CURRICULUM VITAE
ANDREW J. ROGER
September, 2018

Centre for Comparative Genomics & Evolutionary Bioinformatics
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Canadian citizen

ACADEMIC POSITIONS

06/10 – present **Canada Research Chair (Tier I) in Comparative Genomics and Evolutionary Bioinformatics (7-year award; renewed in 2017)**

06/09 – present **Professor, Department of Biochemistry and Molecular Biology, Dalhousie University**

06/04 – 05/09 Associate Professor, Department of Biochemistry and Molecular Biology, Dalhousie University

12/05 – 08/06 Honorary Research Fellow (sabbatical), Bioinformatics Institute, The University of Auckland, Auckland, New Zealand

07/99 – 06/04 Assistant Professor, Department of Biochemistry and Molecular Biology, Dalhousie University

EDUCATION AND POSTDOCTORAL POSITIONS

1997 – 1999 N.S.E.R.C. Postdoctoral Fellow, The Josephine Bay Paul Center for Comparative Molecular Biology and Evolution, Marine Biological Laboratory, Woods Hole, MA (with M.L. Sogin)

1991 – 1997 Ph.D., Dept. of Biochemistry, Dalhousie University, Halifax, N.S. (with W.F. Doolittle). Thesis title: Studies on the phylogeny and gene structure of early-branching eukaryotes.

1989 – 1991 B.Sc. Honours Biochemistry (Class 1), Science scholar, University of British Columbia, Vancouver, B.C. Honours thesis project with T. Cavalier-Smith

DISTINCTIONS, SCHOLARSHIPS, FELLOWSHIPS, ACADEMIC HONOURS

2017 Recipient of the **Max Forman Senior Research Prize** from the Dalhousie Medical Research Foundation
2014 Elected as **Fellow of the American Academy of Microbiology**
2012 Elected as **Fellow of the Royal Society of Canada**

2010	Awarded **Tier 1, Canada Research Chair** in Comparative Genomics and Evolutionary Bioinformatics
2010	Recipient of the **2010 Seymour Hutner Award** from the International Society of Protistologists
2008 – 2017	**Director** of the Centre for Comparative Genomics and Evolutionary Bioinformatics (CGEB) at Dalhousie University (*www.cgeb.dal.ca*)
2007 – 2017	**Senior Fellow**, CIFAR - Program in Integrated Microbial Biodiversity (IMB)
2007 – 2009	**NSERC E.W.R. Steacie Memorial Fellowship** (one of six given annually)
2007	**Visiting Fellow**, Isaac Newton Institute for Mathematical Sciences, Cambridge University, Cambridge, U.K.
2005	Dalhousie Medical Research Foundation, **Award of Excellence for Basic Research**
2005	**Finalist,** Emerging Professional Category, Discovery Awards in Science & Technology (Discovery Centre, Halifax, Nova Scotia)
2005 – 2007	**Fellow**, CIFAR Program in Evolutionary Biology
2004 – 2009	**Peter Lougheed/CIHR New Investigator Salary award** (award for first place in the CIHR New Investigator competition)
2004	**Sloan Research Fellowship** (Alfred P. Sloan Foundation)
1999 – 2004	**Scotiabank Scholar**, Canadian Institute for Advanced Research (CIAR), Program in Evolutionary Biology (provides external salary)
1997 – 1999	Natural Sciences and Engineering Research Council of Canada (NSERC) **Postdoctoral Fellowship**
1999	Medical Research Council of Canada **Postdoctoral Fellowship (declined)**
1997	Patrick Prize in Biochemistry, Dalhousie University
1995 - 1996	Medical Research Council of Canada Graduate Studentship
1991 - 1995	NSERC 1967 Science and Engineering Graduate Scholarship
1991 - 1993	Izaak Walton Killam Memorial Scholarship
1990 - 1991	University of BC Scholarship (and in 1988 - 1989)
1989 - 1990	Charles and Jane Banks Scholarship
1989 - 1990	Olof Sjobom Seaholm Memorial Scholarship

RESEARCH SUPPORT CURRENTLY HELD

2018 **Dalhousie Medical Research Foundation, Capital Equipment Grant,** $30,000 (co-applicant with PI – G. Dellaire, and 6 others)

2017 – 2024 **Canada Research Chair – Tier I (CIHR)** in Comparative Genomics and Evolutionary Bioinformatics, $200,000/year (includes 7-yr. salary award, 20% of which is research allowance); 7-year renewal from 2010-2017

2016 - 2021 **Natural Sciences and Engineering Research Council of Canada (NSERC)** Discovery Grant, $52,000/year for 5 years - *"Phylogenomic approaches to inferring ancient relationships among eukaryotes"* **(PI – A.J. Roger)**

2015 – 2020 **Canadian Institutes of Health Research, Transitional Operating Grant**, $144,993/year for 5 years – *"Anaerobic eukaryotic microbes and the human microbiome: a genomic and metagenomic study"* (**PI – A.J. Roger, with co-applicant A.G.B. Simpson**)

RESEARCH SUPPORT HELD IN THE PAST

2015 – 2017 **Nova Scotia Health Research Foundation, Scotia Support Grant**, $24,750/year for 2 years – "*Genomic and metagenomic approaches to elucidating the roles of protozoan parasites in the human gut microbiome*" **(PI – A.J. Roger)**

2012 – 2017 **Canadian Institute for Advanced Research (CIFAR)**, $24,000/year research support funds for 5 years **(PI – A.J. Roger)**

2010 – 2017 **Canada Research Chair – Tier I (CIHR)** in Comparative Genomics and Evolutionary Bioinformatics, $200,000/year (includes 7-yr. salary award, 20% of which is research allowance)

2011 - 2016 **Natural Sciences and Engineering Research Council of Canada (NSERC)** Discovery Grant, $54,000/year for 5 years (plus $40,000/year for first 3 years (2011-14) as an NSERC Accelerator Supplement) - *"Phylogenomic approaches to inferring ancient relationships amongst eukaryotes"* **(PI – A.J. Roger)**

2014 - 2016 **Dalhousie University – Strategic Research Initiatives Fund**, $100,000/year for 2 years – "*An integrated resource for metagenomics and microbiomics in Atlantic Canada*" (co-applicant with PI – W.F. Doolittle, and 9 others)

2014 - 2015 **Faculty of Medicine, Dalhousie University**, $40,000 (bridge funding), **PI – A.J. Roger**

2013 - 2015 **CIHR Operating Grant - Priority Announcement: Regional Partnership Program Nova Scotia**, $82,686/year for 2 years – "*Eukaryotic organelles, parasites and multicellularity: Comparative genomic and proteomic approaches*" **(PI – A.J. Roger)**

2007 – 2015 **Tula Foundation**, Centre for Comparative Genomics and Evolutionary Bioinformatics (CGEB) – Administration support, Seminar Series and Student Travel Grant, $50,000/year for 8 years (**PI – A.J. Roger, with 9 others**)

2008 – 2013 **Canadian Institutes of Health Research, Operating Grant** (renewal of MOP - 62809), $719,381 over 5 years – *"Major transitions in eukaryotic cell evolution"* (**PI – A.J. Roger, with A.G.B. Simpson as co-investigator**)

2012 – 2013 **Natural Sciences and Engineering Research Council of Canada (NSERC) EQPEQ – Research Tools and Instruments - Category 1**: $147,455 (PI – C. Slamovits, **co-investigators: A.J. Roger** & J.M. Archibald)

2007 – 2012 **Canadian Institute for Advanced Research (CIFAR)**, $25,000/year research support funds for 5 years **(PI – A.J. Roger)**

2011 - 2012 **Canada Foundation for Innovation/NSRIT/Dalhousie University Faculty of Medicine** – A new laboratory for comparative genomics and evolutionary bioinformatics, $301,664 (renovation and equipment grant accompanying CRC) **(PI – A.J. Roger)**

2007 – 2012 **Tula Foundation**, CGEB Molecular Biology Postdoctoral Fellowship, $64,000/year for 5 years (funding for postdoctoral fellowship plus research expenses) (**PI – A.J. Roger**)

2005 – 2010 **Natural Sciences and Engineering Research Council of Canada (NSERC)** Discovery Grant, $41,300/year for 5 years –*"Phylogenomic approaches to inferring ancient relationships amongst eukaryotes"* (**PI – A.J. Roger**)

2007 – 2009 **E.W.R. Steacie Fellowship Supplement, NSERC**, $238,624 over 2 years – "*Determining the super-kingdoms of eukaryotes*" (**PI – A.J. Roger**)

2007 **NSERC** Research Tools and Infrastructure Grant $55,591 – "*An Xserve computer cluster for phylogenetic and comparative genomic analysis*" (**PI – A.J. Roger**)

2004 – 2008 **Alfred P. Sloan Foundation Research Fellowship**, $40,000 USD – *"Understanding genome and proteome evolution"* (**PI – A.J. Roger**)

2004 – 2007 **CIHR/Peter Lougheed New Investigator Award Research Grant** $250,000 over 3 years – "*The origins and evolution of genes and organelles in eukaryotes*" (**PI – A.J. Roger**)

2003 – 2008 **Canadian Institutes for Health Research, Operating Grant** (MOP - 62809), $107,815/year for 5 years – *"The origins and evolution of genes and organelles in eukaryotes"* (**PI – A.J. Roger**)

2002 – 2005 **Canadian Institutes for Health Research, Multiuser Equipment/Maintenance Grant,** $593,792 – *"A new TEM for the Faculty of Medicine Electron Microscope Facility/EM Maintenance contract for existing TEM in EM facility"* (PI – G.C. Johnston, **co-investigator: A.J. Roger** and others)

2001 – 2005 **Genome Atlantic - Genome Canada/Atlantic Innovation Fund** Large-scale Project: *"The Protist EST Program"*, Genomics Grant: ~$3,208,612 over 4 years (PI – M.W. Gray, **Co-investigators: A.J. Roger** and 8 others)

2001 – 2005 **Genome Atlantic - Genome Canada/ Atlantic Innovation Fund** Large-scale Project: *"Prokaryotic genome evolution and diversity: from genomics to metagenomics"*, Genomics grant: ~$4,442,900 budgeted over 4 years (PI – W. F. Doolittle, **co-investigators: A.J. Roger** and 5 others)

2000 – 2004 **NSERC Operating Grant** (#227085-00) $35,000/year for 4 years – "*Exploring eukaryote evolution with protein phylogeny"* (**PI – A.J. Roger**)

2000 – 2003 **NSERC Genomics Grant** (#228263-99) $431,775 over 3 years – *"Gene discovery in protists by random sequencing and comparative genomics"* (**PI – A.J. Roger**, co-investigators: T. M. Embley, J. M. Logsdon and M. Ragan)

2000 – 2001 **Dalhousie Medical Research Foundation** – equipment grant for $26,762.25 for 1 year (**PI – A.J. Roger**)

1999 – 2000 **Dalhousie University, Faculty of Medicine Intramural Operating Support** – grant for $9990 for 1 year – *"Protein phylogenetics and early eukaryote evolution"* (**PI – A. J. Roger**)

1999 - 2000 **Canada Foundation for Innovation (CFI) New Investigator Grant** - $200,000 (to set up automated sequencing facility) – *"A laboratory for comparative genomics"* (**PI – A.J. Roger** with W. F. Doolittle and M. W. Gray as co-investigators)

1999 - 2000 **Startup funds from Dept. of Biochemistry and Molecular Biology/Faculty of Medicine, Dalhousie University** - $120,000 ($50,000 was used as matching funds for CFI above)

1998 – 2003 **National Aeronautics & Space Administration (NASA)** Cooperative Agreement, Astrobiology Institute – "*Environmental Genomes and the Evolution of Complex Systems in Simple Organisms."* (PI – M.L. Sogin with **A. J. Roger** as one of 8 **co-investigators**).

GENOME PROJECT INVOLVEMENT/ADVOCACY

2006 **Main applicant** in *"Animals and Fungi: Common Origin, but Independent Approaches to Multicellularity"*, a multiple genome sequencing project funded by the National Human Genome Research Institute (NHGRI) in May 2006

RESEARCH MANUSCRIPTS - SUBMITTED: (N=4)

1. **Roger, A.**, Kolísko, M. and Doležal, P. (2018) A single tim translocase in the mitosomes of *Giardia intestinalis* illustrates convergence of protein import machines in anaerobic eukaryotes. Submitted to *Genome Biol. Evol.*

2. Hess, S., Eme, L., **Roger, A.J.R.** and Simpson, A.G.B. (2018) A natural toroidal microswimmer propelled by a rotary eukaryotic flagellum. Submitted to *Nature Microbiol*.

3. Karnkowska, A., Treitli, S.C., Brzoň, O., Novák, L., Vacek, V., Soukal, P., Barlow, L.D., Herman, E.K., Pipaliya, S., Pánek, T., Žihala, D., Petrželková, R., Butenko, A., Eme, L., Stairs, C.W., **Roger**, **A.J.,** Eliáš, M., Dacks, J.B. and Hampl, V. (2018) The *Monocercomonoides exilis* genome displays canonical eukaryotic complexity in the absence of a mitochondrion. Submitted to *Genome Biol.*

4. Wang H.-C., Susko E. and **Roger, A.J.** (2018) The relative importance of modeling site pattern heterogeneity versus partition-wise heterotachy in phylogenomic inference. Submitted to *Systematic Biol*.

RESEARCH MANUSCRIPTS PUBLISHED, OR IN PRESS: (N=152)
(ROGER LAB TRAINEES ARE UNDERLINED)

152. Lax, G., Eglit, Y., Eme, L., Bertrand, E.M., **Roger, A.J.** and Simpson, A.G.B. (2018) Hemimastigophora is a novel supra-kingdom-level lineage of eukaryotes. *Nature*, *in press*.

151. **Roger, A.J.** and Susko, E. (2018) Molecular clocks provide little information to date methanogenic archaea. *Nature Ecol. Evol., in press*.

150. Stairs, C.W., Eme, L., Muñoz-Gómez, S., Cohen, A., Dellaire, G., Shepherd, J.N., Fawcett, J.P. and **Roger, AJ.** (2018) Microbial eukaryotes have adapted to hypoxia by horizontal acquisitions of a gene involved in rhodoquinone biosynthesis. *eLife* 7: e34292.

149. Susko, E., Lincker, L. and **Roger, A.J.** (2018) Accelerated estimation of frequency classes in site-heterogeneous profile mixture models. *Mol. Biol. Evol*. 35: 1266-1283.

148. Heiss, A., Kolisko, M., Ekelund, F., Brown, M.W., **Roger, A.J.** and Simpson, A.G. (2018) Combined morphological and phylogenomic re-examination of malawimonads, a critical taxon for inferring the evolutionary history of eukaryotes. *Roy. Soc. Open Sci*. 5: 171707.

147. Brown, M.W., Heiss, A.A., Kamikawa, R., Inagaki, Y., Yabuki, A., Tice, A.K., Shiratori, T., Ishida, K.I., Hashimoto, T., Simpson, A.G.B. and **Roger, A.J**. (2018) Phylogenomics places orphan protistan lineages in a novel eukaryotic super-group. *Genome Biol. Evol.* 10: 427-433.

146. Wang, H.-C., Minh, B.Q., Susko, E. and **Roger, A.J.** (2018) Modeling site heterogeneity with posterior mean site frequency profiles accelerates accurate phylogenomic estimation. *Syst. Biol*. 67: 216-235.

145. Gentekaki, E., Curtis, B.A., Stairs, C.W., Klimes, V., Elias, M., Salas-Leiva, D.E., Herman, E.K., Eme, L., Arias, M.C., Henrissat, B., Hilliou, F., Klute, M.J., Suga, H., Malik, S.-B., Pightling, A.W., Kolisko, M., Rachubinski, R.A., Schlacht, A., Soanes, D.M., Tsaousis, A.D., Archibald, J.M., Ball, S.G., Dacks, J.B., Clark, C.G., van der Giezen, M. and **Roger, A.J.** (2017) Extreme genome diversity in the hyper-prevalent parasitic eukaryote *Blastocystis*. *PLoS Biol*. 15: e2003769.

144. Harding, T., **Roger, A.J**. and Simpson, A.G.B. (2017) Adaptations to high salt in a halophilic protist: differential expression and gene acquisitions through duplications and gene transfers. *Front Microbiol*. 8: 944.

143. Kang, S., Tice, A.K., Spiegel, F.W., Silberman, J.D., Pánek, T., Cepicka, I., Kostka, M., Kosakyan, A., Alcântara, D.M., **Roger, A.J.**, Shadwick L.L., Smirnov A., Kudryavstev A., Lahr D.J.G. and Brown, M.W. (2017) Between a pod and a hard test: the deep evolution of amoebae. *Mol. Biol. Evol.* 34: 2258-2270.

142. Takishita, K., Chikaraishi, Y.,Tanifuji, G., Ohkouchi, N., Hashimoto, T., Fujikura, K. and **Roger, A.J.** (2017) Microbial eukaryotes that lack sterols. *J. Eukaryot. Microbiol*. 64: 897-900.

141. Yang, J., Harding, T., Kamikawa, R., Simpson, A.G.B. and **Roger, A.J.** (2017) Mitochondrial genome evolution and a novel RNA editing system in deep-branching heteroloboseids. *Genome Biol. Evol.* 9: 1161-1174.

140. Leger, M.M., Kolisko, M., Kamikawa, R., Stairs, C.W., Kume, K., Čepicka, I., Silberman, J.D., Andersson, J.O., Xu, F., Yabuki, A., Eme, L., Zhang, Q., Takishita, K., Inagaki, Y., Simpson, A.G.B., Hashimoto, T. and **Roger, A.J.** (2017) Organelles that illuminate the origins of *Trichomonas* hydrogenosomes and *Giardia* mitosomes. *Nature Ecol. Evol.* 1:

0092.

139. Eme L., Gentekaki, E., Curtis, B., Archibald, J.M. and **Roger A.J.** (2017) Lateral gene transfer in the adaptation of the anaerobic parasite *Blastocystis* to the gut. *Curr. Biol.* 27*:* 807-820.

138. Pánek, T., Žihala, D., Sokol, M., Derelle, R., Klimeš, V., Hradilová, M., Zadrobílková, E., Susko, E., **Roger, A.J**., Cepĭcka, I. and Eliáš, M. (2017). Nuclear genetic codes with a different meaning of the UAG and the UAA condon. *BMC Biol.* 15: 8.

137. Munoz-Gomez, S.A., Wideman, J.G., **Roger, A.J**. and Slamovits, C.H. (2017) The origin of mitochondrial cristae from alphaproteobacteria. *Mol. Biol. Evol*. 34: 943-956.

136. Novák, L., Zubáčová, Z., Karnkowska, A., Kolisko, M., Hroudová, M., Stairs, C.W., Simpson, A.G., Keeling, P.J., **Roger, A.J.,** Čepička, I. and Hampl, V. (2016) Arginine deiminase pathway enzymes: evolutionary history in metamonads and other eukaryotes. *BMC Evol. Biol* 16: 197.

135. Pyrih, J., Martincova, E., Kolísko, M., Stojanovová, D., Basu, S., Harant, K., Haindrich, A.C., Lukeš, J., **Roger, A.J**. and Tachezy, J. (2016) Minimal cytosolic iron-sulfur cluster assembly machinery of *Giardia intestinalis* is partially associated with mitosomes. *Mol. Microbiol.* 102: 701-714.

134. Wang, H., Susko, E. and **Roger A.J.** (2016) Split-specific bootstrap measures for quantifying phylogenetic stability and the influence of taxon selection. *Mol. Phylogenet. Evol*. 105: 114-125.

133. Gawryluk, R., Kamikawa, R., Stairs, C.W., Brown, M.W., Silberman, J.D. and **Roger, A.J.** (2016) The earliest stages of mitochondrial adaptation to low oxygen revealed in a novel rhizarian. *Curr. Biol*. 26: 2729-2738.

132. Xu, F., Jerlström-Hultqvist, J., Kolisko, M., Simpson, A.G., **Roger, A.J.**, Svärd, S.G. and Andersson, J.O. (2016) On the reversibility of parasitism: adaptation to a free-living lifestyle via gene acquisitions in the diplomonad *Trepomonas* sp. PC1. *BMC Biol*. 14: 62. [Erratum in *BMC Biol.* (2016*)* 14: 77].

131. Leger, M.M., Eme, L., Hug, L.A. and **Roger, A.J.** (2016) Novel hydrogenosomes in the microaerophilic jakobid *Stygiella incarcerata*. *Mol. Biol. Evol.* 33: 2318-2336. [Corrigendum correction in *Mol. Biol. Evol*. Feb. 2, 2017; doi: 10.1093/molbev/msx059].

130. Harding, T., Brown, M.W., Simpson, A.G.B. and **Roger, A.J.** (2016) Osmoadaptative strategy and its molecular signature in obligately halophilic heterotrophic protists. *Genome Biol. Evol.* 8: 2241-2258.

129. Hamann, E., Gruber-Vodicka, H., Kleiner, M., Tegetmeyer, H., Riedel, D., Littmann, S., Chen, J., Milucka, J., Viehweger, B., Becker, K., Dong, X., Stairs, C.W., Hinrichs, K., Brown, M.W., **Roger, A.J.**and Strous, M. (2016) Environmental Breviatea harbor mutualistic *Arcobacter* epibionts. *Nature* 534: 254-258.

128. Karnkowska, A., Vacek, V., Zubáčová, Z., Treitli, S.C., Petrželková, R., Eme, L., Novák, L., Žárský, V., Barlow, L.D., Herman, E.K., Soukal, P., Hroudová, M., Doležal, P., Stairs, C.W., **Roger, A.J.**, Eliáš, M., Dacks, J.B., Vlček, Č. and Hampl V. (2016) A eukaryote without a mitochondrial organelle. *Curr. Biol.* 26: 1274-1284.

127. Kamikawa, R., Shiratori, T., Ishida, K., Miyashita, H. and **Roger, A.J**. (2016) Group II intron-mediated trans-splicing in the gene-rich mitochondrial genome of an enigmatic eukaryote, *Diphylleia rotans*. *Genome Biol. Evol*. 8: 458-466.

126. Pánek, T., Zadrobílková, E., Walker, G., Brown, M.W., Gentekaki, E., Hroudová, M., Kang, S., **Roger, A.J.**, Tice, A.K., Vlček, Č. and Čepička I. (2016) First multigene analysis of Archamoebae robustly reveals its phylogeny and shows that Entamoebidae represents a deep lineage of the group. *Mol Phylogenet Evol*. 98: 41-51.

125. Torruella G., de Mendoza A., Grau-Bové X., Antó M., Chaplin M.A., Del Campo J., Eme L., Pérez-Cordón G., Whipps C.M., Nichols K.M., Paley R., **Roger A.J.,** Sitjà-Bobadilla A., Donachie S. and Ruiz-Trillo I. (2015) Phylogenomics reveals convergent evolution of lifestyles in close relatives of animals and fungi. *Curr. Biol*. 25: 2404-2410.

124. Stairs, C.W., Leger, M.M. and **Roger, A.J.** (2015) Diversity and origins of anaerobic metabolism in mitochondria and related organelles. *Philos. Trans. R. Soc. Lond. B. Biol. Sci*. 370: 20140326.

123. Gawryluk, R., Eme, L. and **Roger, A.J**. (2015) Gene fusion, fission, lateral transfer, and loss: not-so-rare events in the evolution of eukaryotic ATP citrate lyase. *Mol. Phylogenet. Evol*. 91: 12-16.

122. Leger, M.M., Petrů, M., Žárský, V., Eme, L., Vlček, Č., Harding, T., Lang, B.F., Eliáš, M., Doležal, P. and **Roger, A.J.** (2015) An ancestral bacterial division system is widespread in eukaryotic mitochondria. *Proc. Natl. Acad. Sci.* USA 112: 10239-46.

121. Nývltová, E., Stairs, C.W., Hrdý, I., Rídl, J., Mach, J., Pačes, J., **Roger, A.J**. and Tachezy, J. (2015) Lateral gene transfer and gene duplication played a key role in the evolution of *Mastigamoeba balamuthi* hydrogenosomes. *Mol. Biol. Evol*. 32: 1039-55.

120. Eme, L., Sharpe, S.C., Brown, M.W. and **Roger, A.J.** (2014) On the age of eukaryotes: evaluating evidence from fossils and molecular clocks. *Cold Spring Harb. Perspect. Biol*. 6: pii: a016139.

119. Klimeš, V., Gentekaki, E., **Roger AJ**., and Eliáš, M. (2014) A large number of nuclear genes in the human parasite Blastocystis require mRNA polyadenylation to create functional termination codons. *Genome Biol. Evol*. 6: 1956-1961.

118. Tanifuji, G., Onodera N.T., Brown, M.W., Curtis, B.A., **Roger A.J.,** Wong G., Melkonian M. and Archibald, J.M. (2014) Nucleomorph and plastid genome sequences of the chlorarachniophyte Lotharella oceanica: convergent reductive evolution and frequent recombination in nucleomorph-bearing algae. *BMC Genomics* 15: 374.

117. Gentekaki, E., Kolisko, M., Boscaro, V., Bright, K.J., Dini ,F., Di Giuseppe, G., Gong, Y., Miceli, C., Modeo, L., Molestina, R.E,. Petroni, G., Pucciarelli, S., **Roger, A.J.**, Strom, S.L. and Lynn, DH. (2014) Large-scale phylogenomic analysis reveals the phylogenetic position of the problematic taxon Protocruzia and unravels the deep phylogenetic affinities of the ciliate lineages. Mol. Phylogenet. Evol. 78C: 36-42.

116. Stairs, C.W., Eme, L., Brown, M.W., Mutsaers, C., Susko, E. Dellaire, G., Soanes, D.M., van der Giezen, M. and **Roger, A.J.** (2014) A SUF Fe-S cluster biogenesis system in the mitochondrion-related organelles of the anaerobic protist *Pygsuia. Curr. Biol.* 24: 1176-1186.

115. Wang, H.C., Susko, E. and **Roger A.J.** (2014) An amino acid substitution-selection model adjusts residue fitness to improve phylogenetic estimation. *Mol. Biol. Evol. 31:* 779-792.

114. Kamikawa, R., Kolisko, M., Nishimura, Y., Yabuki, A., Brown, M.W., Ishikawa, S.A., Ishida, K., **Roger, A.J.**, Hashimoto, T. and Inagaki, Y. (2014) Gene content evolution in discobid mitochondria deduced from the phylogenetic position and complete mitochondrial genome of *Tsukubamonas globosa*. *Genome Biol. Evol.* 6:306-15.

113. Tsaousis, A.D., Gentekaki, E., Eme, L., Gaston, D. and **Roger, A.J.** (2014) Evolution of the cytosolic iron-sulfur cluster assembly machinery in *Blastocystis* sp. and other microbial eukaryotes. *Eukaryot. Cell* 13: 143-153.

112. Suga, H., Chen, Z., de Mendoza, A., Sebé-Pedrós, A., Brown, M.W., Kramer, E., Carr, M., Kerner, P., Vervoort, M., Sánchez-Pons, N., Torruella, G., Derelle, R., Manning, G., Lang, B.F., Russ, C., Haas, B.J., **Roger, A.J.,** Nusbaum, C. and Ruiz-Trillo, I. (2013) The *Capsaspora* genome reveals a complex unicellular prehistory of animals. *Nat. Commun.* 4: 2325.

111. Brown, M.W., Sharpe, S.C., Silberman, J.D., Heiss, A.A., Lang, B.F., Simpson, A.G. and **Roger, A.J.** (2013) Phylogenomics demonstrates that breviate flagellates are related to opisthokonts and apusomonads. *Proc. Roy. Soc. Biol. Sci.* 280: 20131755.

110. Leger, M.M., Gawryluk, R.M., Gray, M.W. and **Roger, A.J**. (2013) Evidence for a hydrogenosomal-type ATP generation pathway in *Acanthamoeba castellanii*. *PLoS ONE* 8: e69532.

109. Gaston, D. and **Roger, A.J.** (2013) Functional divergence and convergent evolution in the plastid-targeted glyceraldehyde-3-phosphate dehydrogenases of diverse eukaryotic algae. *PLoS ONE* 8: e7039.

108. Kamikawa, R., Brown, M.W., Nishimura, Y., Sako, Y., Heiss, A.A., Yubuki, N., Gawryluk, R., Simpson, A.G.B., **Roger, A.J.**, Hashimoto, T. and Inagaki, Y. (2013) Parallel re-modeling of EF-1α function: divergent EF-1 α genes co-occur with EFL genes in diverse distantly related eukaryotes. *BMC Evol. Biol.* 13:131.

107. Wang, H.-C., Susko, E. and **Roger, A.J**. (2013) The site-wise log-likelihood score is a good predictor of genes under positive selection. *J. Mol. Evol.* 76: 280-294.

106. O'Malley, M.A., Simpson, A.G.B. and **Roger, A.J.** (2013) The other eukaryotes in light of evolutionary protistology. *Biol. Philos.* 28: 299-330.

105. Harding, T., Brown, M.W., Plotnikov, A., Selivanova, E., Park, J.S., Gunderson, J.H., Baumgartner, M., Silberman, J.D., **Roger, A.J.** and Simpson, A.G.B. (2013) Amoeba stages in the deepest branching heteroloboseans, including *Pharyngomonas*: Evolutionary and systematic implications. *Protist* 164: 272-286.

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18. **Roger, A.J.,** Kolisko, M. and Simpson, A.G.B. (2012) Phylogenomic analysis. In *Evolution of Virulence in Eukaryotic Microbes*, pp. 44-69, L.D. Sibley, B.J. Howlett, and J. Heitman (Eds.), Wiley-Blackwell.

17. Gaston, D., Tsaousis, A.D. and **Roger, A.J.** (2009) Predicting proteomes of mitochondria and related organelles from genomic and expressed sequence tag data. *Methods Enzymol.* 457: 21-47.

16. **Roger, A.J.** and Simpson A.G.B. (2009) Evolution: Revisiting the root of the eukaryote tree. (Dispatch) *Curr. Biol.* 19: R165-167.

15. Susko, E. and **Roger, A.J.** (2009) Chapter 13. Statistical analysis of expressed sequence tags. In *Expressed Sequence Tags (ESTs): Generation and Analysis*, J. Parkinson (Ed.), *Methods in Molecular Biology*, Vol. 533: 277-287, Humana Press, NY.

14. Ruiz-Trillo, I., Burger, G., Holland, P., King, N., Lang, B.F., **Roger, A.J.** and Gray, M.W. (2007) The origins of multicellularity: a multi-taxon genome initiative. *Trends Genet*. 23:113-118 **[peer-reviewed]**

13. Barberà, M. J., Ruiz-Trillo, I., Leigh, J. Hug, L.A. and **Roger, A.J.** (2007) Chapter 10. The diversity of mitochondrion-related organelles amongst eukaryotic microbes. *In: Origins of Mitochondria and Hydrogenosomes*, pp. 239-268, W. Martin and M. Müller (Eds.), Springer-Verlag **[peer-reviewed]**

12. **Roger A.J.** (2006) Telling evolutionary tales. (book review) *Nat. Rev. Genet.* 38:1357

11. **Roger, A.J**. and Hug, L. A. (2006) The origin and diversification of eukaryotes: problems with molecular phylogenetics and molecular clock estimation. *Phil. Trans. R. Soc. B* **361**:1039-1054 **[peer-reviewed]**

10. Keeling, P.J., Burger, G., Durford, D.G., Lang, B.F., Lee, R.W., Pearlman, R.E., **Roger, A.J.** and Gray, M.W. (2005) The tree of eukaryotes. *Trends Ecol. Evol.* 20: 670-676 **[peer-reviewed]**

9. Simpson, A.G.B and **Roger, A.J.** (2004) The real 'kingdoms' of eukaryotes. *Curr. Biol.* 14: R693-696

8. Simpson, A.G.B. and **Roger, A.J.** (2004) Excavata and the origin of amitochondriate eukaryotes. *In: Organelles, Genomes and Eukaryote Phylogeny: An Evolutionary Synthesis in the Age of Genomics,* pp. 27-53, R.P. Hirt and D.S. Horner (Eds.), CRC Press, Boca Raton, Florida, USA **[peer-reviewed]**

7. Doolittle, W.F., Boucher, Y., Nesbo, C.L., Douady, C.J., Andersson, J.O. and **Roger, A.J.** (2003) How big is the iceberg of which organellar genes in nuclear genomes are but the tip? *Proc. Roy. Soc. Lond. Soc. Ser. B* 358:39-57 **[peer-reviewed]**

6. Simpson, A.G.B. and **Roger, A.J.** (2002) Eukaryote evolution: Getting to the root of the problem. (Dispatch) *Curr. Biol.* 12:R691-R693 **[not peer-reviewed]**

5. O'Malley, M.A., Roger, A.J. and Doolittle, W.F. (2002) Can commercial protection be good for research? *Nature* **419**: 111 **[not peer-reviewed]**

4. **Roger, A.J.**, and Silberman, J.D. (2002) Cell evolution: Mitochondria in hiding. (News & Views) *Nature* 418:827-829 **[not peer-reviewed]**

3. **Roger, A.J.** Reconstructing early events in eukaryotic evolution (1999) *American Naturalist* **154**: S146-S163 **[peer-reviewed]**

2. **Roger, A.J.**, Keeling, P.J. and Doolittle, W.F. (1994) Introns, the broken transposons. *J. Gen. Physiol.* **49**:27-37 **[not peer-reviewed]**

1. **Roger, A.J.** and Doolittle W.F. (1993) Molecular evolution. Why introns-in-pieces? *Nature* **364**:289-299.

SYMPOSIUM ORGANIZATION/COORDINATION (N=7)

2013 Co-organizer of Symposium entitled "Phylogenomic Approaches to Understanding Early Eukaryote Evolution," ***ICOP XIV***, Vancouver, July 2013

2010 Co-organizer of the Canadian Institute for Advanced Research - Integrated Microbial Biodiversity Program, ***Workshop on Genome Annotation***, Dalhousie University, June 2010.

2008 Member of Organizing Committee of ***Protist 2008*** (joint meeting of International Society for Evolutionary Protistology (ISEP) and International Society for Protozoologists (ISOP), held at Dalhousie University, July 2008

2008 Organizer of Symposium entitled "Protistan Phylogenomics" at ***Protist 2008*** meeting, Dalhousie University, July 2008

2007 Member of Organizing Committee for ***Society for Molecular Biology and Evolution (SMBE) Annual Meeting*** held at Dalhousie University, June 2007

2007 Organizer of Symposium entitled "Modeling protein evolution" at ***SMBE Annual Meeting***, Dalhousie University, June 2007

2005 Organizer of a Phylogenetics Workshop at the ***International Conference on Microbial Genomes*** meeting held at the Westin Hotel, Halifax, April 2005

INVITED PRESENTATIONS (N=100)

2018 2nd International Blastocystis Conference, Bogota, Colombia. Title: *Insights into Blastocystis genome plasticity and subtype differences from comparative genomics*.

2018 Department of Microbiology Seminar, Ohio State University, Columbus, Ohio. Title: *Evolving genomes, mitochondria and endosymbionts in anaerobic protists*

2018 2nd Joint Congress on Evolutionary Biology, Montpellier, France. Title: *Realism in phylogenetic models is essential for reconstructing early eukaryote evolution*.

2018 Canadian Institute for Advanced Research, Integrated Microbial Biodiversity Program Meeting, Banff. Title: *Protists as eukaryotes and as microbial community members – whose side are they on.*

2018 XXII Meeting of the International Society of Evolutionary Protistology, Cyprus. Title: *Genomes, organelles and endosymbionts of anaerobic protists.*

2018 Endosymbiosis Workshop, Kiel University, Germany. Title: *Adaptation of protists to low oxygen environments and the 'wild west' of mitochondrial evolution.*

2018 EMBO and Royal Society International Scientific Seminar Meeting – Using Genomic Comparisons to Understand Cellular Complexity in our Ancient Ancestors,

Buckinghamshire, UK. Title: *Knowns and unknowns in eukaryogenesis and the early course of eukaryotic evolution*.

2018 Reef Microbiome Workshop, Holetown, Barbados. Title: *Anaerobic protists and their endosymbionts in marine sediments*.

2017 Institute for Cell and Molecular Biology, Uppsala University, Sweden. Title: *Lateral gene transfer is an important mechanism facilitating adaptation of eukaryotic microbes to new environments.*

2017 Laboratory of Parasitic Diseases, NIH, Bethesda, Maryland. Title: *Comparative genomic investigations into the adaptation of Blastocystis to the gut environment*.

2017 15th International Congress of Protistology, Prague, Czech Republic. Title: *Lateral gene transfer is an important mechanism facilitating evolutionary adaptation in protists.*

2017 Canadian Institute for Advanced Research, Integrated Microbial Biodiversity Program Meeting, Whistler. Title: *Eukaryogenesis and mitochondria: knowns, unknowns and crazy ideas.*

2017 115th International Titisee Conference, Black Forest, Germany. Title: *The evolutionary history of anaerobic mitochondrion-related organelles in microbial eukaryotes.*

2017 12th Annual DOE Joint Genome Institute – Genomics of Energy & Environment Meeting, Walnut Creek, CA. Title: *Adaptation of microbial eukaryotes to low oxygen conditions and the gastrointestinal tract.*

2016 Genome Atlantic Human Genetics/Genomics Seminar Series, Dalhousie University. Title: *Genomic mechanisms of adaptation of eukaryotic microbes to anaerobic conditions and the gut environment*.

2016 Eukaryogenesis Workshop, Seville, Spain. Title: *The root of the tree of eukaryotes and the nature of the last eukaryotic common ancestor*.

2016 Department of Biological Sciences, Mississippi State University, USA. Title: *Genomic mechanisms of adaptation of eukaryotic microbes to anaerobic conditions and the gut environment.*

2016 Dalhousie Microbiome Research Symposium, Halifax. Title: *Understanding the gut-infecting protozoan Blastocystis through comparative genomics and microbiomics.*

2016 Molecular Structure & Function Seminar Series, The Hospital for Sick Children, Toronto. Title: *Genomic mechanisms of adaptation of eukaryotic microbes to anaerobic conditions and the gut environment*.

2016 University of Exeter, College of Life and Environmental Science, Exeter, UK. Title: *Adaptation of eukaryotes and their mitochondria to low oxygen.*

2015 International Symposium of Global Collaboration on Education, Research and Business in Environmental Studies, Kyoto University, Japan. Title: *From mud-flats to the human gut: Anaerobic eukaryotic microbes.*

2015 VII ECOP-ISOP Joint Meeting, Seville, Spain. Title: *Diversity and origins of anaerobic metabolism in mitochondria and related organelles.*

2015 The Company of Biologists Workshop – Eukaryo-/Archaeogenesis: Where Do We Stand, West Sussex, UK. Title: *The origin of eukaryotes and mitochondria: theories and evidence.*

2014 Evolutionary Biology Center, Uppsala University, Sweden. Title: *Eukaryote and mitochondrial origins; theories and evidence*.

2014 Arthur M. Sackler Colloquia of the National Academy of Sciences, Irvine, CA. Title: *Organelle reduction*.

2014 ISEP President's Lecture, Protist 2014, Banff, Alberta. Title: *The evolution of mitochondria and related organelles in eukaryotes: theories, mechanisms and evidence.*

2013 The 25th Commemorative Symposium for the 29th International Prize in Biology, Fukuoka, Japan. Title: *Phylogenomic approaches to clarifying the deep structure of the tree of eukaryotes.*

2013 12th International Colloquium on Endocytobiology and Symbiosis, Halifax, NS. Title: *Evolution of mitochondrion-related organelles in anaerobic protists*.

2013 ICOP XIV - International Congress of Protistology, Vancouver, BC. Title: *The deep structure of the tree of eukaryotes inferred from phylogenomic analyses*.

2013 Dalhousie-CAU-Kiel Joint Workshop (Life Sciences), Halifax, NS. Title: *Overview of Centre for Comparative Genomics & Evolutionary Bioinformatics*.

2012 Society for Molecular Biology and Evolution (SMBE) Annual Meeting, Dublin, Ireland. Symposium: Paradigm Shifts in Phylogeny. Title: *The tree of Life circa 2012: is there reasonable middle ground between tree-hugging and clearcutting?*

2012 Biology of Parasitism Course, Marine Biological Laboratory, Woods Hole, MA. Title: *The evolutionary history of free-living and parasitic protists and their organelles*.

2012 Penn Bioinformatics Forum, University of Pennsylvania. Title: *Towards Biochemical Reality in Phylogenetic Modeling of Protein Evolution.*

2011 EMBO Conference - Comparative Genomics of Lower Eukaryotic Microorganisms, Costa Brava, Spain. Title: *Phylogenomic approaches to deep eukaryote phylogeny: the case of the Excavata.*

2011 National Institute of Infectious Disease, Tokyo, Japan. Title: *Diversity in mitochondrion-related organelles in anaerobic protists; investigating evolutionary patterns and processes.*

2011 IUMS 2011, Sapporo, Japan. Title: *Diversity in mitochondrion-related organelles in anaerobic protists; investigating evolutionary patterns and processes.*

2011 Joint Meeting of the Phycological Society of America and International Society of Protistologists, Seattle, WA. Title: *The evolution of protists and their organelles: new insights from the frontiers of genomics*.

2011 Mechanism of Protein Evolution, Denver, Colorado. Title: *Fundi, a new tool for detecting functionally divergent sites in protein evolution.*

2010 Vienna Biocenter PhD Symposium 2010 - Origin of Life, Vienna, Austria. Title: *Eukaryotic origins and the evolution of mitochondria.*

2010 Canadian Institute for Advanced Research, Integrated Microbial Biodiversity Program - Workshop on Eukaryotic Genome Annotation, Dalhousie University, Halifax. Title: *Phylogenomics - dataset construction and analyses.*

2010 Discussion meeting on "Dating early events in Earth's history." NASA Astrobiology Institute at UCLA, Los Angeles, CA. Title: *Early eukaryotic evolution: phylogenomics, rocks, grease and clocks.*

2009 Perspectives on the Tree of Life Workshop, Dalhousie University, Halifax, NS. Title: *Deconstructing deconstructions of the Tree of Life: why a tree of microbes might be realizable, meaningful and useful.*

2009 Canadian Institute for Advanced Research, Integrated Microbial Biodiversity Program Annual Meeting, Asilomar, CA. Title: *Diversity of mitochondrion-like organelles.*

2009 Canadian Institute for Advanced Research, Astrobiology Discussion Meeting, Toronto, ON. Title: *Early eukaryote evolution: New problems and paradigms.*

2009 Canadian Society for Ecology and Evolution & Genetics Society of Canada Annual Meeting, Dalhousie University, Halifax, NS. Title: *Problems and progress in understanding deep eukaryotic phylogeny with phylogenomic approaches.*

2009 American Society for Microbiology Annual Meeting -- Symposium: "Shaking the Tree of Life", Philadelphia, PA. Title: *The true 'kingdoms' of eukaryotes.*

2009 "Darwin Day" Seminar, Department of Biological Sciences, University of Arkansas, Fayetteville, Arkansas. Title: *Early eukaryote phylogeny and evolution: New paradigms and challenges.*

2008 ICREA Conference on the Origin and Early Evolution of Metazoans, Barcelona, Spain. Title: *The power and pitfalls of a phylogenomic analyses in understanding early eukaryote evolution.*

2008 International Symposium on Evolutionary Protistology, Tsukuba, Japan. Title: *Diversity of genomes and organelles of anaerobic protists.*

2008 Mitochondria, Ribosomes and Cells: A Symposium in Honour of Mike Gray, Dalhousie University, Halifax. Title: *The diversity of mitochondrion-derived organelles in eukaryotes.*

2008 Symposium on Evolution, The Rockefeller University, NY. Title: *The deep evolutionary history of eukaryotes.*

2008 National Evolutionary Synthesis Centre (NESCent), Darwin Day Symposium Invited Speaker. Title: *Deep phylogeny and the origins of eukaryotes.*

2007 Cambridge University, Dept. of Biochemistry, Cambridge, U.K. Title: *The diversity and evolution of the mitochondrial compartment in eukaryotes.*

2007 Isaac Newton Institute for Mathematical Sciences, Cambridge, U.K. Title: *Markov Models of Protein Evolution: Let's get real!*

2007 Endocytobiology Meeting, Gmunden, Austria. Title: *Problems inferring the deep phylogeny of eukaryotes with multiple gene data.*

2007 Symposium Speaker, Society for Molecular Biology and Evolution 2007 Annual meeting, Dalhousie University, Halifax. Title: *Of excavates and opisthokonts – problems with inferring relationships among eukaryote superkingdoms with supermatrices.*

2007 Université de Montreal, Dept. Seminar, Montréal, QC. Title: *The diversity of the mitochondrial compartment in eukaryotes.*

2007 American Society for Microbiology (ASM) Annual Meeting, Division X symposium, Toronto, Ontario. Title: *Teasing apart conflicting signals in deep eukaryote phylogeny.*

2007 Review Symposium, Institute for Statistical Mathematics, Tokyo, Japan. Title: *Testing congruence in phylogenomic data sets.*

2006 Guest Speaker, Bioinformatics Student Symposium, The Bioinformatics Institute, University of Auckland. Title: *Improving models of protein evolution.*

2006 2006 Winter School in Mathematical and Computational Evolutionary Biology, Public Lecture, Queensland Bioscience Precinct, The University of Queensland, Australia. Title: *What are the major groups of eukaryotes and how old are they?*

2006 University of Sydney, Dept. of Biological Sciences, Sydney, Australia. Title: *What are the major groups of eukaryotes and how old are they?*

2006 University of Melbourne, Dept. of Botany, Melbourne, Australia. Title: *What are the major groups of eukaryotes and how old are they?*

2006 Microbial Biodiversity Workshop, Canadian Institute for Advanced Research, Banff, AB. Title: *Patterns of biochemical diversity in anaerobic protists.*

2006 International Phylogenomics Conference, Sainte-Adèle, Quebec. Title: *CONCATERPILLAR: A new method for teasing apart conflicting signals in phylogenomic analysis.*

2006 The Bioinformatics Institute, University of Auckland, Auckland, N.Z. Title: *CONCATERPILLAR: A new method for teasing apart conflicting signals in phylogenomic analysis.*

2005 University of Edinburgh, Institute of Evolutionary Biology, Edinburgh, U.K. Title: *CONCATERPILLAR: A new tool for teasing apart conflicting phylogenetic signals in microbial genomes.*

2005 Royal Society of London, Discussion Meeting: "Major Steps in Cell Evolution: palaeontological, molecular and cellular evidence of their timing and global effects", London, U.K. Title: *Problems of molecular tree reconstruction in relation to the timing of the origins of eukaryotes and their phylogeny.*

2005 University of Toronto, Dept. of Medical Genetics, Departmental Seminar. Title: *The role of endosymbiosis and lateral gene transfer in early eukaryote evolution.*

2004 The International Prize in Biology Symposium, "Eukaryotic Cells; their origin, evolution and diversity", Tokyo, Japan (in honour of T. Cavalier-Smith getting the 20th International Prize in Biology awarded by the Emperor of Japan).

2004 Juntendo University, Tokyo, Japan. Title: *The origin of mitochondria and related organelles.*

2004 Linnean Society of London Meeting, "Evolution of Protozoa and other protists", London, U.K. Title: *Inferring the deep phylogeny of eukaryotes with multiple gene data sets: Panacean or Panglossian?*

2004 Samuel Lunenfeld Research Institute Symposium on "Molecular Evolution", Mount Sinai Hospital, Toronto. Title: *Lateral gene transfer in anaerobic protists: implications for early eukaryote genome evolution.*

2004 NASA Astrobiology Institute/CIAR Program in Evolutionary Biology Workshop on Lateral Gene transfer/Eukaryote Origins, Harrison Hotsprings, BC. Title: *Lateral gene transfer in anaerobic protists: implications for early eukaryote genome evolution.*

2004 Society of Protozoologists, Symposium on "Protist Genomics", Bryant College, Rhode Island.

2003 University of Ottawa, Dept. of Biology Seminar, Ottawa, ON. Title: *Understanding conservation and divergence of function in protein evolution.*

2002 University of Massachussetts Seminar Series, Amherst, MA. Title*: "Early eukaryote phylogeny and evolution."*

2002 Whitehead Institute Annual Press Seminar: "Evolution: Driving Change", MIT, Cambridge, MA. Title*: Early evolution -- from single celled protists to multicellular organisms.*

2002 Canadian Society for Microbiology, Saskatoon, SK. Title: *Phylogenomic investigations into early eukaryote evolution.*

2002 Canadian Institute for Advanced Research, 20*20 Vision 20th Anniversary Meeting, Victoria, BC. Title: *How do we know about the tree of life?*

2001 Canadian Institute for Advanced Research Program in Evolutionary Biology, 13th Annual Meeting, Val David, Quebec. Title: *Much ado about covarions.*

2001 Theoretical and Mathematical Biology, Oberwolfach, Germany. Title: *Challenges to the tree of life: covarion shifts, gene conversion and lateral gene transfer.*

2000 EMBO Workshop on the Origin of Cells and Organelles, Höör, Sweden:
Title: *Deep eukaryotes and deeply conflicting trees.....Are we in too deep?*

2000 Department of Biology, Departmental Seminar, Dalhousie University, March 2000.
Title: *Early eukaryote phylogeny and evolution.*

1999 Canadian Institute for Advanced Research Program in Evolutionary Biology, 13th Annual Meeting, Banff, Alberta. Title: *Covarions and deep eukaryotic phylogeny.*

1999 Institute of Geophysics and Planetary Physics, University of California at Los Angeles, LA, job interview seminar. Title: *Reconstructing early eukaryote evolution.*

1999 Department of Biology, University of Ottawa, job interview seminar.
Title: *Reconstructing early eukaryotic evolution.*

1999 Department of Microbiology and Immunology, Montana State University, Bozeman, Montana, job interview seminar. Title: *Reconstructing early eukaryotic evolution.*

1999 Department of Biochemistry and Molecular Biology, Dalhousie University, job interview seminar. Title: *Reconstructing early eukaryotic evolution.*

1998 Monterey Bay Aquarium Research Institute (MBARI) Seminar Series, Moss Landing, CA. Title: *The evolutionary importance and affinities of 'amitochondriate' protists.*

1998 50th Annual German Society for Hygiene and Microbiology Congress, Microbial Evolution and Infection. Plenary lecture, Berlin, Germany. Title: *Reconstructing early events in eukaryotic evolution.*

1998 University of Connecticut, Molecular and Cellular Biology Departmental Seminar, Storrs, CT. Title: *Emerging phylogenetic relationships amongst protistan groups: Inferences from protein phylogenies.*

1998 Canadian Institute for Advanced Research Program in Evolutionary Biology, 12th Annual Meeting, Mont-Rolland, Quebec. Title: *Relationships between amitochondriate and mitochondriate protists inferred from protein-coding gene phylogenies.*

1998 Society for Molecular Biology and Evolution/Society for Systematic Biology joint symposium: Evolutionary Relationships Among Eukaryotes, Vancouver, British Columbia. Title: *Reconstructing early events in eukaryotic evolution.*

1998 The Rockefeller University Seminar Series, New York, NY. Title: *Reconstructing early events in eukaryotic evolution.*

1998 Woods Hole Oceanographic Institution Biology Department Seminar Series, Woods Hole, MA. Title: *Reconstructing early events in eukaryotic evolution.*

1997 Patrick Prize in Biochemistry Seminar, Dalhousie University, Halifax, Nova Scotia

1997 Canadian Institute for Advanced Research Program in Evolutionary Biology, 11th Annual Meeting, Chaffey's Locks, Elgin, Ontario. Title: *Changing views on the early course of eukaryotic evolution.*

1996 International Congress on Systematic and Evolutionary Biology V (ICSEB-V), Budapest, Hungary. Title: *Protists without mitochondria.*

1994 10th International Society of Evolutionary Protistology Meeting (ISEP-10), Dalhousie University, Halifax, Nova Scotia.

OTHER SYMPOSIUM PRESENTATIONS (N=6)

2011 Mechanisms of Protein Evolution, Denver, Colorado. Title: *Fundi, a new tool for detecting functionally divergent sites in protein evolution.*

2010 New Zealand Annual Phylogenetics Meeting (DOOM 10), Mt. Ruapehu, New Zealand. Title: *Is a 'vertical' signal in deep prokaryote evolution recoverable given the 'horizontal' noise?*

2005 International Society for Evolutionary Protistology XV, Melbourne, Australia. Title: *Mitochondrial relics in anaerobic eukaryotes.*

2002 International Society for Evolutionary Protistology XIV, Vancouver, Canada. Title: *Excavates and early eukaryote evolution.*

2000 International Society for Evolutionary Protistology XIII, Czech Republic. Title: *Emerging phylogenetic patterns among protistan groups: Inferences from Protein Phylogenies.*

1997 East Coast Protistology Conference, University of Rhode Island, Naragannset, Rhode Island. Title: *Protists without mitochondria: an update on the status of the Archezoa.*

POSTER PRESENTATIONS (1992-2002 ONLY)

2002 Sjögren, Å., Andersson, J.O., Horner, D.S., Davis, L.A.M., Murphy, C.A., Thomas, S., Logsdon, J.M. Jr., Ragan, M., Embley, T.M. and **Roger, A.J.** Genomic analyses of the Atlantic salmon parasite *Spironucleus barkhanus*. International Society for Evolutionary Protistology (ISEP-14), Vancouver, BC

2002 Silberman, J.D., Simpson, A.G.B., Kulda, J., Cepicka, I., Hampl, V., Johnson, P.J. and **Roger, A.J.** Retortamonad flagellates are closely related to diplomonads – implications for the history of mitochondrial function in eukaryote evolution. NASA Astrobiology Annual General Meeting, San Jose, CA

2001 Inagaki, Y., Blouin, C. **Roger, A.J.** and Doolittle, W.F. Evolution and constraint of eukaryotic release factor 1, domain 1. The Ribosome meeting, Cold Spring Harbor, Long Island, NY

2001 Silberman, J.D., Roger, A.J., Simpson, A.G.B., Kulda, J., Johnson, P.J. Origin of organelles in eukaryotic cells. NASA Astrobiology Institute/National Institutes of Health Joint Meeting

1998 Edgcomb, V., **Roger, A.J.**, Simpson, A.G.B, Silberman, J.D. and Sogin, M.L. Exploring early eukaryotic evolution: Diversity and relationships amongst novel deep-branching lineages. NASA Astrobiology Institute, First General Meeting, San Jose, CA

1994 **Roger, A.J.** Sandblom, O., Cavalier-Smith, T. and Doolittle, W.F. Probing protistan phylogeny with elongation factor-1α. Evolutionary Biology Meeting, Canadian Institute for Advanced Research, Halifax, Nova Scotia

1993 **Roger, A.J.**, Cavalier-Smith, T. and Doolittle, W.F. U6 snRNA and TPI genes from early diverging eukaryotes. Evolutionary Biology Meeting, Canadian Institute for Advanced Research, Banff, Alberta

1992 **Roger, A.J.**, Cavalier-Smith, T. and Doolittle, W.F. A β-tubulin gene from the microsporidian, *Nosema locustae*. Evolutionary Biology Meeting, Canadian Institute for Advanced Research, Lunenberg, Nova Scotia

BIOINFORMATICS & PHYLOGENETICS SOFTWARE DEVELOPMENT
(DEVELOPED IN THE ROGER LAB AND IS AVAILABLE AS OPEN SOURCE)
(available at http://rogerlab.biochem.dal.ca/Software/Software.htm)

LIKEWIND – a suite of 3 Perl programs that work in conjunction with PAUP* to perform a maximum likelihood sliding window analysis to detect recombinant regions in genes (described in Archibald and Roger (2002) *J. Mol. Evol.* 55:232-245).

PUZZLEBOOT – a shell script program to perform maximum likelihood distance bootstrapping in conjunction with Strimmer and von Haeseler's TREE-PUZZLE program (written by M. Holder and A.J. Roger).

COVAR – a shell script program that, in conjunction with the program TREE-PUZZLE, performs parametric bootstrap tests for changes in site rate distributions between two 'subtrees' in a larger phylogeny (described in Susko *et al.* (2002) *Mol. Biol. Evol.* 19:1514-1523).

ELW – a set of Perl programs that, used in conjunction with PHYLIP or PAUP* programs, implements the Strimmer and Rambaut's method of 'expected likelihood weights' for determining confidence intervals for trees (written by A.J. Roger).

COVSEARCH – a C++ (developed with D. Butt, J. Murdoch, C. Blouin) for maximum likelihood phylogenetic tree inference from protein sequence data. Novel options in this application include probabilistic heuristic tree searching algorithms, "median" maximum likelihood analysis (to control the influence of sites where the models is misspecified on the resulting inference), multiple gene phylogeny (allowing each branches for each gene to be separately optimized) and a parallelized MPI version.

PROCOV – a significantly modified version of Galtier's C-program NHML maximum likelihood program that implements Galtier's, Huelsenbeck's and a General covarion model of protein evolution (written by H-C Wang and M. Spencer). For a user-defined tree and amino acid dataset, the program will estimate branch lengths and all model parameters.

CONCATERPILLAR – a method for assessing phylogenetic congruence between genes/proteins with a hierarchical series of likelihood ratio tests.

TRAINING OF STUDENTS, POSTDOCS, AND OTHER RESEARCH TRAINEES

Undergraduate Students (n=23)

Geoff Morris	NSERC Summer Student (May 2000-August 2000)
Jamie Kendall	B.Sc. Summer Student (May 2001-August 2001)
Erin MacQuarrie	B.Sc. Honours Student, Summer Student (Sept. 2001-August 2002)
Robyn Elliot	B.Sc. Honours Student (Sept. 2002-April 2003)
Erin Gill	B.Sc. Honours Student, Summer Student (May 2002-April 2005)
Stewart Sarchfield	NSERC Summer Student (May 2002-August 2002)
Davin Butt	Computer Science Undergraduate Co-op Student (May 2002 – April 2003)
Jennifer Murdoch	Computer Science Undergraduate Co-op Student (Jan. - April 2003)
Karen Li	NSERC Summer Student (May 2005-August 2005)
Julia Tufts	B.Sc. Summer Student (May 2005-07-August 2005-07)
Tomas Hofmann	Computer Science Undergraduate Co-op Student (May – Aug. 2006)
Isabelle Nadeau	B. Comp. Sci. Summer Student (May 2006-August 2006)
Courtney Stairs	B.Sc. Summer Student (May 2007-August 2007/2008); B.Sc. Honours Student (September 2008-April 2009)
Andrew Evans	Nanotechnology Undergraduate Co-op Student (Jan. - April 2008)
Peter Walker	B.Sc. Honours Student (September 2008-April 2009)
Grant Stevens	B.Sc. Honours Student (September 2009-April 2010); Summer Student/Technician (May-December 2010)
Cornelis Mutsaers	B.Sc. Honours Student (September 2013-April 2014)

Léa Lincker	B. Eng. Summer Student (4th year Honours) (May-July 2016)
Mary (Molly) Hayes	NSERC Undergraduate Summer Student (May-August 2016)
Katherina (Katya) Radan	B.Sc. Summer Student (May-August 2016)
Kate Glennon	B.Sc. Summer Student (May-August 2017); Honours Student (Sept. 2017 – April 2018)
Shelby Williams	B.Sc. Summer Student (May-August 2017); Honours Student (Sept. 2017 – April 2018); Summer Student (May-August 2018)
Dandan Zhao	NSERC Undergraduate Summer Student (May-August 2017)

<u>Graduate Students</u> (n=20)

Yunfeng Shan	Computer Science Masters Student (co-supervised with E. Milios, Computer Science; 2001-September 2003)
Wynne Lok	Computer Science Masters Student (co-supervised with C. Blouin; May 2002 - 2004)
Jessica Leigh	Biochemistry and Molecular Biology PhD Student (September 2003 – December 2008)
Laura Hug	Biochemistry and Molecular Biology M.Sc. Student (August 2005 – August 2007)
Martin Kolisko	Biology PhD student (co-supervised with A. Simpson; September 2005 – October 2011)
Daniel Gaston	Biochemistry and Molecular Biology PhD Student (August 2006 – February 2012)
Michelle Leger	Biochemistry and Molecular Biology PhD Student (January 2008 – July 2015)
Liwen Zou	Mathematics & Statistics PhD student (co-supervised with E. Susko and C. Field; September 2006 – August 2011)
Javier Alfaro	Biochemistry and Molecular Biology Master's Student (September 2009 – September 2012)
Courtney Stairs	Biochemistry and Molecular Biology PhD Student (September 2009 – November 2014)
Tommy Harding	Biochemistry and Molecular Biology PhD Student (co-supervised with A. Simpson, Biology; September 2010 – December 2016)
Susan Sharpe	Biochemistry and Molecular Biology Master's Student (January 2012 – November 2015)
Jiwon Yang	Biochemistry and Molecular Biology Master's Student (co-supervised with A. Simpson, Biology; Sept. 2014 – August 2016)
Name Withheld	Computer Science Master's Student (co-supervised with R. Beiko; January 2015 – October 2016) – not completed
Sergio Munoz-Gomez	Biochemistry and Molecular Biology PhD student (co-supervised with C. Slamovits; April 2015 – present)
Sarah Shah	Biochemistry and Molecular Biology Master's student (September 2016 – present)
Dandan Zhao	Biochemistry and Molecular Biology Master's student (September 2017 – present)
Shannon Sibbald	Biochemistry and Molecular Biology PhD student (co-supervised with J. Archibald; January 2018 – present)

Shelby Williams	Biochemistry and Molecular Biology Master's student (September 2018 – present)
Greg Seaton	Biochemistry and Molecular Biology Master's student (September 2018 – present)

Current Postdoctoral Fellows (n=1)

Bruce Curtis	November 2012 – present (co-supervised with J. Archibald, Biochem.)

Former Postdoctoral Fellows (n=28)

Jon Jerlstrom-Hultqvist	September 2016 – August 2018 **-current position: Research Associate here**
Tommy Harding	January 2017 – December 2017 **-current position: Postdoctoral Fellow, Universite de Montreal**
Sebastian Hess	October 2015 – July 2018 (co-supervised with A. Simpson, Biology) **-current position: Postdoctoral Fellow, J. Archibald lab, Dalhousie**
Michelle Leger	September 2015 – September 2016 **-current position: Postdoctoral Fellow, University of Barcelona**
Courtney Stairs	January 2015 – April 2016 **-current position: Postdoctoral Fellow, Uppsala University**
Dayana Salas-Leiva	November 2014 – December 2015 (co-supervised with A. Simpson, Biology) **-current position: Research Associate here**
Laura Eme	June 2011 – December 2016 **-current position: Postdoctoral Fellow, Uppsala University**
Eleni Gentekaki	January 2010 – April 2014 **-current position: Lecturer, Mae Fah Luang University, Thailand**
Matthew Brown	June 2010 – May 2013 **-current position: Assistant Professor, Mississippi State University**
Martin Kolisko	November 2011 – April 2013 **-current position: Assistant Professor, Institute of Parasitology, Czech Republic**
Ryan Gawryluk	October 2011 – December 2012 **-current position: Postdoctoral Fellow, University of Victoria, BC**
Anastasios Tsaousis	January 2008 – January 2012 **-current position: Lecturer, University of Kent**
Huaichun Wang	Dec. 2004 – July 2014 (co-supervised with E. Susko, Math/Stats) **-current position: Research position with N.S. Health Authority**
Ivica Tamas	May 2007 – August 2008 **-current position: Researcher at University of Calgary**
Sara Diaz Triviño	February 2006 – December 2007 **-current position: Postdoctoral Researcher, Utrecht University**
Vladimir Hampl	January 2006 – December 2007 **-current position: Assistant Professor, Charles University**
Alexandra Stechmann	January 2004 – July 2009 **-current position: Teaching Instructor, London, U.K.**
Gabino Sanchez-Perez	November 2004 – December 2007, supported by Ministry of Education Fellowship (Spain)

	-current position: Postdoctoral Researcher, Utrecht University
Inaki Ruiz-Trillo	December 2003 – December 2006, supported by EMBO fellowship **-current position: Assistant Professor, Universitat de Barcelona**
Maria Barbera Llorca	May 2004 – December 2006, supported by CIHR grant **- current position: High School Teacher in Tarragona, Spain**
Matthew Spencer	May 2004 – March 2006, supported by Genome Atlantic (co-supervised with E. Susko in Math/Stats) **-current position: Lecturer, University of Liverpool, UK**
Shirley Pepke	September 2003 – March 2006, supported by Genome Atlantic (co-supervised with C. Blouin in Math/Stats) **-current position: Research Consultant at Lyrid LLC, Los Angeles**
Manu Baumgartner	January 2003 – January 2004, supported by Genome Atlantic **-current position: Researcher, Institute of Toxicology, Germany**
Alastair Simpson	October 2000 – July 2003, supported by CIHR Postdoctoral Fellowship **-current position: Professor, Dalhousie University**
Jan Andersson	February 2000 – February 2003, supported by Postdoctoral fellowship from the Wenner-Gren Foundation (Sweden) **-current position: Associate Professor, Uppsala University, Sweden**
Yuji Inagaki	July 1, 2000 – July 2005, supported by postdoctoral funding from CIAR, and Genome Atlantic **-current position: Lecturer, Tsukuba University, Japan**
Christian Blouin	April 1, 2001 – July 2003, supported on NSERC Genomics Grant **-current position: Professor, Dalhousie University**
John Archibald	June 1, 2001- Oct. 31, 2001 supported on NSERC Operating Grant **-current position: Professor, Dalhousie University**

<u>Research Associates</u> (n=5)

Jon Jerlstrom-Hultqvist	September 1, 2018 – present
Jeremy Wideman	April 1, 2018 – present (co-supervised with W.F. Doolittle, Biochem.)
Dayana Salas Leiva	January 1, 2016 – present
Huaichun Wang	August 1, 2015 – December 31, 2017 (co-supervised with E. Susko, Math/Stats) **-current position: Research position with N.S. Health Authority**
Jeff Silberman	February 1, 2000 – July 2004 (co-supervised with collaborator Dr. Patricia Johnson, UCLA), supported by postdoctoral funding from the NASA Astrobiology Program at UCLA in Los Angeles **-current position: Professor, University of Arkansas**

<u>Technicians</u> (n=4)

Marlena Dlutek	July 1, 2015 – present
Jacqueline de Mestral	Aug. 18, 2003 – June 30, 2015
Åsa Sjögren	April 16, 2001 – February 1, 2003
Lesley A. Davis	July, 2000 - July, 2003

Visiting Students and Other Researchers (n=16)

Dr. Zhenzhen Yi	September 2018 – September 2018, **Visiting Professor** from South China Normal University
Paulo Hofstatter	July 2017 – July 2018, **Visiting Ph.D. student** from University of Sao Paulo, Brazil
Anna Busch	September – December 2016, **Visiting Master's student** from University of Bonn, Germany
Lee O'Brien Andersen	July – September 2015, **Visiting Ph.D. student** from Statens Serum Institute, Copenhagen
Vojtech Zarsky	June – August 2015, **Visiting Ph.D. student** from Dr. Ivan Cepicka's lab, Charles University, Prague, Czech Republic
Dr. Bernard Lemire	March - August 2015, **Visiting Sabbatical Professor** from University of Alberta
Tom Williams	January – March 2015, **Visiting Ph.D. student** from Dr. Martin Embley's lab, Newcastle University, UK
Dr. Ryoma Kamikawa	September 2014 – September 2015, **Visiting researcher** from University of Tsukuba, Japan
Lukas Novak	July-October 2014, **Visiting Ph.D. student** from Dr. Ivan Cepicka's lab, Charles University, Prague, Czech Republic
Tomas Panek	July-October 2013, **Visiting Ph.D. student** from Dr. Ivan Cepicka's lab, Charles University, Prague, Czech Republic
Eliska Ptackova	October-November 2012, **Visiting Ph.D. student** from Dr. Ivan Cepicka's lab, Charles University, Prague, Czech Republic
Guifre Torruella	September-December 2012, **Visiting Ph.D. student** from Dr. Inaki Ruiz-Trillo's lab (collaborator), Institut de Biologia Evolutiva, Barcelona, Spain
Dr. Ryoma Kamikawa	July 2012, **Visiting Researcher** from University of Tsukuba, Japan
Dr. Kiyotaka Takishita	April 2009-March 2010, **Visiting Researcher** from JAMSTEC, Japan
Dr. Tetsuo Hashimoto	March 2002-February 2003, **Visiting Sabbatical Researcher** from the Institute for Statistical Mathematics, Tokyo, Japan
Ivan Cepicka	July-October 2003, **Visiting Ph.D. student** from Dr. Jaroslav Flegr's lab (collaborator), Dept. of Parasitology, Charles University, Prague, Czech Republic
Martin Kolisko	July-October 2004, **Visiting M.Sc. student** from Dr. Jaroslav Flegr's lab (collaborator), Dept. of Parasitology, Charles University, Prague, Czech Republic

DEPARTMENTAL/UNIVERSITY ADMINISTRATIVE DUTIES

2017 – present	Member, Steering Committee, Centre for Comparative Genomics & Evolutionary Bioinformatics (CGEB)
2014 – present	Member, Graduate Advisory Committee (GAC)
2009 & 2012	Chair, Academic Planning Committee (APC)
2006 & 2012	Member and Chair, Promotions and Tenure Committee
2009 – 2013	Member, Space and Facilities Committee
2002 – 2003	Chair of informal committee for Departmental website

DALHOUSIE FACULTY OF MEDICINE DUTIES

2009 – 2011	Member, Senate Computing & Information Technology Planning Committee
2006 – 2010	Chair, Faculty of Medicine Safety and Environmental Hazards Committee
2004 – 2006	Member, Faculty of Medicine Safety and Environmental Hazards Committee
2002	Judge, Graduate Research Day (May 7th)

MANUSCRIPT REVIEWER

Archiv für Protistenkunde
Biochemica et Biophysica Acta
Biological Bulletin
Current Biology
Current Genetics
Journal of Eukaryotic Microbiology
Journal of Experimental Zoology
Journal of Molecular Evolution
International Journal of Systematic and Evolutionary Microbiology
Molecular Biology and Evolution
Molecular Microbiology
Molecular Phylogenetics and Evolution
Nature
Nature Reviews Genetics
Plant Molecular Biology
Proceedings of the National Academy of Sciences, USA
Protist
Science

NATIONAL/INTERNATIONAL REVIEWER

2000-2008	National Science Foundation (USA), Grant reviewer
2003, 2007	Canadian Institutes for Health Research, Grant reviewer
2003	Canada Foundation for Innovation, Grant reviewer
2002-2005	Natural Sciences and Engineering Research Council, Grant reviewer

PROFESSIONAL SOCIETY MEMBERSHIPS

2006-current	The Society for Molecular Biology and Evolution
1998-current	The Society of Systematic Biologists
1993-current	The Society of Protozoologists
1993-current	International Society for Evolutionary Protistology

INVITED JOURNAL EDITORIAL DUTIES

2013-2015	**Editorial Board Member**, *Eukaryotic Cell*
2006-2015	**Board of Editors**, *Molecular Biology and Evolution*
2006-current	**Editorial Board Member**, *Systematic Biology*
2005-2014	**Editorial Board Member,** *Journal of Experimental Zoology, Series B*
2003-2006	**Associate Editor** of the journal *GENE*
2001-current	**Board of Reviewers**, *Journal of Eukaryotic Microbiology*

GRANT/INSTITUTIONAL REVIEW PANELS

2014	**External Review Committee Member**, Center for Computational Sciences, University of Tsukuba, Japan
2008	**Grant Reviewer/Panel member** for the National Science Foundation's "Assembling the Tree of Life" Program
2007	**International External Reviewer** for the Molecular Evolution group at the Institute for Statistical Mathematics, Tokyo, Japan
2007	**Grant Panelist** for Canadian Institutes for Health Research (CIHR), New Investigator B Competition

OTHER NATIONAL/INTERNATIONAL SERVICE

2013-2014	**President,** International Society for Evolutionary Protistology
2010-2012	**President-Elect**, International Society for Evolutionary Protistology
2005	**Tenure and Review Committee**, Woods Hole Oceanographic Institute
2000-2004	**Membership Director,** International Society for Evolutionary Protistology
2003	**Participant in Genome Canada/Environment Canada Workshop** on Environmental and Comparative Genomics (workshop to plan the future of funding in this area of genomic research in Canada)
2002	**Elected member of Nominating Committee**, Society of Protozoologists
2001-2006	**Member of Subcommittee** on 'Bioinformatics' for the Priority and Planning Committee of the CIHR Institute of Genetics
2001	**Participant in CIHR Institute of Genetics/Genome Canada sponsored workshop** on 'Bioinformatics' (workshop to plan the future of funding in this area of research in Canada)