Neil H. Shubin

Personal

Born 12/22/1960, Philadelphia, PA USA

Current Appointments

Robert R Bensley Distinguished Service Professor of Anatomy,
Department of Organismal Biology and Anatomy,
Committee on Genetics. Genomics, and Systems Biology,
Committee on Evolutionary Biology,
Committee on Stem Cell, Regenerative and Developmental Biology
The University of Chicago

Senior Advisor to the Provost for the Life Sciences,
Associate Dean, Biological Sciences Division
The University of Chicago

Research Associate, Department of Geology
The Field Museum of Natural History

Prior Appointments

2016-2019	Interim Director, Marine Biological Laboratory, Woods Hole, MA
2014-2017	Chair, Section 27 (Evolution), The National Academy of Sciences
2014-2023	Board of Directors, Laboratory Schools of The University of Chicago
2015-2019	Science Education Advisory Board, Howard Hughes Medical Institute
2014-2017	Senior Advisor to the President of The University of Chicago on the Life Sciences
2017	Life Sciences Review Committee, Harvard University
2006-2009	Provost and Senior Vice President, Field Museum of Natural History
2003-2006	Assistant Dean for Basic Science Medical Education, Pritzker School of Medicine, The University of Chicago
2000-2006	Chair, Department of Organismal Biology and Anatomy, The University of Chicago
1989-1999	Assistant, Associate, Full Professor, Department of Biology, The University of Pennsylvania
1987-1989	Miller Postdoctoral Fellow, The University of California at Berkeley

Education

1987	Ph.D. Organismal and Evolutionary Biology, Harvard University
1982	A.B. Columbia University

Elected Academy Memberships

2017	American Philosophical Society
2011	National Academy of Sciences of the United States of America
2010	California Academy of Sciences
2009	American Academy of Arts and Sciences

Awards, Honors, and Fellowships

2024	Viktor Hamburger Outstanding Educator Prize, Society for Developmental Biology
2022	DSc. (hon), York University
2021	Outstanding Achievement Award, American Association of Economic Geologists
2020	Convocation Speaker, Princeton University, Geosciences
2018	Convocation Speaker, Harvard University, Phi Beta Kappa
2016	Verrill Medal, Yale University
2015	National Academy of Sciences, Communication Award (Film/TV)
2014	AAAS Kavli Award for Communication in Science
2014	Friend of Darwin Award, National Center for Science Education
2014	Carl Gustaf Bernhard Medal, The Royal Swedish Academy of Sciences
2014	Ph.D. (hon), Skidmore College
2011	Distinguished Service Award, National Association of Biology Teachers
2010	Convocation Speaker, The University of Chicago
2009	National Academy of Sciences Science Communication Award (Book)
2009	Royal Society of London, Best Science Book Shortlist
2008	Phi Beta Kappa Science Book Award
2007	Distinguished Fellow, American Academy in Berlin
2007	Distinguished Fellow, Institute for Advanced Study. University of Durham, UK
2006	ABC News Person of the Week
2000	Marcus Singer Award, Society for Developmental Biology
1998	John Simon Guggenheim Memorial Foundation Fellowship
1996	A.M. (Hon.), University of Pennsylvania
1994	Young Faculty Award, Natural Sciences Association, University of Pennsylvania
1991	Teaching Award, Biology Department, University of Pennsylvania
1987-1989	Miller Research Fellowship, University of California at Berkeley
1984-1987	Harvard-Danforth Award for Excellence in Teaching, Danforth Center, Harvard University
1982	Josiah Macy Scholar, Columbia University

Current Major Service

2024	Strategic Plan Committee, National Academy of Sciences
2019-	Senior Advisor to the Provost for the Life Sciences
2006-	Associate Dean, Biological Sciences Division, The University of Chicago

2012- Associate Editor, *Proceedings of The National Academy of Sciences*
2020- Associate Editor, *Science Advances (Genomics Section)*
2019- Chair, Advisory Board, LabX of The National Academy of Sciences
2019- President's Advisory Council, Carnegie Institution for Science
2022- Selection Committee, National Academy of Sciences Communication Award
2014- Committee of Selection, The John Simon Guggenheim Memorial Foundation

Selected Scientific Publications

Shubin, N.H. and Alberch, P. A (1986) Morphogenetic Approach to the Origin and Basic Organization of the Tetrapod Limb. **Evolutionary Biology** 20:319-387.

Olsen, P., Shubin N.H. and Anders, M. (1987) New Early Jurassic Tetrapod Assemblages Constrain Triassic-Jurassic Tetrapod Extinction Event. **Science** 237:1025-1029.

Sues, H.-D., Olsen, P. and Shubin , N.H. A Diapsid Faunule from the Lower Jurassic of Nova Scotia, Canada. (in: Fourth Symposium on Mesozoic Terrestrial Ecosystems, P.M. Currie and E.H. Koster, eds. Occasional Papers of the Tyrell Museum of Paleontology, Drumheller) 1987; Pp.205-207.

Oster, G., Shubin, N., Murray, J. and Alberch, P. (1988) Morphogenetic Rules and Evolution: The Tetrapod Limb in Ontogeny and Phylogeny. **Evolution** 41:232-267.

Olsen, P., Shubin, N.H. and Anders, M. (1988) Triassic-Jurassic Extinctions. **Science** 241:1358-1360.

Prothero, D. and Shubin, N. The Phylogeny of Oligocene Horses of North America (in: The Evolution of Perissodactyls, D. Prothero, and R. Schoch, eds. Oxford University Press, Oxford) 1990; Pp. 142-176.

Shubin, N., Crompton, A.W., Sues, H.-D., and Olsen, P. (1991) New Fossil Evidence on the Sister- Group of Mammals and Early Mesozoic Faunal Distributions. **Science** 251:1063-1065.

Shubin, N. The Implications of the Bauplan for Evolutionary and Developmental Biology (in: Limb Development and Evolution, J. Hurle and J.R. Hinchliffe, eds. Plenum Press, N.Y.) 1991; Pp. 411-421.

Shubin, N and Sues, H.-D. (1991) Biogeography of early Mesozoic continental tetrapods: Patterns and Implications. **Paleobiology** 17:214-230.

Sues, H-D., Hopson, J., and Shubin, N.H. (1992) Affinities of Scalenodontoides Plemmyridon Hopson, 1984 (Synapsida: Cynodontia) from The Upper Triassic of Nova Scotia**. Journal of Vertebrate Paleontology** 12:168-171.

Shubin, N. The Phylogeny of Development and the Origin of Homology (in: Interpreting the Hierarchy of Nature, O. Rieppel and L. Grande, eds. Academic Press, San Diego) 1994; Pp. 201-225.

Shubin, N. History, Ontogeny, and the Origin of the Archetype. (in: Homology: The Hiearchical Basis of Comparative Biology, B. Hall, ed. Academic Press, San Diego) 1994; Pp. 250-271.

Daeschler, E.B., Shubin, N., (1994) Thomson, K., and Amaral, W. A Devonian Tetrapod from North America. **Science** 265:639-642.

Sues, H., Shubin, N., and Olsen, P. (1994) Jurassic Sphenodontids from the McCoy Brook Formation, Nova Scotia, Canada. **Journal of Vertebrate Paleontology** 14:327-340.

Shubin, N.H., Olsen, P., and Sues, H.-D. Early Jurassic Small Tetrapods from the McCoy Brook Formation of Nova Scotia (in: Early Mesozoic Small Vertebrates, N. Fraser, and H. Sues, eds. Cambridge University Press) 1994; Pp. 241-252.

Jenkins, F.A.,Jr., Shubin, N., Amaral, W., Gatesy, S., Schaff, C., Downs, W., Clemmensen, L., Bonde, N., Davidson, A., and Osbaeck, F. (1994) Late Triassic Continental Vertebrates and Depositional Environments of the Fleming Fjord Formation, Jameson Land, East Greenland. **Meddelelser om Grønland** 2:1-25.

Shubin, N. (1995) The Evolution of Paired Fins and the Origin of the Tetrapod Limb: Phylogenetic and Transformational Approaches. **Evolutionary Biology** 28:39-86.

Shubin, N., Wake, D., and Crawford A. (1995) Morphological Variation in the Limbs of *Taricha granulosa*: Evolutionary and Phylogenetic Implications. **Evolution** 49:874-884.

Daeschler, E.B. and Shubin, N. (1995) Tetrapod Origins. **Paleobiology** 21:404-409

Shubin, N. and Wake, D. (1996) Phylogeny, variation and morphological integration. **American Zoologist** 36:51-60.

Sues, H.-D., Shubin, N.H., Olsen, P., and Amaral, W. (1996) On the cranial structure of a new protosuchid (Archosauria, Crocodyliformes) from the McCoy Brook Formation (Lower Jurassic) of Nova Scotia, Canada. **Journal of Vertebrate Paleontology** 16:34-41.

Jenkins, F.A.,Jr., Gatesy, S.M., Amaral, W. , and Shubin, N. (1997) Haramiyids and Triassic mammalian evolution. **Nature** 385: 715-718.

Shubin, N., Tabin, C., and Carroll, S. (1997) Fossils, genes, and the evolution of animal limbs. **Nature** 388:639-648.

Daeschler, E.B. and Shubin, N. A fish with fingers? **Nature (**1998) 391:133.

Torok, M.A., Gardiner, D.M., Shubin, N.H., Bryant, S.V. (1998) Expression of HoxD genes in developing and regenerating axolotl limbs. **Developmental Biology** 200: 225-233.

Thomson, K.S., Shubin, N., Poole, F.G. (1998) A problematic early tetrapod from the Mississippian of Nevada. **Journal of Vertebrate Paleontology** 18:315-320.

Shubin, N. (1998) An evolutionary cut and paste. **Nature** 394:12-13.

Jenkins, F.A., Jr. and Shubin, N. (1998) *Prosalirus bitis* and the anuran caudopelvic mechanism. **Journal of Vertebrate Paleontology** 18:495-510.

Wake, D.B. and Shubin, N. (1999) Limb development in the Pacific giant salamanders, Dicamptodon (Amphibia, Caudata, Dicamptodontidae). **Canadian Journal of Zoology** 76:11 2058-2066.

Gatesy, S.M., Middleton, K., Jenkins, F.A., Jr., (1999) Shubin, N. Three-dimensional preservation of foot movements in theropod dinosaurs. **Nature** 389: 141-144.

Shubin, N. and C. Marshall. Fossils, genes and the origin of novelty. (2000) **Paleobiology** 26(4): 324-340. Supplement.

Davis, M.C., Shubin, N., and Daeschler, E.B. (2001) Immature rhizodontids from the Devonian of North America. **Bull. Mus. Comp. Zool**. 156(1): 171-187.

Gao, K. and Shubin, N. (2001) Late Jurassic salamanders from Northern China. **Nature** 410(6828): 574-577.

Jenkins, F.A., Jr., Shubin, N.H., Gatesy, S.M., and Padian, K. (2002) A diminutive pterosaur (pterosaura: eudimorphodontidae) from the Greenlandic triassic. **Bull. Mus. Comp. Zool.** 156(1): 151-170.

Jeffery, J. E., M. C. Davis, N. H. Shubin and E. B. Daeschler. (2002) *Sauripterus* Hall, 1843 (Osteichthyes, Sarcopterygii): proposed conservation as the correct original spelling. **Bulletin of Zoological Nomenclature** 59(3):198-202.

Shubin, N. The origin of Evolutionary Novelty; examples from limbs. (2003) **Journal of Morphology** 2002; 252:15-28.

Gao, K. and Shubin, N.S. (2003) Earliest known crown group salamanders. **Nature** 422:424-429.

You, H., Luo, Z., Shubin, N., Witmer. L., Tang, Z., Tang, F. (2003) The earliest-known duck-billed dinosaur from deposits of late Early Cretaceous age in northwest China and hadrosaur evolution. **Cretaceous Research**. 24:347-355.

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Shubin, N. and Wake, D. (2004) Morphological variation, development, and evolution of the limb skeleton of salamanders (in Biology of the Amphibia, H. Heatwole, ed. Surrey Beatty and sons), 2003; 1782-1808.

Davis, M. C., Shubin, N. H. & Force, A. (2004) Pectoral fin and girdle development in the basal actinopterygians *Polyodon spathula* and *Acipenser transmontanus*. **Journal of Morphology** 262, 608-628.

Shubin, N. Daeschler, E. and Coates, M.I. (2004) The early evolution of the tetrapod humerus. **Science** 304:90-93. and Coates M.I., N.H. Shubin, and E.B. Daeschler. Response to comment on "The early evolution of the tetrapod humerus." **Science** 2005; 305:1715.

Shubin, N. and Dahn , R. (2004) Evolutionary Biology: Lost and Found. **Nature** 426: 703-704.

Davis, M.C., Shubin, N., and Daeschler, E.B. (2005) A new specimen of Sauripterus taylori (Sarcopterygii, Osteichthyes) from the Fammenian Catskill Formation of North America. **Journal of Vertebrate Paleontology** 24:26-40.

Franssen, R.A., S. Marks, D. Wake, and N. Shubin. (2005) Limb chondrogenesis of the seepage salamander, *Desmognathus aeneus* (amphibia: plethodontidae). **Journal of Morphology** 265:87-101.

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Daeschler E.B., Shubin, N.H. and Jenkins, F.A., Jr. (2006) A Devonian tetrapod-like fish and the origin of the tetrapod body plan. **Nature** 400:757-763.

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Downs, J.P. Daeschler, E.B., Jenkins, F.A. and Shubin, N. (2008) The cranial endoskeleton of *Tiktaalik roseae*. **Nature** 455:925-929.

Jenkins, F,A, Jr., Shubin, N.H., Gatesy, S.M., and Warren, A. (2009) *Gerrothorax pulcherrimus* from the Upper Triassic Fleming Fiord Formation of East Greenland and a reassessment of the contribution of head lifting to feeding in temnospondyls. **Journal of Vertebrate Paleontology** 26:223-247.

Gillis, J.A., Dahn, R.D. and Shubin, N.H. (2009) Chondrogenesis and homology of the visceral skeleton in the little skate, Leucoraja erinacea (Chondrichthyes: Batoidea). **Journal of Morphology** 270-628-643.

Daeschler, E.B., Clack, J.A., and Shubin, N. H. (2009) Late Devonian tetrapod remains from Red Hill, Pennsylvania, USA: How much diversity? **Acta Zoologica** 136:99-128.

Gillis, J.A. and Shubin, N. The evolution of gnathostome development: Insights from chondrichthyan embryology. (2009) **Genesis**. 47:825-841.

Shubin, N.H. Tabin,C. Carroll, S.B. (2009) Deep homology and the origins of evolutionary novelty. **Nature** 12:818-823.

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Fröbisch NB, Shubin NH. (2011) Salamander limb development: integrating genes, morphology and fossils. **Developmental Dynamics** 240: 1087-1099.

Gillis JA, Rawlinson KA, Bell J, Lyon WS, Baker CV, Shubin NH. (2011) Holocephalan embryos provide evidence for gill arch appendage reduction and opercular evolution in cartilaginous fishes. **Proceedings of the National Academy of Sciences** 108: 1507-1512.

Schneider I, Aneas I, Gehrke AR, Dahn RD, Nobrega MA, Shubin NH. (2011) Appendage expression driven by the Hoxd Global Control Region is an ancient gnathostome feature. **Proceedings of the National Academy of Sciences** 108: 12782-12786.

King HM, Shubin NH, Coates MI, Hale ME. (2011) Behaviorial evidence for the evolution of walking and bounding before terrestriality in sarcopterygian fishes. **Proceedings of the National Academy of Sciences** 2011 Dec 12.

Kammerer, C.F., Nesbitt, S.J., and Shubin, N.H. (2012). "The first basal dinosauriform (Silesauridae) from the Late Triassic of Morocco**." Acta Palaeontologica Polonica,57** 277-284.

Schneider, I. and Shubin, N. (2012) Making Limbs from Fins **Dev. Cell** 23: 1112-1125.

Gao, G.K. and Shubin, N.H. Late Jurassic Salamandroid from Western Liaoning, China. (2012) **Proceedings of the National Academy of Sciences** 109:5767-72.

Jason P. Downs, Edward B. Daeschler, Farish A. Jenkins Jr. & Neil H. Shubin (2012). "A new species of *Laccognathus* (Sarcopterygii, Porolepiformes) from the Late Devonian of Ellesmere Island, Nunavut, Canada". **Journal of Vertebrate Paleontology 31** (5): 981–996.

Shubin, N. (2012) Farish A. Jenkins, Jr. **Nature** 492: 7427.

Jason P. Downs, Edward B. Daeschler& Neil H. Shubin (2013). A new rhizodont fish from the Late Devonian of Arctic Canada. **Proceedings of the Academy of Natural Sciences of Philadelphia** 123:55-75.

JP Downs, et al. Holoptychius bergmanni sp. nov. (Sarcopterygii, Porolepiformes) from the Upper Devonian of Nunavut, Canada, and a Review of Holoptychius Taxonomy. **Proceedings of the Academy of Natural Sciences of Philadelphia** 162 (1), 47-59

Schneider, I. and Shubin, N. (2013) The Origin of the Tetrapod Limb: From Expeditions to Enhancers. **Trends in Genetics** 29:419-426.

Amemiya CT, et. al. (2013) The African Coelecanth genome provides evidence into tetrapod evolution. **Nature**. 496:311-316.

Shubin, N. Daeschler, E.B. Jenkins, F.A. (2014) Pelvic Girdle and Fin of *Tiktaalik roseae* **Proceedings of the National Academy of Sciences.** 111:393-399.

Shubin, N., Daeschler, E.B. and Jenkins, F.A., (2014) The origin of the tetrapod limb: a view from the shoulder. (in, Shubin, N, Dial, K., and Brainerd, E, eds. "The Great Transformations in Vertebrate Evolution", University of Chicago Press, Chicago).

Nakamura T, Klomp J, Pieretti J, Schneider I, Gehrke AR, Shubin NH. (2015) Molecular mechanisms underlying the exceptional adaptations of batoid fins. **Proceedings of the National Academy of Sciences** 112: 15940-5.

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Books

Trade

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Shubin N. The Universe Within (2013) Pantheon Books, New York. Reprinted by Vintage Press, New York (2014). 2 weeks NYTimes Bestseller List

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Shubin, N. Ends of the Earth (2024), Dutton Books, New York

Scholarly

Shubin, N, Dial. K. and Brainerd, E. eds. (2016) The Great Transformations in Vertebrate Evolution The University of Chicago Press, Chicago.

Television

On Air Host and Scientific Advisor, Your Inner Fish, (2014), (PBS: 3 x 56-minute episodes with national air dates 4/9;4/16; 4/23), Producer: Tngled Bank Productions, Howard Hughes Medical Institute
Emmy Award (News and Documentary, National)
Wildscreen Award
National Academy of Sciences, Communication Award,
Kavli Award, American Association for Advancement of Science

Selected Recent Named/ Plenary/Student-Invited Lectures Past 5 years

2022 Rhodes Lecture, Emory University
2021 Ryerson Lecture, The University of Chicago
2021 Beerman Lecture, Society for Investigative Dermatology
2020 Glassman Friday Lecture, The Marine Biological Laboratory
2019 Student invited Speaker, Department of Organismal Biology and Anatomy, Harvard University
2019 Big Ideas Lecture, Stowers Institute for Biomedical Research
2017 Pontifical Academy of Sciences, The Vatican