecular evolution	1996–1997
· Ma1426/1-2 SPP285 Plant molecular evolution	1994–1995
· Ma1426/1-1 SPP285 Plant molecular evolution	1992–1993
· Ma1426/13-3 SPP1127 Domestication and evolution of einkorn	2006–2007
· Ma1426/13-2 SPP1127 Domestication and evolution of einkorn	2004–2005

· Ma1426/13-1 SPP1127 Domestication and evolution of einkorn 2002–2003

#### DFG Individual grants:

· Ma1426/19-1 Molecular mechanisms of *Trichomonas* infection 2013–2015  
· Ma1426/9-1 Evolution of photosynthetic eukaryotes 1998–1999  
· Ma1426/4-2 Plant tryptophane biosynthesis 1996–1997  
· Ma1426/4-1 Plant tryptophane biosynthesis 1994–1995  
· Ma1426/3-3 Evolution of plant sugar phosphate metabolism 1998–1999  
· Ma1426/3-2 Evolution of plant sugar phosphate metabolism 1996–1997  
· Ma1426/3-1 Evolution of plant sugar phosphate metabolism 1994–1995

#### BMBF:

· Classification and Evolution in Biology, Linguistics, and History of Science 2008-2011

#### Funded industry cooperations

· Bayer Crop Science, Monheim (1996-2007)  
· BASF Plant Science, Ludwigshafen (1999-2003)  
· Sanford Scientific, USA (1997)

#### Memberships

American Academy for Microbiology, German Botanical Society, Society for Molecular Biology and Evolution, Society for the Study of Evolution, Deutscher Hochschulverband, Verein Deutscher Biologen, VdBiol Arbeitsgemeinschaft Evolutionsbiologie, Nordrheinwestfälische Akademie der Wissenschaften, European Molecular Biology Organization (EMBO)

#### Special lectures

Jul. 2016 Opening Plenary, 19th European Bioenergetics Conference, Riva del Garda, I  
Nov. 2015 Ponticifal Academy of Science, The Vatican  
Oct. 2015 Inaugural Meeting of the Institute Biologie Paris Seine, F  
Nov. 2012 Royal Society, Energy transduction and genome function: An evolutionary synthesis, UK  
Nov. 2011 Annual Meeting of the Leopoldina, Halle  
Feb. 2011 The Mindlin Lecture, University of Washington, USA  
Oct. 2010 The Peter-Hemmerich-Vorlesung 2010, University of Konstanz, D  
May 2010 Opening Lecture, Cusanuswerk Symposium Evolution, Nittendorf, D  
Nov. 2009 Opening Lecture, 51st Phylogenetics Symposium, Braunschweig  
Oct. 2009 Opening Lecture, ESF Meeting “Systems Chemistry II”, Balatonfured, Hungary  
Jun. 2009 Opening Plenary, SMBE Annual Meeting, Cedar Rapids, Iowa  
Jan. 2009 The 2009 Howard Dalton Lecture, University of Warwick, UK  
Jan. 2009 The 2009 G.E. Fogg Lecture, Queen Mary University of London, UK  
Feb. 2009 Opening Lecture, BioEd Darwin 200 Symposium, Christchurch, NZ  
Mar. 2006 Evening Plenary, VAAM German Microbiological Society Annual Meeting, Jena  
Oct. 2003 The Kenneth Sporne Lecture on Plant Evolution, University of Cambridge, UK

**Total citations:** 24000 (Google Scholar) 16000 (ISI)

**H-index:** 79 (Google Scholar) 68 (ISI)

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**Public citation metrics:** <http://scholar.google.de/citations?hl=en&user=ms16utkAAAAJ>

## Original Publications (peer reviewed)

- Martin WF, Cerff R: Physiology, phylogeny, early evolution and GAPDH.  
*Prrotoplasma. submitted.*
- Martin WF: Physiology, anaerobes, and the origin of mitosing cells 50 years on.  
*J. Theor. Biol. in press.* (2017).
- Martin WF: Physiology, phylogeny, and the energetic roots of life.  
*Periodicum Biologorum. ...:...-... in press.* (2017).
224. Martin WF, Röttger M, Ku C, Garg SG, Nelson-Sathi S, Landan G: Late mitochondrial origin is an artefact.  
*Genome Biol. Evol. ...:...-... in press.* (2016).
223. Weiss MC, Neukirchen S, Röttger M, Mrnjavac N, Nelson-Sathi S, Martin WF, Sousa FL: New views on Luca.  
*Nature Microbiology* 16230 (2016).
222. Ku C, Martin WF: A natural barrier to lateral gene transfer from prokaryotes to eukaryotes revealed from genomes: The 70% rule.  
*BMC Biology.* 14:89 (2016).
221. Weiss MC, Sousa FL, Mrnjavac N, Neukirchen S, Röttger M, Nelson-Sathi S, Martin WF: The physiology and habitat of the last universal common ancestor.  
*Nature Microbiology* 1:16116 (2016). \*(Covered by 93 news outlets, Altmetric score >1040)
220. Garg S, Martin WF: Mitochondria, the cell cycle and the origin of sex via a syncytial eukaryote common ancestor.  
*Genome Biol. Evol.* 8:1950–1970 (2016).
219. Chen X, Schreiber K, Appel J, Makowka A, Faehnrich B, Roettger M, Hajirezaei MR, Sönnichsen F, Schönheit P, Martin WF, Gutekunst K: The Entner-Doudoroff pathway is an overlooked route of carbohydrate oxidation in cyanobacteria and plants.  
*Proc. Natl. Acad. Sci. USA* 113:5441–5446 (2016).
218. Horneck G, Walter N, Westall F, Grenfell JL, Martin WF, Gomez F, Leuko S, Lee N, Onofri S, Tsiganis K, Saladino R, Pilat-Lohinger E, Palomba E, Harrison J, Rull F, Muller C, Strazzulla G, Brucato JR, Rettberg P, Capria MT: AstRoMap — European astrobiology roadmap.  
*Astrobiology* 16:201–243 (2016).
217. Gould SB, Garg S, Martin WF: Bacterial vesicle secretion and the evolutionary origin of the eukaryotic endomembrane system.  
*Trends Microbiol.* 24:525–534 (2016).
216. Sousa FL, Nelson-Sathi S, Martin WF: One step beyond a ribosome: the ancient anaerobic core.  
*BBA Bioenergetics.* 1857:1027–1038 (2016).
215. Sousa FL, Neukirchen S, Allen JF, Lane N, Martin WF: Lokiarchaeon is hydrogen dependent.  
*Nature Microbiology.* 16034 (2016).
214. Lane N, Martin WF: Mitochondria, complexity and evolutionary deficit spending.  
*Proc. Natl. Acad. Sci. USA* 113:E666 (2016).
213. Martin WF, Sousa FL: Early microbial evolution: the age of anaerobes.  
*Cold Spring Harbor Persp. Biol.* 8:a018127 (2016).
212. Schönheit P, Buckel W, Martin WF: On the origin of heterotrophy.  
*Trends Microbiol.* 24:12–24 (2016).
211. Lane N, Martin WF: Eukaryotes really are special, and mitochondria are why.  
*Proc. Natl. Acad. Sci. USA* 112:E4823 (2015).
210. Garg S, Stölting J, Zimorski V, Rada P, Tachezy J, Pupko T, Martin WF, Gould SB. Conservation of transit peptide-independent protein import into mitochondria and hydrogenosomes.  
*Genome Biol. Evol.* 7:2716–2726 (2015).

208. Carbone V, Schofield LR, Zhang Y, Sang C, Dey D, Hannus IM, Martin WF, Sutherland-Smith AJ, Ronimus RS. Structure and evolution of the archaeal lipid synthesis enzyme *sn*-glycerol-1-phosphate dehydrogenase. *J. Biol. Chem.* 290:21690–21704 (2015).
207. Ku C, Nelson-Sathi S, Roettger M, Sousa FL, Lockhart PJ, Bryant D, Hazkani-Covo E, McInerney JO, Landan GL, Martin WF: Endosymbiotic origin and differential loss of eukaryotic genes. *Nature* 524:427–432 (2015).
206. Martin WF, Garg S, Zimorski V: Endosymbiotic theory for eukaryote origin. *Phil Trans Roy Soc Lond B* 370: 20140330 (2015).
205. Rajević N, Kovačević G, Kalafatić M, Gould S, Martin WF, Franjević D. Algal endosymbionts in European *Hydra* strains reflect multiple origins of the zoochlorella symbiosis. *Mol. Phylog. Evol.* 93:55–62 (2015)
204. Gould SB, Maier UG, Martin WF: Protein import and the origin of red complex plastids. *Curr. Biol.* 25:R515–R521 (2015).
203. Ku C, Nelson-Sathi S, Roettger M, Garg S, Hazkani-Covo E, Martin WF: Endosymbiotic gene transfer from prokaryotic pangenomes: inherited chimaerism in eukaryotes. *Proc. Natl. Acad. Sci. USA* 112:10139–10146 (2015).
202. Sousa FL, Hordijk W, Steel M, Martin WF: Autocatalytic sets in *E. coli* metabolism. *J. Systems Chem.* 6:4 (2015)
201. Nelson-Sathi S, Sousa FL, Röttger M, Lozada-Chávez N, Thiergart T, Janssen A, Bryant D, Landan G, Schönheit P, Siebers B, McInerney JO, Martin WF: Origins of major archaeal clades correspond to gene acquisitions from bacteria. *Nature* 517:77–80 (2015).
200. Ku C, Roettger M, Zimorski V, Nelson-Sathi S, Sousa FL, Martin WF: Plastid origin: Who, when, and why? *Acta Soc. Bot. Pol.* 83:281–289 (2014).
199. Dagan T, Baptiste E, McInerney JO, Martin WF: Meeting report — SMBE satellite meeting on reticulated microbial evolution. *Genome Biol. Evol.* 6:2206–2209 (2014).
198. Mentel M, Roettger M, Leys S, Tielens AGM, Martin WF: Of early animals, anaerobic mitochondria, and a modern sponge. *BioEssays* 36:924–932 (2014).
197. Thiergart T, Schmitz U, Landan G, Martin WF, Dagan T: Application and comparative performance of network modularity algorithms to ecological community classification. *Acta. Soc. Bot. Pol.* 83:93–102 (2014).
196. Christa G, Gould SB, Franken J, Vleugels M, Karmeinski D, Händeler K, Martin WF, Wägele H: Functional kleptoplasty in a limapontiid genus: Phylogeny, food preferences and photosynthesis in *Costasiella* with focus on *C. ocellifera* (Gastropoda, Sacoglossa). *J. Mollusc. Stud.* 80:499–507 (2014).
195. List J-M, Nelson-Sathi S, Martin WF, Geissler H: Using phylogenetic networks to model Chinese dialect history. *Language Dynamics and Change* 4:222–252 (2014).
194. Sousa F, Martin WF: Biochemical fossils of the ancient transition from geoenergetics to bioenergetics in prokaryotic one carbon compound metabolism. *Biochim. Biophys. Acta.* 1837:964–981 (2014).
193. Schmitt V, Menzel D, Händeler K, Gunkel S, Escande ML, Martin WF, Wägele H: Chloroplast incorporation and long-term photosynthetic performance through the life cycle in laboratory cultures of *Elysia timida* (Sacoglossa, Heterobranchia). *Frontiers Zool.* 11:15 (2014).
192. List J-M, Nelson-Sathi S, Geissler H, Martin WF: Networks of lexical borrowing and lateral gene transfer in language and genome evolution. *BioEssays* 36:141–150 (2014).

191. Thiergart T, Landan G, Martin WF: Concatenated alignments and the case of the disappearing tree.  
*BMC Evol. Biol.* 14:226 (2014).
190. Zimorski V, Ku C, Martin WF, Gould SB: Endosymbiotic theory for organelle origins.  
*Curr. Opin. Microbiol.* 22:38–48 (2014).
189. Christa G, Zimorski V, Tielens AGM, Wägele H, Martin W, Gould SB: Plastid-bearing sea slugs fix CO<sub>2</sub> in the light but do not require photosynthesis to survive.  
*Proc. Roy. Soc. Lond. B.* 281:20132493 (2014).
188. de Vries J, Habicht J, Woehle C, Changjie H, Christa G, Wägele H, Nickelsen J, Martin WF, Gould SB: Is *ftsH* the key to plastid longevity in sacoglossan slugs?  
*Genome Biol. Evol.* 5:2540–2548 (2013).
187. Maier U-G, Zauner S, Woehle C, Bolte K, Hempel F, Allen JF, Martin WF. Massively convergent evolution for ribosomal protein gene content in plastid and mitochondrial genomes.  
*Genome Biol. Evol.* 5:2318–2329 (2013).
186. Zimorski V, Major P, Hoffmann K, Pereira-Brás X, Martin WF, Gould SB: The N-terminal sequences of four major hydrogenosomal proteins are not essential for import into hydrogenosomes of *Trichomonas vaginalis*.  
*J. Eukaryot. Microbiol.* 60:89–97 (2013).
185. Gould SB, Wöhle C, Kusdian G, Landan G, Tachezy J, Zimorski V, Martin WF: Deep sequencing of *Trichomonas vaginalis* during the early infection of vaginal epithelial cells and amoeboid transition.  
*Int. J. Parasitol.* 43:707–719 (2013).
184. Kusdian G, Wöhle C, Martin WF, Gould SB: The actin-based machinery of *Trichomonas vaginalis* mediates flagellate-amoeboid transition and migration across host tissue.  
*Cell. Microbiol.* 15:1707–1721 (2013).
183. Sousa FL, Thiergart T, Landan G, Nelson-Sathi S, Pereira IAC, Allen JF, Lane N, Martin WF: Early bioenergetic evolution.  
*Phil. Trans. Roy. Soc. Lond. B.* 368:20130088 (2013).
182. Dagan T, Roettger M, Stucken K, Landan G, Koch R, Major P, Gould SB, Goremykin VV, Rippka R, Tandeau de Marsac N, Gugger M, Lockhart PJ, Allen JF, Brune I, Maus I, Pühler A, Martin WF: Section V cyanobacterial genomes and the evolution of oxygenic photosynthesis from prokaryotes to plastids.  
*Genome Biol. Evol.* 5:31–44 (2013).
181. Atteia A, van Lis R, Tielens AGM, Martin WF: Anaerobic energy metabolism in unicellular photosynthetic eukaryotes.  
*Biochim. Biophys. Acta Bioenergetics* 1827:210–223 (2013).
180. Goremykin VV, Nikiforova SV, Biggs PJ, Zhong B, Lange P, Martin W, Woetzel S, Atherton RA, McLenachan T, Lockhart PJ: The evolutionary root of flowering plants.  
*Syst. Biol.* 62:50–61 (2013).
179. Martin WF: Hydrogen, metals, bifurcating electrons, and proton gradients: The early evolution of biological energy conservation.  
*FEBS Lett.* 586:485–493 (2012).
178. Lane N, Martin WF: The origin of membrane bioenergetics.  
*Cell* 151:1406–1416 (2012).
177. Nelson-Sathi S, Dagan T, Landan G, Janssen A, Steel M, McInerney JO, Deppenmeier U, Martin WF: Acquisition of a thousand eubacterial genes physiologically transformed a methanogen at the origin of Haloarchaea.  
*Proc. Natl. Acad. Sci. USA* 109:20537–20542 (2012).
176. Stucken K, Ilhan J, Roettger M, Dagan T, Martin WF: Transformation and conjugal transfer of foreign genes into the filamentous multicellular cyanobacteria (subsection V) *Fischerella* and *Chlorogloeopsis*  
*Curr. Microbiol.* 65:552–560 (2012).
175. Zimorski, Major P, Yu R-Y, Hoffmann K, Pereira Brás X, Tucci S, Mentel M, Gould SB, Henze K, Martin WF: Evolutionary significance of anaerobic energy metabolism in eukaryotes.

- J. Endocytobiosis Cell Res.* 23:64–68 (2012).
174. Müller M, Mentel M, van Hellemond J, Henze K, Woehle C, Gould SB, Yu R-Y, van der Giezen M, Tielens AGM, Martin WF: Biochemistry and evolution of anaerobic energy metabolism in eukaryotes.  
*Microbiol. Mol. Biol. Rev.* 76:444–495 (2012).
173. Thiergart T, Landan G, Schenk M, Dagan T, Martin WF: An evolutionary network of genes present in the eukaryote common ancestor polls genomes on eukaryotic and mitochondrial origin.  
*Genome Biol. Evol.* 4:466–485 (2012).
172. Burstein D, Gould SB, Zimorski V, Kloesges T, Kiosse F, Major P, Martin WF, Pupko T, Dagan T: A machine-learning approach to identify hydrogenosomal proteins in *Trichomonas vaginalis*.  
*Eukaryot. Cell* 11:217–228 (2012).
171. McInerney JO, Martin W, Koonin EV, Allen JF, Galperin MY, Lane N, Archibald JM, Embley TM (2011). On planctomycetes, eukaryotes and analogy.  
*Science E-Letter*, 25 May 2011
170. Pereira Brás X, Zimorski V, Bolte K, Maier U-G, Martin WF, Gould SB: Knockout of the abundant *Trichomonas vaginalis* hydrogenosomal membrane protein Tvhmp23 increases hydrogenosome size but induces no compensatory up-regulation of paralogous copies.  
*FEBS Lett.* 587:1333–1339 (2013).
169. Sousa FL, Shavit-Greivink L, Allen JF, Martin WF: Chlorophyll biosynthesis gene evolution indicates photosystem gene duplication, not photosystem merger, at the origin of oxygenic photosynthesis.  
*Genome Biol. Evol.* 5:200–216 (2013).
168. Martin WF, Hazkani-Covo E, Shavit-Greivink L, Schmitt V, Händeler K, Gould SB, Landan G, Graur D, Dagan T: Gene transfers from organelles to the nucleus: How much, what happens, and why none in *Elysia*?  
*J. Endocytobiosis Cell Res.* 23:16–20 (2012).
167. Martin WF, Roettger M, Kloesges T, Thiergart T, Woehle C, Gould S, Dagan T: Modern endosymbiotic theory: Getting lateral gene transfer into the equation.  
*J. Endocytobiosis Cell Res.* 23:1–5 (2012).
166. McInerney JO, Martin WF, Koonin EV, Allen JF, Galperin MY, Lane N, Archibald JM, Embley TM: Planctomycetes and eukaryotes: a case of analogy not homology.  
*BioEssays* 33:810–817 (2011).
165. Martin WF: Early evolution without a tree of life.  
*Biol Direct.* 6:36 (2011).
164. Popa O, Hazkani-Covo E, Landan G, Martin W, Dagan T: Directed networks reveal genomic barriers and DNA repair bypasses to lateral gene traffic among prokaryotes.  
*Genome Res.* 21:599–609 (2011).
163. Felsner G, Sommer MS, Gruenheit N, Hempel F, Moog D, Zauner S, Martin W, Maier UG: ERAD components in organisms with complex red plastids suggest recruitment of a preexisting protein transport pathway for the periplastid membrane.  
*Genome Biol. Evol.* 3:140–150 (2011).
162. Nelson-Sathi S, List JM, Geissler H, Fangerau H, Gray RD, Martin W, Dagan T: Networks uncover hidden lexical borrowing in Indo-European language evolution.  
*Proc. Roy. Soc. Lond. B* 1713:1794–1803 (2011).
161. Kloesges T, Martin W, Dagan T: Networks of gene sharing among 329 proteobacterial genomes reveal differences in lateral gene transfer frequency at different phylogenetic depths.  
*Mol. Biol. Evol.* 28:1057–1074 (2011).
160. Wägele H, Deusch O, Händeler K, Martin R, Schmitt V, Christa G, Pinzger B, Dagan T, Klussmann-Kolb A, Martin W: Transcriptomic evidence that longevity of acquired plastids in the photosynthetic slugs *Elysia timida* and *Plakobranthus ocellatus* does not entail lateral transfer of algal nuclear genes.  
*Mol. Biol. Evol.* 28:699–706 (2011).

159. Woehle C, Dagan T, Martin WF, Gould SB: Red and problematic green phylogenetic signals among thousands of nuclear genes from the photosynthetic apicomplexan *Chromera velia*. *Genome Biol. Evol.* 3:1220–1230 (2011).
158. Abdel-Basset R, Friedl T, Mohr KI, Rybalka N, Martin W: High growth rate, photosynthesis rate and increased hydrogenase evolution in manganese deprived cells of a newly isolated *Nostoc*-like cyanobacterium (SAG 2306). *Int. J. Hydrog. Energ.* 36:12200–12210 (2011).
157. Russell MJ, Hall AJ, Martin W: Serpentinization as a source of energy at the origin of life. *Geobiology.* 8:355–371 (2010).
156. Mentel M, Martin W: Anaerobic animals from an ancient, anoxic ecological niche. *BMC Biology.* 8:32 [6 pages] (2010).
155. Lane N, Allen JF, Martin W: How did LUCA make a living? Chemiosmosis in the origin of life. *BioEssays* 32:271–280 (2010).
154. Tielens AGM, van Grinsven K, Henze K, van Hellemond J, Martin W: Acetate formation in the energy metabolism parasitic helminths and protists. *Int. J. Parasitol.* 40:387–397 (2010).
153. Ahmadinejad N, Gabaldón T, Gruenheit N, Martin W, Dagan T: Evolution of spliceosomal introns following endosymbiotic gene transfer. *BMC Evol. Biol.* 10:57 (2010).
152. Hazkani-Covo E, Zeller RM, Martin W: Molecular poltergeists: mitochondrial DNA copies (*numts*) in sequenced nuclear genomes. *PLoS Genet.* 6:e1000834 (2010).
151. Tucci S, Vacula R, Krajcovic J, Proksch P, Martin W: Variability of wax ester fermentation in natural and bleached *Euglena gracilis* strains in response to oxygen and the elongase inhibitor flufenacet. *J. Euk. Microbiol.* 57:63–69 (2010).
150. Martin W: Evolutionary origins of metabolic compartmentation in eukaryotes. *Phil. Trans Roy. Soc. Lond. B* 365:847–855 (2010).
149. Lane N, Martin W: The energetics of genome complexity. *Nature* 467:929–934 (2010).
148. Dagan T, Roettger M, Bryant D, Martin W: Genome networks root the tree of life between prokaryotic domains. *Genome Biol. Evol.* 2:379–392 (2010).
147. Roettger M, Martin W, Dagan T: A machine-learning approach reveals that alignment properties alone can accurately predict inference of lateral gene transfer from discordant phylogenies. *Mol. Biol. Evol.* 26:1931–1939 (2009).
146. Dagan T, Martin W: Getting a better picture of microbial evolution en route to a network of genomes. *Phil. Trans Roy. Soc. Lond. B* 364:2187–2196 (2009).
145. Atteia A, Adrait A, Brugière S, van Lis R, Tardif M, Deusch O, Dagan T, Kuhn L, Gontero B, Martin W, Garin G, Joyard J, Rolland N: A proteomic survey of *Chlamydomonas reinhardtii* mitochondria sheds new light on the metabolic plasticity of the organelle and on the nature of the  $\alpha$ -proteobacterial mitochondrial ancestor. *Mol. Biol. Evol.* 29:1533–1548 (2009).
144. Vesteg M, Vacula R, Burey S, Löffelhardt W, Drahovská H, Martin W, Krajcovic J: Expression of nucleus-encoded genes for chloroplast proteins in the flagellate *Euglena gracilis*. *J. Euk. Microbiol.* 56:159–166 (2009).
143. Baptiste E, O'Malley M, Beiko RG, Ereshefsky M, Gogarten JP, Franklin-Hall L, Lapointe F-J, Dupré J, Dagan T, Boucher Y, Martin W: Prokaryotic evolution and the tree of life are two different things. *Biol. Direct.* 4:34 (2009).



142. Ma Y, Jakowitsch J, Deusch O, Henze K, Martin W, Löffelhardt W: Transketolase from *Cyanophora paradoxa*: *in vitro* import into cyanelles and pea chloroplasts and a complex history of a gene often, but not always, transferred in the context of secondary endosymbiosis. *J. Euk. Microbiol.* 56:568–576 (2009).
141. Dagan T, Artzy-Randrup Y, Martin W: Modular networks and cumulative impact of lateral transfer in prokaryote genome evolution. *Proc. Natl. Acad. Sci. USA* 105:10039–10044 (2008).
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**Invited contributions, commentaries, correspondence (not peer reviewed):**

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30. Martin WF, Neukirchen S, Zimorski V, Gould SB, Sousa FL: Energy for two: New archaeal lineages and the origin of mitochondria. *BioEssays.* 38:850–856 (2016).
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21. Nelson-Sathi S, Popa O, List J-M, Geisler H, Martin WF, Dagan T: Reconstructing the lateral component of language history and genome evolution using network approaches. In: Fangerau H, Geisler H, Halling T, Martin W, eds. *Classification and Evolution in Biology, Linguistics and the History of Science. Concepts – Methods – Visualization*. Steiner, Stuttgart. pp. 163–180 (2013).
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#### **Books (edited):**

2. Fangerau H, Geisler H, Halling T, Martin W (eds) *Classification and Evolution in Biology, Linguistics and the History of Science. Concepts – Methods – Visualization*. 198 pp. Steiner, Verlag, Stuttgart (2013).
1. Martin W, Müller M (eds) *Origin of Mitochondria and Hydrogenosomes*. 316 pp. Springer Verlag, Heidelberg (2007).

#### **Book reviews:**

3. Big questions and skepsis. Review of *In Search of Cell History* by Franklin M. Harold. University of Chicago Press, Chicago, 2014. *BioEssays* 37:349–351 2015.
2. *The Principles of Life* by Tibor Gánti. Oxford University Press. Oxford, UK. *Trends Ecol. Evol.* 2004.

1. *Lateral DNA Transfer: Mechanisms and Consequences* (2002) by Frederic Bushman. Cold Spring Harbor Laboratory Press. Cold Spring Harbor, New York. *BioEssays* 24:482 (2002)

#### **Patents:**

1. Pyruvate:NADP<sup>+</sup> oxidoreductase and uses thereof. European Patent 00117730.2
2. TER gene of *Euglena gracilis*. European Patent 03022783.9

#### **Referee service (research funding)**

European Union FP7 (EU), European Research Council (EU), National Science Foundation (USA), Deutsche Forschungsgemeinschaft (D), US Department of Energy (USA), Science Foundation Ireland (IRL), Royal Society Wolfson Research Awards (UK), Wellcome Trust (UK), Wellcome Trust DBT Alliance (India), NASA (USA), German-Israeli Foundation (ISR), United States - Israel Binational Science Foundation (USA-ISR), Marsden Fund (NZ), John Templeton Foundation (USA), Natural Sciences and Engineering Research Council of Canada (CAN), Biotechnology and Biological Sciences Research Council (UK), Leverhulme Trust (UK), Bundesministerium für Bildung und Forschung (D), Minerva Stiftung (D-ISR), Schweizerischer Nationalfonds (CH), Netherlands Organization for Scientific Research (NL), Fonds zur Förderung der wissenschaftlichen Forschung (A), Agence Nationale de la Recherche (F), Hungarian National Research Fund (HU), Alexander von Humboldt Foundation (D), International Human Frontier Science Program (J), United States - Israel Binational Agricultural Research and Development Fund (USA-ISR), Volkswagen-Stiftung (D), European Commission Fellowships Programme (EU), EMBO Short Term Fellowships (EU), Deutscher Akademischer Austauschdienst (D), Istituto Pasteur-Fondazione Cenci Bolognetti (I), Binational Science Foundation (USA-ISR), International Science Foundation (USA), National Science Center (PL), University of Antwerp Research Council (B), Grant Agency of the Czech Republic (CZ), Sorus Foundation (USA), Shota Rustaveli National Science Foundation (Republic of Georgia), Fonds voor Wetenschappelijk Onderzoek - Vlaanderen (B), Thüringer Ministerium für Wissenschaft (D), Thomas F. and Kate Miller Jeffress Memorial Trust (USA), David and Lucile Packard Foundation (USA), Carl-Zeiss-Stiftung (D), The John Simon Guggenheim Memorial Foundation (USA)

#### **Referee service (journals)**

*Acta Biotheoretica, Advances in Ecology, American Journal of Botany, American Naturalist, Angewandte Chemie, Antonie van Leeuwenhoek, Applied Microbiology and Biotechnology, Archaea, Astrobiology, Biochimica et Biophysica Acta Bioenergetics, Biochimie, BioEssays, Bioinformatics, Biologia, Biological Chemistry, Biological Reviews, Biology Direct, Biophysical Journal, BioScience, BioSystems, BMC Bioinformatics, BMC Evolutionary Biology, BMC Genomics, Botanica Acta, Cell, Cell Systems, Cellulose, Central European Journal of Biology, Comparative Biochemistry and Physiology C, Current Biology, DNA Research, Earth and Planetary Science Letters, Elements, eLife, EMBO Journal, EMBO Reports, Environmental Microbiology, Eukaryotic Cell, European Journal of Biochemistry, Evolution, Experimental Parasitology, Frontiers in Zoology, Frontiers in Microbiology, Functional and Integrative Genomics, FEBS Journal, FEBS Letters, FEMS Microbiology Letters, FEMS Microbiological Reviews, Gene, Genome Biology, Genome Biology and Evolution, Genome Research, Heredity,*

*International Journal of Parasitology, International Journal of Molecular Sciences, International Journal of Systematic and Evolutionary Microbiology, Journal of Bacteriology, Journal of Basic Microbiology, Journal of Biology, Journal of Eukaryotic Microbiology, Journal of Experimental Zoology, Journal of Cell Biology, Journal of Cell Science, Journal of Heredity, Journal of Molecular Biology, Journal of Molecular Evolution, Journal of Proteome Research, Journal of Systems Chemistry, Journal of Theoretical Biology, Marine Biology, Marine Biotechnology, Marine Ecology, mBio, Metabolites, Microbiology (UK), Microbiology and Molecular Biology Reviews, Mitochondrion, Mobile Genetic Elements, Molecular and Cellular Biology, Molecular and Developmental Evolution, Molecular and General Genetics, Molecular Biology and Evolution, Molecular Microbiology, Molecular Phylogenetics and Evolution, Molecular Plant, Nature, Nature Communications, Nature Ecology and Evolution, Nature Genetics, Nature Plants, Nature Reviews Genetics, Nature Reviews Microbiology, Naturwissenschaften, Nucleic Acids Research, New Phytologist, Origin of Life and Evolution of the Biosphere, Philosophical Transactions of the Royal Society of London: Biological Sciences, Photosynthesis Research, Physiologia Plantarum, Phytochemistry, Plant Cell, Plant Molecular Biology, Plant Physiology, Plant Systematics and Evolution, Precambrian Research, Proceedings of the Royal Society: Series B, Proceedings of the Royal Society Biology Letters, Proceedings of the National Academy of Sciences USA, Protoplasma, PLoS Biology, PLoS Genetics, RNA Biology, Science, Science Advances, Scientific Reports, Systematic Biology, The ISME Journal, Theoretical and Applied Genetics, Trends in Biochemical Sciences, Trends in Ecology and Evolution, Trends in Genetics, Trends in Molecular Medicine, Trends in Parasitology, Trends in Plant Science, Zoology*

#### **Invited lectures, 2004-present**

12.16	Department of Geosciences, University of Heidelberg, D
12.16	Department of Microbiology, University of Dresden, D
11.16	Haus der Wissenschaft, Braunschweig, D
11.16	Annual Meeting of the Biochemical Society of Mexico, Aguascalientes, Mex
09.16	Royal Society workshop, Evolution of the Biological Pump, Kavli House, UK
07.16	Opening Plenary, 19th European Bioenergetics Conference, Riva del Garda, I
05.16	The Beilstein Symposium on Origin of Life, Cheiemsee, D
05.16	ITQB Oeiras, POR
04.16	The Rotary Club Düsseldorf, D
02.16	Weizmann Institute, Rehovot, ISR
01.16	New Year's Reception of the Rektorin, D
11.15	The Laboratory for Molecular Biology, Cambridge, UK
11.15	Pontifical Academy of Sciences, The Vatican
10.15	University of Münster, D
10.15	Inaugural Meeting of the Institute Biologie Paris Seine, F
09.15	Max-Planck-Institute for Cell Biology, Dresden, D
09.15	Biannual Meeting of the German Botanical Society (Plenary), Freising, D
09.15	Ökumenisches Bildungswerk, Hochdahl, D
08.15	Annual Meeting of the Italian Society for the Study of Evolution, Bologna, I
08.15	Society for the Study of Prokaryotic Photosynthesis (Opening Plenary), Tübingen D
06.15	Volcani Research Center, Tel Aviv, ISR
06.15	Biological Research Center, Szeged, H
05.15	Annual Meeting of the Belgian Biochemical Society, Louvain, B
03.15	Annual Meeting of the Society for General Microbiology (SGM), Birmingham, UK
03.15	Annual Meeting of the German Society for Microbiology (VAAM), D
01.15	GeoMar, University of Kiel, D
11.14	Université Paris 6, F
11.14	Symbiomics Conference, Mallorca, E
11.14	University of Edinburgh, UK
11.14	University of Zagreb, HR
10.14	Public lecture, "Leben" Naturwissenschaftliches Kolloquium, Gymnasium Norf, D

10.14 National Academy of Science Sackler Symposium on Endosymbiosis, Irvine, USA  
 09.14 HDBMB Croatian Society for Molecular Biology Conference, Zadar, HR  
 09.14 University of Luxembourg, LU  
 09.14 ITQB Molecular Biology PhD student retreat, Areia Branca, POR  
 09.14 The Genome: Structure, Expression, Evolution, Stazione Anton Dohrn, Naples, I  
 07.14 European Bioenergetics Conference, Lisbon, POR  
 06.14 Euroscience Open Forum, "What is Life?", Copenhagen, DK  
 06.14 Annual Student's Symposium, Gatersleben, D  
 04.14 SMBE Satellite Meeting on Evolutionary Networks, Kiel, D  
 04.14 Annual Meeting of the British Society for Protist Biology, Lancaster, UK  
 03.14 Public lecture, "Ursprung des Lebens", Universität in der Stadt series, Düsseldorf, D  
 02.14 Darwin Day Lecture, University of Oslo, NOR  
 02.14 Annual PhD Graduation Ceremony Special Lecture, University of Düsseldorf, D  
 01.14 Gulbenkian Institute, History of Biology Lecture Series, Oeiras, POR  
 12.13 Evolutionary Biology Lecture Series, University of Mainz, D  
 11.13 Kyoto Prize Symposium for Masatoshi Nei, National Institute of Genetics, Mishima, J  
 11.13 Early Earth Series, Earth Science Department, ETH Zürich, CH  
 10.13 EMBO Member's Meeting, Heidelberg, D  
 08.13 The EMBO Lecture, 12<sup>th</sup> Int. Conf. on Endocytobiology and Symbiosis, Halifax, CA  
 07.13 SMBE Annual Meeting, Symposium Major Gene Flows in Early Evolution, Chicago, USA  
 06.13 Spemann Graduate School of Biology and Medicine, University of Freiburg, D  
 05.13 Gulbenkian Institute, Oeiras, POR  
 05.13 Instituto de Tecnologia Química e Biológica, Lisbon, POR  
 05.13 PhD Graduate Programme, Gulbenkian Institute, Oeiras, POR  
 05.13 Institute Seminar Series, Gulbenkian Institute, Oeiras, POR  
 03.13 Annual Meeting of the German Society of Cell Biologists, Heidelberg, D  
 02.13 Planetarium Bochum, D  
 02.13 American Academy for the Advancement of Science Annual Meeting, Boston, USA  
 01.13 Ecology and Evolution Seminar Series, Princeton, USA  
 01.13 Institute for Theoretical Studies, Origin of Life Symposium, Princeton, USA  
 12.12 Faculty of Medicine, University of Marseille, F  
 11.12 Royal Society Kavli Centre, "Bioenergetics and the major evolutionary transitions" UK  
 11.12 Royal Society, "Energy transduction and genome function: an evolutionary synthesis" UK  
 10.12 Agouron Institute, "The comings and goings of early animal life" Washington DC, USA  
 09.12 Annual Meeting of the German Society for Gerontology, Bonn, D  
 09.12 Natural History Museum and Planetarium, Münster, D  
 08.12 Gordon Conference on Microbial C1 Metabolism, Maine, USA  
 07.12 Annual Meeting of the Society for Experimental Biology, Salzburg, A  
 06.12 Annual Meeting of the Società Botanica Italiana, Padua, I  
 05.12 University of Frankfurt am Main, D  
 05.12 EMBO Workshop Genome Evolution, Venice, I  
 04.12 NASA-NSF Workshop "Alternative Chemistries" Washington DC, USA  
 03.12 Florida State University, USA  
 02.12 Evolutionary Cell Biology, National Center for Biological Science, Bangalore, India  
 02.12 MSc Seminar series, University of Gießen, D  
 11.11 University of Strasbourg, Symposium "Proteins in Evolution", Strasbourg, F  
 11.11 University College London, Symposium "Origin of life", London, UK  
 10.11 Pufendorf Symposium "Enigmas in the early evolution of life", Lund, S  
 09.11 Molecular Evolution in the Genomic Era, University III, Rome, I  
 09.11 Public lecture "Was ist Leben?" Evangelische Stadtakademie, Düsseldorf, D  
 09.11 SFB-Symposium Endosymbiosis, Düsseldorf, D  
 09.11 Leopoldina Symposium "Was ist Leben?" Halle, D  
 09.11 University of Marburg, D  
 07.11 Genome Biology and Evolution Summer School, Gulbenkian Institute, Oeiras, POR  
 07.11 Darwin Symposium, European Society for Evolutionary Biology, Seia, POR  
 07.11 SMBE Microbial Genome Evolution session, Kyoto, JPN  
 07.11 SMBE History of Molecular Biology and Evolution session, Kyoto, JPN  
 07.11 The Evening Lecture, 11<sup>th</sup> European Workshop of Astrobiology, Cologne  
 05.11 International Conference on Plant Mitochondrial Biology, Hohenroda, D  
 04.11 CNRS 7138 Systematics, Adaptation and Evolution, Paris, F  
 04.11 University of Vienna, A  
 03.11 Nordrhein-Westfälische Akademie der Wissenschaften, D

02.11 University of Barcelona, E  
02.11 Earth Science Department, University of Washington, USA  
02.11 The Mindlin Lecture, University of Washington, USA  
01.11 University of Exeter, UK  
12.10 Biocomplexity XI: The Evolution of Cooperation, Indiana University, USA  
11.10 University of Nijmegen, NL  
10.10 The Peter-Hemmerich-Vorlesung 2010, University of Konstanz, D  
09.10 Energy and Entropy Symposium, Deutsche Luft- und Raumfahrt, Berlin, D  
09.10 Opening Plenary, Extremophiles 2010, The Azores, POR  
07.10 SMBE Tree of Life session, Lyon, F  
06.10 COST Endosymbiosis Meeting, Bad Bevensen, D  
06.10 Microbial Evolution Programme, University of Newcastle-Upon-Tyne, UK  
06.10 Ecology and Evolution Programme, University College London, UK  
05.10 Origin of Life (with Karl Stetter), Alfried Krupp Academy, Greifswald, D  
05.10 Evolution, Cusanuswerk, Nittendorf, D  
05.10 Department of Geological Sciences, Stockholm University, S  
05.10 New Frontiers in Microbial Genome Research, Bielefeld, D  
04.10 University of Bonn, D  
04.10 University of Giessen, D  
03.10 Sternwarte Neanderhöhe, Neanderthal, D  
03.10 BMBF Classification and Evolution, Bonn, D  
02.10 University of Utrecht, NL  
01.10 Instituto de Tecnologia Quimica e Biologica, Oeiras, POR  
12.09 Department of Chemistry, University of Jena, D  
12.09 Darwin Series, Botanical Garden Düsseldorf, D  
12.09 Academia Sinica, National Academy of Science of Taiwan  
11.09 Frontiers of Plant Science, Tai-Cheng University, Taiwan  
11.09 Opening Lecture, 51st Phylogenetics Symposium, Braunschweig, D  
11.09 Annual Meeting of the Swiss National Academy of Science, Lucerne, CH  
11.09 Virginia Tech University, USA  
10.09 Opening Lecture, ESF Meeting "Systems Chemistry II", Balatonfüred, H  
10.09 Dominikanerkonvent Düsseldorf, D  
10.09 Volkshochschule Kreefeld, D  
09.09 Willi Hennig Symposium, Hohenheim, D  
09.09 Leopoldina-Symposium on Organelle Genetics, Berlin, D  
09.09 Botaniker-Tagung, Leipzig, D  
08.09 BMBF annual retreat, Bergisch-Gladbach, D  
07.09 Perspectives on the Tree of Life, Dalhousie University, CAN  
07.09 University of Heidelberg, D  
06.09 Darwin Series, University of Osnabrück, D  
06.09 Darwin Series, Museum König, Bonn, D  
06.09 Technical University of Recklinghausen, D  
06.09 Opening Plenary Lecture, SMBE 09, Iowa, D  
05.09 Rüdiger Cerff's Retirement Symposium, University of Braunschweig, D  
05.09 University of Essen, D  
05.09 UNESCO Darwin 2000 Symposium, Venice, I  
03.09 Heinrich Heine Institut, Düsseldorf "Universität in der Stadt", D  
02.09 Opening Lecture, BioEd Darwin 2000 Symposium, Christchurch, NZ  
01.09 Howard Dalton Lecture, University of Warwick, UK  
01.09 G.E. Fogg Lecture, Queen Mary University of London, UK  
01.09 Dönberger Vortragsreihe, Ev. Gemeinde, Wuppertal, D  
12.08 Annual Lecture of the Systematics Association, London, UK  
11.08 University of Pittsburgh, USA  
11.08 Philosophical Society of America Tree of Life Workshop, Pittsburgh, USA  
10.08 UCLA Molecular Biology and Human Genetics, Los Angeles, USA  
10.08 CalTech Geological and Planetary Sciences, Pasadena, USA  
10.08 NASA Jet Propulsion Laboratory, Pasadena, USA  
09.08 Faculty of Natural Sciences, Comenius University, Bratislava, SLO  
07.08 De Bary Lecture on Symbiosis, University of Vienna, A  
07.08 Department of Marine Biology, University of Vienna, A  
05.08 Introductory Lecture in the Evolution Series, University of Halle, D  
03.08 Royal Society of New Zealand, Palmerston North, NZ



02.08 Katzir Workshop, The Unbearable Complexity of Life, Tel Aviv, ISR  
11.07 Royal Society Discussion Meeting, Evolution of Photosynthesis, London, UK  
10.07 University of Tübingen, D  
09.07 Endocytobiology X, Gmunden, A  
07.07 CNRS Marseille, F  
07.07 CIAR Evolutionary Biology Programme, Halifax, CAN  
06.07 SMBE Annual Meeting, Halifax, CAN  
06.07 German-Japanese Cyanobacteria Workshop, St. Goar, D  
05.07 Das Leben und sein Ursprung, ein Abend der Begegnung mit Kardinal Meissner, D  
05.07 EMBL, Heidelberg, Evolution in Schools, D  
05.07 Université Claude Bernard, Lyon, F  
04.07 Stazione Zoologica Anton Dorne, Naples, I  
03.07 Bayer Crop Science, Frankfurt am Main, D  
03.07 Naturwissenschaftliche Gesellschaft, Essen, D  
03.07 Massey University, Palmerston North, NZ  
02.07 Annual Invitational NZ Phylogenetics Conference, Mt. Ruapeho, NZ  
02.07 Otago University, Dunedin, NZ  
02.07 University of Canterbury, Christchurch, NZ  
01.07 University of Frankfurt am Main, D  
12.06 Bayer Crop Science Early Discovery Symposium, Monheim, D  
12.06 University of Bremen, D  
12.06 University of Münster, D  
10.06 Plant Genomics European Meeting, Venice, I  
09.06 Annual Meeting of the German Plant Genetics Society, Kiel, D  
06.06 University of Bayreuth, D  
06.06 International Symposium on Microbial Sulfer Metabolism, Münster, D  
06.06 Annual Meeting of the Italian Botanical Society, Alessandria, I  
05.06 From vent chemistry to biochemistry, Santa Fe Institute, New Mexico, USA  
04.06 Leopoldina Symposium, Microbial Life Strategies in the Environment, Bremen, D  
04.06 Society for General Microbiology, Warwick, UK  
03.06 Plenary Lecture, German Microbiological Society (VAAM) Jena, D  
03.06 Queen Mary University of London, UK  
03.06 Verein deutscher Biologen, Düsseldorf, D  
01.06 University of Florida at Gainesville, USA  
01.06 Evangelische Akademie, Arnoldshain, D  
01.06 Biocomplexity: Primary Producers of the Sea, Rutgers University, USA  
11.05 University of Essen, D  
11.05 University of Utrecht, NL  
10.05 100 Years of Endosymbiosis, Hamburg, D  
09.05 University of Göteborg, S  
07.05 International Botanical Congress, Vienna, A  
06.05 Archaea 2005, Munich, D  
06.05 SMBE Annual Meeting, Auckland, NZ  
06.05 American Society for Microbiology General Meeting, Atlanta, USA  
03.05 FEBS Workshop origins of chloroplasts and mitochondria, Widlbad Kreuth, D  
01.05 University of Bremen, D  
12.04 International Prize for Biology Symposium for Tom Cavalier-Smith, Tokyo, JPN  
11.04 University of Regensburg, D  
10.04 Michigan State DOE Plant Science Annual Retreat, Michigan, USA  
10.04 Society of German Biologists (vdbiol), Bonn, D  
10.04 German Botanical Society, Braunschweig, D  
10.04 RECOMB Annual Bioinformatics Meeting, I  
09.04 Origin of Life, Les Treilles, F  
07.04 PCA Bioinformatics, Stockholm, S  
07.04 Kosef Korean-German Cooperation Meeting, Berlin, D  
05.04 CIAR-NASA Gene Transfer and Eukaryote Origins, Vancouver, CDN  
04.04 University of Bern, CH  
04.04 BASF Plant Science, Ludwigshafen, D  
03.04 University of Amsterdam, NL  
03.04 Plant Molecular Biology, Dabringhausen, D  
01.04 Stazione Anton Dorne, Napoli, I  
1998-2003 79 additional national and international talks

## PhD Students graduated and current

1. Gilbert Meyer-Gauen	1990-1994	Evolution of glyceraldehyde-3-phosphate dehydrogenase genes
2. Uta-Regina Böhle	1992-1996	Evolution of insular woodiness in the genus <i>Echium</i>
3. Katrin Henze	1993-1997	Origin and evolution of higher plant Calvin cycle genes
4. Jörg Bohlmann	1993-1997	Higher plant anthranilate synthase enzymes and genes
5. Michael Donath	1994-1998	Intron dependent gene expression in plants
6. Vadim Goremykin	1994-1998	Chloroplast DNA phylogeny and evolution
7. Dorothea Tholl	1994-1998	Bacterial homospermidine synthase enzyme and gene
8. Ulrich Nowitzki	1996-2000	Origin and evolution of plant sugar phosphate metabolism
9. Jens Pahnke	1996-2002	Molecular approaches to fern phylogeny
10. Sabine Hansmann	1997-2001	Chloroplast DNA evolution and molecular phylogenetic signal
11. Andrea Hansen	1998-2002	Amino acid biosynthesis pathway evolution
12. Carmen Rotte	1999-2003	Evolution of <i>Euglena</i> pyruvate:ferredoxin oxidoreductase
13. Sandra Trenkamp	2000-2004	Higher plant very long chain fatty acid elongases
14. Meike Hoffmeister	2000-2004	Anaerobic energy metabolism in <i>Euglena</i> mitochondria
15. Ursula Theissen	2002-2006	Sulfide:quinone oxidoreductase in <i>Arenicoa</i> mitochondria
16. Christian Winkler	2002-2006	Higher plant ATP-dependent phosphofructokinase
17. Simone Pütz	2003-2007	Evolutionary proteomics of <i>Trichomonas</i> hydrogenosomes
18. Benjamin Kilian	2003-2007	Evolution and domestication of Middle East diploid wheats
19. Gabriel Gelius-Dietrich	2003-2008	Biochemistry and evolution of chytrid hydrogenosomes
20. Sara Tucci	2004-2008	Wax ester fermentation in <i>Euglena</i> mitochondria
21. Silke Rosnowsky	2004-2008	Transformation of <i>Trichomonas vaginalis</i>
22. Nahal Ahamdinedjad	2005-2009	Evolutionary bioinformatics of mitochondrial genomes
23. Britta Delvos	2005-2009	Oomycete cell wall biosynthesis
24. Oliver Deusch	2005-2009	Genome evolution and the cyanobacterial origin of plastids
25. Nicole Grünheit	2006-2010	Evolutionary dynamics of eukaryotic organellar genes
26. Christian Esser	2006-2010	Evolutionary origins of eukaryotic nuclear genes
27. Verena Zimorski	2006-2010	Mechanisms of protein targeting to <i>Trichomonas</i> hydrogenosomes
28. Xavier Peirera-Bras	2007-2012	Biochemical compartmentation in <i>Trichomonas</i> hydrogenosomes
29. Mayo Röttger	2007-2013	Cyanobacterial genome evolution in Section V and plastid origins
30. Shijulal Nelson-Sathi	2008-2013	Networks of language evolution and gene transfer in Haloarchaea
31. Peter Major	2008-2013	Signals of protein targeting to <i>Trichomonas</i> hydrogenosomes
32. Houda El-Haddad	2010-2013	Cytoskeletal evolution in <i>Tetrahymena thermophila</i>
33. David Bogumil	2010-2013	Chaperone-dependent protein evolution networks
34. Gary Kusdian	2010-2014	The amoeboid transition in <i>Trichomonas vaginalis</i>
35. Christian Wöhle	2010-2014	Evolutionary origins of <i>Chromera velia</i> nuclear genes
36. Kathrin Hoffmann	2009-2014	Aminotermini of <i>Trichomonas</i> hydrogenosomal proteins
37. Thorsten Thiergart	2010-2015	Genome evolution networks linking prokaryotes and eukaryotes
38. Ovidiu Popa	2009-2015	Directed networks of lateral gene transfer
39. Jan de Vries	2013-2016	Molecular basis of plastid longevity in <i>Elysia</i>
40. Chuan Ku	2013-2016	Endosymbiosis and the origin of eukaryotic genes
41. Nabor Chavez	2012-	Networks and methanogen evolution
42. Harald Preisner	2013-	Cytoskeleton and amoeboid transformation of <i>Trichomonas</i>
43. Thorsten Klösges	2009-	Proteobacterial genome evolution networks
44. Sriram Garg	2013-	The evolution of eukaryotic cell biology
45. Sinje Neukirchen	2015-	Evolution of prokaryotic sulfur reduction
46. Madeline Weiß	2015-	The habitat and physiology of LUCA
47. Natalia Mrnjavac	2015-	Coevolution of radical SAM enzymes and the genetic code

## Organizational scientific activities

- 11.12 Co-Organizer, Royal Society Discussion Meeting: Energy Transduction and Genome Function: an Evolutionary Synthesis, London
- 03.09 Organizer, Japan Society for Promotion of Science joint German-Japanese Conference, „Genome Evolution“ Bad Honnef Germany,
- 09.05 Organizing Committee: DFG-NSF Biodiversity Meeting, Washington D.C.
- 06.03 Organizing Committee: Botanikertagung 2004, Braunschweig
- 01.03-12.07 Coordinator, DFG SPP 1127 Radiations: Origins of Biological Diversity
- 10.02 American Academy of Microbiology Colloquium "The Global Genome Question", Longboat Key, Florida
- 01.01 Co-Initiator (with K. Bachmann), DFG SPP 1127 Radiations: Origins of Biological Diversity
- 10.00 Coorganizer, Discussion Meeting "Theoretical Biology" Oberwolfach
- 09.00 Chair, "Organelle Evolution" Gordon Conference on Mitochondria and Chloroplasts
- 08.00 Organizing Committee: Botanikertagung 2000, Jena
- 07.00 Organizer: EMBO Workshop, "Origins of Cells and Organelles", Sweden
- 09.99 Scientific Committee "2<sup>nd</sup> European Phycological Congress," Italy
- 04.98 Organizing Committee "Endocytobiology VII," Freiburg
- 03.94 DFG-Workshop "Computeranalyse Molekularer Daten", Cologne
- 06.93 EMBO-Workshop "Molecular Evolution" am EMBL, Heidelberg
- 12.92 Research visit, Observatoire Oceanologique de Roscoff, Frankreich
- 08.92 Visiting Scientist, Laboratoire de Biologie Moléculaire Végétale, Université Joseph Fourier, Grenoble, Frankreich
- 06.92 Organizer: DFG Workshop "cDNA-Cloning" (3 weeks, 12 participants, Braunschweig)
- 02.90 Visiting Scientist, Laboratoire de Biologie Moléculaire Végétale, Université Joseph Fourier, Grenoble, Frankreich
- 09.91 Research visit, Observatoire Oceanologique de Roscoff, Frankreich
- 06.91 Visiting Scientist, Laboratoire de Biologie Moléculaire Végétale, Université Joseph Fourier, Grenoble, Frankreich

## Twelve most important publications

- Martin** W, Brinkmann H, Savona C, Cerff R: Evidence for a chimaeric nature of nuclear genomes: Eubacterial origin of eukaryotic glyceraldehyde-3-phosphate dehydrogenase genes. *Proc. Natl. Acad. Sci. USA* 90:8692–8696 (1993).
- Martin** W, Stoebe B, Goremykin V, Hansmann S, Hasegawa M, Kowallik KV: Gene transfer to the nucleus and the evolution of chloroplasts. *Nature* 393:162–165 (1998).
- Martin** W, Müller M: The hydrogen hypothesis for the first eukaryote. *Nature* 392:37–41 (1998).
- Martin** W, Rujan T, Richly E, Hansen A, Cornelsen S, Lins T, Leister D, Stoebe B, Hasegawa M, Penny D: Evolutionary analysis of *Arabidopsis*, cyanobacterial, and chloroplast genomes reveals plastid phylogeny and thousands of cyanobacterial genes in the nucleus. *Proc. Natl. Acad. Sci. USA* 99:12246–12251 (2002).
- Martin** W, Russell MJ: On the origins of cells: An hypothesis for the evolutionary transitions from abiotic geochemistry to chemoautotrophic prokaryotes, and from prokaryotes to nucleated cells. *Phil. Trans Roy. Soc. Lond. B* 358:59–85 (2003).
- Timmis JN, Ayliffe MA, Huang CY, **Martin** W: Endosymbiotic gene transfer: Organelle genomes forge eukaryotic chromosomes. *Nature Rev. Genet.* 5:123–135 (2004).
- Embley TM, **Martin** W: Eukaryote evolution: changes and challenges. *Nature* 440:623–630 (2006).
- Martin** W, Baross J, Kelley D, Russell MJ: Hydrothermal vents and the origin of life. *Nature Rev. Microbiol.* 6:805–814 (2008).
- Lane N, **Martin** W: The energetics of genome complexity. *Nature* 467:929–934 (2010).
- Lane N, **Martin** WF: The origin of membrane bioenergetics. *Cell* 151:1406–1416 (2012).
- Nelson-Sathi S, Sousa FL, Röttger M, Lozada-Chávez N, Thiergart T, Janssen A, Bryant D, Landan G, Schönheit P, Siebers B, McInerney JO, **Martin** WF: Origins of major archaeal clades correspond to gene acquisitions from bacteria. *Nature* 517:77–80 (2015).
- Ku C, Nelson-Sathi S, Roettger M, Sousa FL, Lockhart PJ, Bryant D, Hazkani-Covo E, McInerney JO, Landan GL, **Martin** WF: Endosymbiotic origin and differential loss of eukaryotic genes. *Nature* 524:427–432 (2015).

## Current University Teaching (Düsseldorf)

	No.*	Duration	Type	Students
<b>Fall Semester</b>				
BSc Cell Compartmentation in Protists	427	2 weeks all day	Ü+VL	ca. 18
BSc Bioinformatics I: Grundlagen der Genomeanalyse	419	2 weeks all day	Ü+VL	ca. 40
BSc Advanced Bioinformatics (Perl für Biologen)	433	2 weeks all day	Ü+VL	ca. 40
MSc Evolution and Biochemistry of Organelles	4406	6 weeks all day	Ü+VL	ca. 18
Seminar: Molecular Evolution		1 h per week	VL	ca. 24
Plant Physiology Lab Practical (shared teaching)		4 SWS	Ü	18
Advanced lab practicals (wet lab or computer)				
BSc and MSc theses				
PhD supervision				

## Spring Semester

MSc Evolution und Zellbiologie der Protisten	4423	6 weeks all day	Ü+VL	ca. 18
MSc Advanced Bioinformatics for Masters Students	4449	6 weeks all day	Ü+VL	ca. 12
Seminar: Molecular Evolution		1 h per week	VL	ca. 24
Advanced lab practicals (wet lab or computer)				
BSc and MSc theses				
PhD supervision				

Ü, Lab practical

VL, Lecture

SWS hour per week per semester

\* course number in Düsseldorf Biology Curriculum, see: <http://www.molevol.hhu.de/unsere-lehre.html>