

# Stanford

---



## Christopher Lowe

Associate Professor of Biology

### CONTACT INFORMATION

- **Alternate Contact**

Ian Kohlne - Lab Manager

**Email** [ikohlne@stanford.edu](mailto:ikohlne@stanford.edu)

**Tel** 831 655 6227

### Bio

---

#### BIO

Professor Lowe trained as a biologist in the UK at Sussex University. He moved to The USA for graduate training with Greg Wray at SUNY Stonybrook in the Department of Ecology and Evolution, where he worked on the evolution of body plans and the origin of the echinoderms. Following his PhD, he worked as a Miller Fellow at UC Berkeley working on the origin of chordates focussing on the evolution of the vertebrate central nervous system, first in Mike Levine's lab, then with John Gerhart and Marc Kirschner from Harvard. His first academic position was as an Assistant Professor in the Department of Organismal Biology and Anatomy at the University of Chicago in 2005. He moved to Stanford in 2010 and his lab is based at Hopkins Marine Station in Monterey.

#### ACADEMIC APPOINTMENTS

- Associate Professor, Biology
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

#### HONORS AND AWARDS

- Searle Scholars Fellow, Searle Scholars Program (2008-2011)
- Miller Postdoctoral Fellowship, UC Berkeley (1998-2001)

#### PROFESSIONAL EDUCATION

- BSc. Hons, University of Sussex , Biology with European Studies (1991)
- PhD, Dept of Ecology and Evolution, SUNY Stony Brook , Ecology and Evolution (1998)

#### LINKS

- <http://lowe.stanford.edu>: <http://lowe.stanford.edu>

### Research & Scholarship

---

#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Evolution and development, specifically the evolution of the deuterostomes

## Teaching

---

### COURSES

#### 2020-21

- Macroevolution: BIO 136, BIO 236, GEOLSCI 136, GEOLSCI 236 (Win)

#### 2018-19

- The Developmental Basis of Animal Body Plan Evolution: BIO 176, BIO 276 (Win)

#### 2017-18

- Developmental Biology in the Ocean: Comparative Embryology and Larval Development: BIOS 236 (Spr)
- Evolution: BIOHOPK 85 (Spr)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Rachel Crane, Nicole Moyon, Pranav Vyas

#### Doctoral Dissertation Advisor (AC)

Jose Andrade Lopez, Paul Bump, Veronica Pagowski

#### Doctoral (Program)

Jose Andrade Lopez, Paul Bump, Veronica Pagowski

### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biology (School of Humanities and Sciences) (Phd Program)

## Publications

---

### PUBLICATIONS

- **Untangling posterior growth and segmentation by analyzing mechanisms of axis elongation in hemichordates.** *Proceedings of the National Academy of Sciences of the United States of America*  
Fritzenwanker, J. H., Uhlinger, K. R., Gerhart, J., Silva, E., Lowe, C. J.  
2019
- **I-SceI Meganuclease-mediated transgenesis in the acorn worm, *Saccoglossus kowalevskii*.** *Developmental biology*  
Minor, P. J., Clarke, D. N., Andrade Lopez, J. M., Fritzenwanker, J. H., Gray, J., Lowe, C. J.  
2018
- **Anteroposterior axis patterning by early canonical Wnt signaling during hemichordate development** *PLOS BIOLOGY*  
Darras, S., Fritzenwanker, J. H., Uhlinger, K. R., Farrelly, E., Pani, A. M., Hurley, I. A., Norris, R. P., Osovitz, M., Terasaki, M., Wu, M., Aronowicz, J., Kirschner, M., Gerhart, et al  
2018; 16 (1): e2003698
- **The Adult Body Plan of Indirect Developing Hemichordates Develops by Adding a Hox-Patterned Trunk to an Anterior Larval Territory** *CURRENT BIOLOGY*  
Gonzalez, P., Uhlinger, K. R., Lowe, C. J.  
2017; 27 (1): 87-95
- **Cis-regulatory architecture of a brain signaling center predates the origin of chordates** *NATURE GENETICS*  
Yao, Y., Minor, P. J., Zhao, Y., Jeong, Y., Pani, A. M., King, A. N., Symmons, O., Gan, L., Cardoso, W. V., Spitz, F., Lowe, C. J., Epstein, D. J.  
2016; 48 (5): 575-?
- **The deuterostome context of chordate origins** *NATURE*

- 
- Lowe, C. J., Clarke, D. N., Medeiros, D. M., Rokhsar, D. S., Gerhart, J.  
2015; 520 (7548): 456-465
- **Ancient deuterostome origins of vertebrate brain signalling centres** *NATURE*  
Pani, A. M., Mullarkey, E. E., Aronowicz, J., Assimakopoulos, S., Grove, E. A., Lowe, C. J.  
2012; 483 (7389): 289-U79
  - **The Cadherin-Catenin Complex is Necessary for Cell Adhesion and Embryogenesis in *Nematostella vectensis*.** *Developmental biology*  
Nathaniel Clarke, D., Lowe, C. J., James Nelson, W.  
2019
  - **The development and metamorphosis of the indirect developing acorn worm *Schizocardium californicum* (Enteropneusta: Spengelidae)** *FRONTIERS IN ZOOLOGY*  
Gonzalez, P., Jiang, J. Z., Lowe, C. J.  
2018; 15
  - **Characterization of the Cadherin-Catenin Complex of the Sea Anemone *Nematostella vectensis* and Implications for the Evolution of Metazoan Cell-Cell Adhesion** *MOLECULAR BIOLOGY AND EVOLUTION*  
Clarke, D. N., Miller, P. W., Lowe, C. J., Weis, W. I., Nelson, W. J.  
2016; 33 (8): 2016-2029
  - **Embracing the comparative approach: how robust phylogenies and broader developmental sampling impacts the understanding of nervous system evolution** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*  
Hejnal, A., Lowe, C. J.  
2015; 370 (1684)
  - **On a Possible Evolutionary Link of the Stomochord of Hemichordates to Pharyngeal Organs of Chordates** *GENESIS*  
Satoh, N., Tagawa, K., Lowe, C. J., Yu, J., Kawashima, T., Takahashi, H., Ogasawara, M., Kirschner, M., Hisata, K., Su, Y., Gerhart, J.  
2014; 52 (12): 925-934
  - **Animal evolution: stiff or squishy notochord origins?** *Current biology*  
Hejnal, A., Lowe, C. J.  
2014; 24 (23): R1131-3
  - **Phylogenomic analysis of echinoderm class relationships supports Asterozoa** *PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*  
Telford, M. J., Lowe, C. J., Cameron, C. B., Ortega-Martinez, O., Aronowicz, J., Oliveri, P., Copley, R. R.  
2014; 281 (1786)
  - **The Fox/Forkhead transcription factor family of the hemichordate *Saccoglossus kowalevskii*** *EVODEVO*  
Fritzenwanker, J. H., Gerhart, J., Freeman, R. M., Lowe, C. J.  
2014; 5
  - **The Fox/Forkhead transcription factor family of the hemichordate *Saccoglossus kowalevskii*.** *EvoDevo*  
Fritzenwanker, J. H., Gerhart, J., Freeman, R. M., Lowe, C. J.  
2014; 5: 17-?
  - **FGF signaling induces mesoderm in the hemichordate *Saccoglossus kowalevskii*** *DEVELOPMENT*  
Green, S. A., Norris, R. P., Terasaki, M., Lowe, C. J.  
2013; 140 (5): 1024-1033
  - **The evolutionary origin of epithelial cell-cell adhesion mechanisms.** *Current topics in membranes*  
Miller, P. W., Clarke, D. N., Weis, W. I., Lowe, C. J., Nelson, W. J.  
2013; 72: 267-311
  - **Identical Genomic Organization of Two Hemichordate Hox Clusters** *CURRENT BIOLOGY*  
Freeman, R., Ikuta, T., Wu, M., Koyanagi, R., Kawashima, T., Tagawa, K., Humphreys, T., Fang, G., Fujiyama, A., Saiga, H., Lowe, C., Worley, K., Jenkins, et al  
2012; 22 (21): 2053-2058
  - **Evolutionary crossroads in developmental biology: hemichordates** *DEVELOPMENT*  
Roettinger, E., Lowe, C. J.  
2012; 139 (14): 2463-2475
-

- **Animal Evolution: A Soap Opera of Unremarkable Worms** *CURRENT BIOLOGY*

Lowe, C. J., Pani, A. M.  
2011; 21 (4): R151-R153

- **Structural shifts of aldehyde dehydrogenase enzymes were instrumental for the early evolution of retinoid-dependent axial patterning in metazoans** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*

Sobreira, T. J., Marletaz, F., Simoes-Costa, M., Schechtman, D., Pereira, A. C., Brunet, F., Sweeney, S., Pani, A., Aronowicz, J., Lowe, C. J., Davidson, B., Laudet, V., Bronner, et al  
2011; 108 (1): 226-231