

CHRIS ORGAN

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Education

Ph.D. Montana State University (Biological Sciences) 2004
B.S. Michigan State University (Engineering Arts) 1996

Appointments

Adjunct Professor, Department of Ecology and Evolutionary Biology, Brown University 2009
Postdoctoral Fellow, Department of Organismic and Evolutionary Biology, Harvard University 2005-2009
Adjunct Instructor, Department of Biology, Simmons College 2008-2009
Adjunct Professor, HHML, Cell Biology & Neuroscience, Montana State University 2003-2004
Instructor, Health and Human Development, Montana State University 1998-2004

Publications

- Janes, D. E., C. L. Organ, and S. V. Edwards. (in review). Variability in sex-determining mechanisms influences genome complexity in Reptiles.
- Organ, C. L. and S. V. Edwards (in press). Major Events in the Evolution of the Avian Genome. *In* The Evolution of Modern Birds. (Eds.) G. Dyke and G. Kaiser. University of California Press.
- Organ, C. L., M. Rasmussen, M. W. Baldwin, M. Kellis, and S. V. Edwards (in press). A Phylogenomic Approach to the Evolutionary Dynamics of Gene Duplication in Birds. *In* Evolution After Gene Duplication. (Eds.) K. Dittmar and D. Liberles. Wiley & Sons.
- Organ, C. L., D. E. Janes, A. Meade, and M. Pagel (2009). Genotypic sex determination and sex chromosomes in marine reptiles. **Nature**. 461: 389-392.
- Organ, C. L., S. Brusatte, and K. Stein (2009). Genome size evolution in sauropod dinosaurs. **Proceedings of the Royal Society, B**.
- Schweitzer, M. H., W. Zheng, C. L. Organ, R. Avci, Z. Suo, L. M. Freimark, V. S. Lebleu, M. B. Duncan, M. G. Vander Heiden, J. M. Neveu, W. S. Lane, J. S. Cottrell, J. R. Horner, L. C. Cantley, R. Kalluri, and J. M. Asara (2009). Biomolecular characterization and protein sequences of the Campanian hadrosaur *B. canadensis*. **Science**. 324: 626-361.
- Organ, C. L. and A. M. Shedlock (2009). Paleogenomics of pterosaurs and the evolution of small genome size in flying vertebrates. **Biology Letters**. 5: 47-50.
- Organ, C. L., R. Godinez Moreno, and S. V. Edwards (2008). Three tiers of genome evolution in reptiles. **Integrative and Comparative Biology**. 48(4): 494-504.
- Organ, C. L. and D. Janes (2008). Evolution of sex chromosomes in Sauropsida. **Integrative and Comparative Biology**. 48(4): 512-519.
- Janes, D. E., C. L. Organ and N. Valenzuela (2008). New resources inform study of genome size, content and organization in non-avian reptiles. **Integrative and Comparative Biology**. 48(4): 447-453.
- Organ, C. L., M. H. Schweitzer, W. Zheng, L. M. Freimark, L. C. Cantley, J. M. Asara (2008). Molecular phylogenetics of mastodon and *Tyrannosaurus rex*. **Science**. 320 (5875): 499.
- Organ, C. L. (2008). Paleogenomics. Pp. 249-251. *In* McGraw Hill 2008 Yearbook of Science & Technology. McGraw-Hill Publishers, New York, NY.
- Organ, C. L., A. M. Shedlock, A. Meade, M. Pagel, S. V. Edwards. (2007). Origin of avian genome size and structure in nonavian dinosaurs. **Nature**. 446: 180-184.
- Holmes, R. and C. L. Organ. (2007). An ossified tendon trellis in *Chasmosaurus* (Ornithischia: Ceratopsidae). **Journal of Paleontology**. 81(2): 411-414.
- Organ, C. L. (2006). Biomechanics of ossified tendons in ornithopod dinosaurs. **Paleobiology**. 32(4): 649-662.
- Organ, C. L. (2006). Thoracic epaxial muscles in living archosaurs and ornithopod dinosaurs. **The Anatomical Record Part A: Discoveries in Molecular, Cellular, and Evolutionary Biology**. 288A: 782-793.

- Organ, C. L. and J. Adams. (2005). The histology of ossified tendon in dinosaurs. **Journal of Vertebrate Paleontology**. 25 (3): 602-613.
- Adams, J. and C. L. Organ. (2005). Histologic determination of ontogenetic patterns and processes in hadrosaurian ossified tendons. **Journal of Vertebrate Paleontology**. 25 (3): 614-622.
- Organ, C. L., J. B. Cooley, and T. L. Hieronymus. (2003). A non-invasive quarry mapping system. **Palaios**. 18(1): 74-77.

Abstracts

- Organ, C. L., D. E. Janes, A. Meade, M. Pagel. (2009). Genotypic sex determination enabled adaptive radiations of extinct marine reptiles. Evolution Meeting (SSE).
- Organ, C. L., M. Andrew, and M. Pagel (2009). Bayesian inference of discrete character states. SICB 2009 Annual Meeting. Boston, MA.
- Organ, C. L. (2008). Phylogenetics and reconstructing ancient biomolecular characters. Molecular Paleontology Working Group, North Carolina State University, Raleigh.
- Schweitzer, M. H., W. Zheng, T. Cleland, R. Kalluri, J. M. Asara, C. L. Organ, and J. R. Horner (2008). Exceptional preservation in *Brachylophosaurus Canadensis* (Campanian, Judith River Formation, Montana, USA). *Journal of Vertebrate Paleontology*.
- Organ, C. L., R. G. Moreno and S. V. Edwards (2008). Genome architecture & diversity in reptiles. SICB 2008 Annual Meeting. San Antonio, Texas.
- Organ, C. L. and S. V. Edwards. (2006). Paleogenomics of pterosaurs and the evolution of vertebrate flight. *Journal of Vertebrate Paleontology*. 26(Supplement to 3): 107A.
- Organ, C. L., M. Pagel, and S. V. Edwards. (2006). Dinogenomics: The genomes of dinosaurs and the origin of avian genome architecture. Evolution Meeting (SSE).
- Organ, C. L. and S. V. Edwards. (2006). Paleogenomics – The dinosaurian origins of avian genome structure. Workshop on Chicken Genomics & Development. Cold Spring Harbor Laboratory.
- Organ, C. L. (2003). The biomechanics of ossified tendons in ornithopod dinosaurs. International Society of Biomechanics XIXth Congress: Book of Abstracts. University of Otago. Dunedin, New Zealand.
- Organ, C. L. (2003). Epaxial muscles and tendons in archosaurs: they're not just for duck-bills anymore. *Journal of Vertebrate Paleontology*. 23(Supplement to 3): 77.
- Adams, J. and C. L. Organ. (2003). Ontogenetic development of ossified tendons in hadrosaurian dinosaurs. *Journal of Vertebrate Paleontology*. 23(Supplement to 3): 77.
- Adams, J. and C. L. Organ. (2001). Descriptive osteology of ossified tendons from an articulated specimen of *Brachylophosaurus canadensis*. *Journal of Vertebrate Paleontology*. 21(Supplement to 3): 27.
- Cooley, J., C. L. Organ, and T. Hieronymus. (2001). A non-invasive floating grid mapping system. *Paleobios*. 21(Supplement to 2): 43.
- Marshall, C. L., and C. L. Organ. (2001). Re-examination of ossified tendons in ornithischians. *Journal of Vertebrate Paleontology*. 21(Supplement to 3): 77.
- Organ, C. L. (2001). Ossified tendons in Ornithischians: a locomotor adaptation that reduces tail deflection. *Journal of Vertebrate Paleontology*. 20(Supplement to 3): 61.

Grants and Fellowships

NSF, Science and Technology Centers: Center for Analytical Paleontology – Investigator (proposed \$150,000)	In review
Harvard Postdoctoral Travel Grant Program (\$1000)	2009
NSF, Symposium: Reptile Genomics and Evolutionary Genetics, San Antonio, TX (\$6,749)	2007
SICB, Symposium: Reptile Genomics and Evolutionary Genetics, San Antonio, TX (\$5,000)	2007
Departmental of Organismic and Evolutionary Biology Travel Grant (\$1,500)	2007
NIH, NSRA Postdoctoral Fellowship: Evolution of Bmp Genes 2 and 4 in Archosaurs (\$142,200)	2005
ISB, Diss. Grant: The Evolution of Tail Deflection and Erect Posture Synapsida and Diapsida (\$4,000)	2001

Pedagogy & Teaching Experience

Curriculum Design

HHMI Undergraduate Biology Curriculum Program Board, Montana State University 2002-2004

Course Instructor

Evolutionary Biology (BioMed 48), Brown University 2009

Survey of Evolutionary Biology (OEB275r), Harvard, with Scott Edwards, CUE rating: 4.6/5.0 2008-2009

Comparative Vertebrate Anatomy (BIOL 310), Montana State Univ., avg KNAPP rating: 3.1/4.0 2002-2004

21st Century Biology (BIOL 113), Montana State University 2003-2004

"My interest in biology was increased by this course": 83% of students agreed

"The main instructor cared about my learning": 97% of students agreed

Beginning & Intermediate Taekwondo (HHD 100), Montana State Univ., CIEQ rating: 5.55/6.00 1997-2004

Martial Philosophies of Asia (HHD 100), Montana State University, CIEQ rating: 5.60/6.00 2001-2003

Evolution (BIOL 403), Montana State University (lecturer on paleontology component only) 2002

Dinosaur Paleontology (GEOL 312), Montana State University, with Jack Horner 1998

Teaching Fellow/Assistant

Understanding Darwinism (GE12), Harvard University 2009

Principles of Zoology (BIOL218), Simmons College 2009

Foundations of Biological Diversity (OEB10), Harvard University, , CUE rating: 4.49/5.0 2008

Genetics and Genomics (BS50), Harvard University, CUE rating: 4.45/5.0 2005

Comparative Vertebrate Anatomy (BIO 310), Montana State University 1999-2001

Biology of Organisms (BIOL 100), Montana State University 1998

Advising

Academic advising: Maddy Fell (undergraduate, Montana State), Rae Zospah (undergraduate, Montana State), Jordan Knutsen (undergraduate, Montana State), Clay Hunt (graduate student, Montana State)

Research training and mentoring: Shaoyuan Wu (PhD, Harvard), Jason Adams (BS, Montana State University, senior thesis), Abraham Thompson (MS, University of Colorado, Fort Collins)

Professional Service

Workshop Organizer: Integrative Methods for Inferring Divergence Times and Non-Fossilizing Characters. Bristol, England. Co-organizer James Parham 2009

Symposium Organizer, Society for Integrative and Comparative Biology: Reptile Genomics and Evolutionary Genetics. San Antonio, Texas. Co-organizer Dan Janes 2008

Invited lectures: University of Wisconsin (Madison), University of New Hampshire, Ohio Wesleyan University, Marblehead Public School, Montana State University, Traverse City Public Library, East Lansing High School, Nerd Night (Boston), Northern Michigan University, University of Wisconsin (La Crosse), University of Illinois (Urbana-Campaign), Miami University, SUNY Oswego, Harvard University, American Museum of Natural History, Boston Public Library Varies

Peer review: Nature, National Science Foundation, Proceedings of the Royal Society, Journal of Vertebrate Paleontology, Royal Society of New Zealand Marsden Fund, Trends in Genetics, Trends in Ecology & Evolution, Global Change Biology, Biology Letters Varies

Search committee for the Dean of the Museum of the Rockies 2003

Professional associations: Society for the Study of Evolution, Society for Integrative and Comparative Biology, Paleontological Society, Society for Vertebrate Paleontology -

Broader Impacts and Outreach

My research has been featured in hundreds of media outlets, including the NIH and NSF homepages, Computing Life (NIH educational publication), National Geographic, New York Times, Washington Post, USA Today, Telegraph, Boston Globe, Science News, Varies

Cosmos Magazine, Discover Magazine, Science and Vie, Science Magazine, Nature, Heredity, Arstechnica.com, Slate.com, ScienceDaily.com, Museum of the Rockies, NBC, ABC, CNN, the Discovery Channel, BBC, NPR, Celebrity Science Club (Japanese TV show), and dozens of U.S. and international newspapers.

Keynote Speaker and Guest of Honor, MSU Graduate Recruitment Weekend 2008

Research consultant for the program "Dinosaurs of North America", The Discovery Channel 2000

References

Scott V. Edwards

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Scott is a Professor in the Department of Organismic and Evolutionary Biology at Harvard University whose research centers on the genetics and genomics of birds and reptiles. Scott has served as my postdoctoral mentor and we continue to collaborate on genomics research.

Jack Horner

600 West Kagy Blvd, Department of Paleontology, MOR, Bozeman, MT 59717

(406) 994-3982 | jhorner@gemini.oscs.montana.edu

Jack is Curator of Paleontology at the Museum of the Rockies, Regents Professor, and Mac Arthur Fellow. Jack's research focuses on dinosaur paleobiology and macroevolution. He was my graduate advisor and remains a collaborator on molecular paleobiology research.

Andy Shedlock

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Andy is a Senior Research Associate in the Department of Organismic and Evolutionary Biology at Harvard University. Andy, a world-leading expert on the biology of mobile genetic elements, and I collaborate on research aiming to clarify the evolution of genome architecture.