

# Caroline Albertin

## Current Address:

Marine Biological Laboratory  
Eugene Bell Center for Regenerative Biology and Tissue Engineering  
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## Education

**University of Chicago**, Chicago IL  
Ph.D., Department of Organismal Biology and Anatomy August 2016  
M.S. Department of Organismal Biology and Anatomy August 2012

**Université Pierre et Marie Curie/École Normale Supérieure (Paris)**  
Masters: Cellular and Developmental Biology June 2009

**Mount Holyoke College**  
Bachelor of Arts *cum laude* May 2005  
Majors: Biological Sciences and French (High Honors in Biology)

## Research Experience

**Hibbitt Early Career Fellow** 2018 - present  
Marine Biological Laboratory

**Postdoctoral Researcher** 2016 – 2018  
University of Chicago, Department of Neurobiology  
Ragsdale Laboratory

**Graduate Researcher** 2009 – 2016  
University of Chicago, Department of Organismal Biology and Anatomy  
Ragsdale Laboratory  
Doctoral Dissertation: The molecular embryology of a cephalopod mollusc,  
*Octopus bimaculoides*

**Masters Internship** 2009  
Katholieke Universiteit Leuven (Belgium), Callaerts Laboratory  
Masters Thesis: *Hox* genes in the Mollusca

**Masters Internship** 2008  
University College London (UK), Yamamoto Laboratory  
Project: Heat shock proteins in the evolution and development of *Astyanax mexicanus*

**Technical Research Assistant** 2005 – 2007  
Brigham and Women's Hospital, Bonventre Laboratory

**Research Technician** 2005 – 2006  
Children's Hospital Boston, Division of Infectious Diseases

**Undergraduate Honors Thesis** 2005  
Mount Holyoke College, Rachootin laboratory  
Thesis: Do the eyes have it? The fine structure of the ommatidia of *Scutigera coleoptrata*

**Selected  
Publications**

Crawford, K, Quiroz JFD, Koenig KM, Ahuja N, **Albertin CB**, Rosenthal JJR. 2020. Highly efficient knockout of a squid pigmentation gene. *Current Biology*. 30:3484-3490

**Albertin CB**, Simakov O. 2020. Cephalopod biology: at the intersection between genomic and organismal novelties. *Annual Reviews of Animal Biosciences*. 8:1.

**Albertin CB**, Simakov O, Mitros T, Wang YZ, Pungor JR, Edsinger-Gonzalez E, Brenner S, Ragsdale CW, Rokhsar DS. 2015. The octopus genome and the evolution of cephalopod neural and morphological novelties. *Nature*. 524(7564):220-4.

Shigeno S, Parnaik R, **Albertin CB**, Ragsdale CW. 2015. Evidence for a cordal, not ganglionic, pattern of cephalopod brain neurogenesis. *Zoological letters*. 1(26)

**Albertin CB**, Bonnaud L, Brown CT, Crookes-Goodson WJ, de Fonseca RR, Di Cristo C, Dilkes BP, Edsinger-Gonzales E, Freeman RM Jr., Hanlon RT, Koenig KM, Lindgren AR, Martindale MQ, Minx P, Moroz LL, Nödl MT, Nyholm SV, Ogura A, Pungor JR, Rosenthal JJ, Schwarz EM, Shigeno S, Strugnell JM, Wollesen T, Zhang G, Ragsdale CW. 2012. Cephalopod genomics: A plan of strategies and organization. *Standards of Genomic Science*. 7(1):175-88.

**Additional  
Publications**

Mendoza A, Daniel Poppe D, Buckberry S, Pflueger J, **Albertin CB**, Daish T, Bertrand S, Mustienes EC, Gomez-Skarmeta JL, Nery JR, Ecker JR, Boris Baer B, Ragsdale CW, Grützner F, Escriva H, Venkatesh B, Bogdanovic O, Lister R. The emergence of the brain non-CpG methylation system in vertebrates. *Nature Ecology and Evolution*. 5(3):369-378

da Fonseca RR, Couto A, Machado AM, Brejova B, **Albertin CB**, Silva F, Gardner P, Baril T, Hayward A, Campos A, Ribeiro ÂM, Barrio-Hernandez I, Hoving HJ, Tafur-Jimenez R, Chu C, Frazão B, Petersen B, Peñaloza F, Musacchia F, Alexander GC, Osório H, Winkelmann I, Simakov O, Rasmussen S, Rahman MZ, Pisani D, Vinther J, Jarvis E, Zhang G, Strugnell JM, Castro LFC, Fedrigo O, Patricio M, Li Q, Rocha S, Antunes A, Wu Y, Ma B, Sanges R, Vinar T, Blagoev B, Sicheritz-Ponten T, Nielsen R, Gilbert MTP. 2020. A draft genome sequence of the elusive giant squid, *Architeuthis dux*. *GigaScience*. 9(1):152

Ritschard E, Whitelaw B, **Albertin CB**, Cooke IR, Strugnell JM, Simakov O. 2019. Coupled genomic evolutionary histories as signatures of organismal innovations in cephalopods. *Bioessays*. 41:1900073

Briscoe SD, **Albertin CB**, Rowell JJ, Ragsdale CW. 2018. Neocortical association cell types in the forebrain of birds and alligators. *Current Biology*. 28(5):686-696

Sanchez G, Setiamarga DHE, Tuanapaya S, Tongtherm K, Winkelmann IE, Schmidbaur H, Umino T, **Albertin C**, Allcock L, Perales-Raya C, Gleadall I, Strugnell JM, Simakov O, Nabhitabhata J. 2018. Genus-level phylogeny of cephalopod using molecular markers: current status and problematic areas. *PeerJ*. 6, e4331

**Albertin CB**, Ragsdale CW. 2018. More than one way to a central nervous system. *Nature*. 533(7686):34-36

Vidal EA, Villanueva R, Andrade JP, Gleadall IG, Iglesias J, Koueta N, Rosas C, Segawa S, Grasse B, Franco-Santos RM, **Albertin CB**, Caamal-Monsreal C, Chimal ME, Edsinger-Gonzales E, Gallardo P, Le Pabic C, Pascual C, Roumbedakis K, Wood J. 2012. Cephalopod culture: current status of main biological models and research priorities. *Adv Mar Biol*. 67:1-98

Hentschel DM, Mengel M, Boehme L, Liebsch F, **Albertin C**, Bonventre JV, Haller H, Schiffer M. Rapid screening of glomerular slit diaphragm integrity in larval zebrafish. 2007. *Am J Renal Physiol*. 293(5):F1746-F1750.

### Manuscripts In Review

Schmidbaur H, Kawaguchi A, Gerguri T, Fu X, Hoang OP, Zimmerman B, Ritschard E, Weissenbacher A, Foster J, Nyholm S, Bates P, **Albertin CB\***, Tanaka E\*, Simakov O\*. Emergence of novel cephalopod gene regulation and expression through large-scale genome reorganization. *In review at Nature Communications*. \*denotes communicating authors.

**Albertin CB\***, Mitros T\*, Medina S\*, Schmidbaur H\*, Sanchez G, Schmutz J, Rosenthal JJ, Ragsdale CW, Simakov O, Rokhsar DS. Genome and transcriptome mechanisms driving cephalopod evolution. *In review at Nature Communications*

### Teaching Experience

**Marine Biological Laboratory**, Woods Hole, MA, USA  
Embryology Course (Faculty for Spiralian module) 2018-present  
Course lecturer, designed module, assisted students in experimental design and data collection

Biodiversity and Genomics (Faculty) 2018-2019  
Undergraduate University of Chicago course at MBL. Course lecturer, Designed and mentored students in a group project.

**Concordia University**, Chicago, IL, USA  
Molecular Biology (Guest Lecturer) 2020  
Molecular Biology (Guest Lecturer) 2015

**University of Chicago**, Chicago, IL, USA  
Scientific Integrity and Ethical Conduct (Teaching Assistant) Spring 2014  
Vertebrate Development (Teaching Assistant) Spring 2012  
Developmental Biology (Teaching Assistant) Spring 2011

**Mount Holyoke College**, South Hadley, MA, USA  
Plant Biology: A Green World (Teaching Assistant) Fall 2004  
Chemistry 202: Organic Chemistry (Teaching Assistant) 2002-2005

### Advising and Mentoring

**Primary advisor for:** Bianca Campagnari (UChicago 2020), Ophélie McIntosh (Masters: Tropimundo/Erasmus, 2019) Abigail Point (UChicago 2010-2013), Shuqi Kang (UChicago 2012-2014), Holly Gui (UChicago, 2014-2017), Laura Aylesworth (Mount Holyoke College, 2004)

### PhD Committee

Astrid Deryckere (Katholieke Universiteit Leuven, 2020)

<b>Awards and Fellowships</b>	Hibbitt Fellowship, Marine Biological Laboratory	2018- 2021
	MBL-UChicago Graduate Student Research Award	2015- 2017
	Cephalopod International Advisory Council, Best Paper Award	2016
	Cephalopod International Advisory Council, Best Student Talk (2 <sup>nd</sup> )	2015
	Award for Excellence in Teaching, University of Chicago	2011
	Developmental Biology Training Grant	2011- 2013
	Rachel Brown Fellowship for Graduate Study, Mount Holyoke College	2008
	Mary Lyon Scholar for High Honors Thesis, Mount Holyoke College	2005
	Abby Howe Turner Award for Biology, Mount Holyoke College	2005
	NSF Research Experience for Undergraduates, Shoals Marine Lab	2004
	Sylvia Shrek Hubble Memorial Grant, Mount Holyoke College	2003
	Cascade Mentoring Summer Research, Mount Holyoke College	2003
	Howard Hughes Medical Institute Fellowship, Mount Holyoke College	2002
	President's Community Service Award	2001
<b>Invited Lectures</b>	World Congress of Malacology, Keynote speaker ( <i>Munich, Germany</i> )	2022
	Sydney Brenner Memorial Meeting ( <i>Cold Spring Harbor, NY</i> )	2022
	Life Science Across the Globe ( <i>Janelia, VA - virtual</i> )	2020
	Society for Developmental Biology Annual Meeting ( <i>Chicago, IL- virtual</i> )	2020
	NSF-sponsored Spiralian Meeting ( <i>Whitney Labs, FL</i> )	2019
	Royal Society Meeting: Pearls of Wisdom ( <i>Chicheley Hall, UK</i> )	2019
	World Congress of Malacology ( <i>Monterey, CA</i> )	2019
	Astrobiology Colloquium, University of Washington ( <i>Seattle, WA</i> )	2018
	Biology Seminar, University of Massachusetts ( <i>Boston, MA</i> )	2018
	Society for Integrative Comparative Biology ( <i>New Orleans, LA</i> )	2017
Marine Biological Laboratory Embryology Course ( <i>Woods Hole, MA</i> )	2015	
Paths to Cephalopod Genomics, NESCent ( <i>Durham, NC</i> )	2012	
<b>Conference Seminars</b>	Society for Integrative Comparative Biology ( <i>Austin, TX</i> )	2020
	Cephalopod International Advisory Committee ( <i>Tampa, FL</i> )	2018
	Society for Developmental Biology ( <i>Minneapolis, MN</i> )	2017
	Cephalopod International Advisory Committee ( <i>Hakodate, Japan</i> )	2015
<b>Academic Service</b>	<b>Reviewer:</b> Nature, Nature Genetics, Nature Ecology and Evolution, Developmental Biology, Molecular Ecology, Molecular Ecology and Evolution, Molecular Phylogenetics and Evolution, Frontiers in Biology	
	<b>Member,</b> Society for Integrative Comparative Biology, Society for Developmental Biology	
<b>Outreach</b>	<b>Penikese Island Science and Nature Camps</b>	2021
	Invited middle school-aged girls attending the Penikese Island Camps to the lab and discussed career paths in science (~48 students, in groups of 6)	
	<b>Science before Supper</b>	2019
	Lecture at the Falmouth Public Library for the public, geared for secondary school-aged students	
	<b>Brains! Workshops</b>	2014
With Stephanie Palmer's lab, led 4 <sup>th</sup> grade students from a local elementary school through hands on experiments to learn about neural signaling.		
<b>Field Museum DNA Residency Program lab visit</b>	2012-2016	
Hosted Chicago-area high school students for lab tours and discussions		

<b>Selected Press</b>	NPR, All Things Considered: <i>The 1st Gene-Altered Squid Has Thrilled Biologists</i>	2020
	WTTW (Chicago Public Television)	2020
	Les années lumières (Radio-Canada) <i>L'ADN des calmars géants analysé</i>	2020
	NPR, <i>Why octopuses might be the next lab rats</i>	2019
	Science Friday (NPR), <i>Closing out the Cephalo-party</i>	2019
	Science Friday (NPR) <i>Eight (or more) reasons to be amazed by the octopus</i>	2016
	UChicago Creative <i>Octopus Intelligence and Genome Research</i>	2015
	By Anthony Penta, <i>Winner of a 2016 Midwest Regional Emmy</i>	
	Washington Post, <i>Scientists just sequenced the octopus genome</i>	2015
The Economist, <i>Octopuses, genes and intelligence</i>	2015	

**References****Clifton W. Ragsdale**

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 University of Chicago  
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 University of Vienna  
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**Victoria Prince**

Dean of Graduate Affairs  
 Professor, Department of Organismal Biology and Anatomy  
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