Andrew K Lawton

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Education

Yale University, New Haven CT
PhD., MS. Molecular Cellular and Developmental Biology 2009, 2013

Clemson University, Clemson SC
BS. Genetics, Magma Cum Laude 2006

Professional Experience

Mississippi State University
Assistant Professor of Biological Sciences 2019-Present

Memorial Sloan Kettering Cancer Center
Postdoctoral Research Fellow 2013-2019
Dr. Alexandra Joyner

Funding

Postdoctoral Ruth L. Kirschstein National Research Service Award, NINDS 2014-2016
• *Role of granule neuron progenitor dynamics in cerebellar development.* 1F32NS086163-01

Publications

Das D, Jülich D, Schwendinger-Schreck J, Guillon E, **Lawton AK**, Dray N, Emonet T, O'Hern C, Shattuck D, and Holley SA (2019). Organization of embryonic morphogenesis via mechanical information. Dev Cell., 49(6): 829-839 PMID: 31178400

Lawton AK, Engstrom T, Rohrbach D, Omura M, Turnbull D, Mamou J, Zhang T, Schwarz JM, Joyner AL (2019). Cerebellar folding is initiated by mechanical constraints on a fluid-like layer without a cellular pre-pattern. *Elife, 8*. PMID: 30990415

Wojcinski A, Morabito M, **Lawton AK**, Stephen DN, & Joyner AL (2019) Genetic deletion of genes in the cerebellar rhombic lip lineage can stimulate compensation through adaptive reprogramming of ventricular zone-derived progenitors. *Neural Development* 14(1):4. PMID: 30764875

Engstrom TA, Zhang T, **Lawton AK**, Joyner AL, & Schwarz JM (2018) Buckling without Bending: A New Paradigm in Morphogenesis. *Phys Rev X* 8(4).

Joyner AL, Willet R and **Lawton A.** *Cellular and genetic programs underlying cerebellum development,* in Development of the Cerebellum from Molecular Aspects to Diseases. (2017) Springer International Publishing, editor, H. Marzban.

Wojcinski A, **Lawton AK**, Bayin NS, Lao Z, Stephen DN, Joyner AL (2017) Cerebellar granule cell replenishment postinjury by adaptive reprogramming of Nestin+ progenitors. Nat.Neurosci. Oct;20(10):1361-1370. PMID 28805814

Jülich D, Cobb G, Melo A, McMillen P, **Lawton AK**, Mochrie S, Rhoades E, Holley SA (2015) Cross-scale Integrin regulation organizes ECM and tissue topology. Dev Cell., 34(1):33-44. PMID 26096733

Dray N, **Lawton A**, Nandi A, Jülich D, Emonet T and Holley SA Cell-Fibronectin interactions propel vertebrate trunk elongation via tissue mechanics. Curr Biol., 23 (2013), pp.1335-1341 PMID 23810535

Lawton AK, Nandi A, Stulberg MJ, Dray N, Sneddon MW, Pontius W, Emonet T, Holley SA(2013) Regulated tissue fluidity steers zebrafish body elongation. Development 140 (3):573-582. PMID 23293289

Teaching

Gerstner Sloan Kettering Graduate School — Spring 2018
Teaching Fellow
- Designed and taught lecture entitled 'The physics of development.'
- Directed daily literature reviews and led discussion sections.
- Evaluated student participation

Gerstner Sloan Kettering Graduate School, Summer Undergraduate Research Program — 2015, 2016
Student Supervisor, 2 Students
- Designed projects, managed experiments, taught best science practices.
- Guided primary literature reading, experimental design, and data analysis.

Science Education Outreach Program, Nathan Hale School — March 2011
Instructor
- Taught elementary school students (1) difference between genotype and phenotype with interactive examples and (2) how to propose and test hypotheses.

Yale University — Fall 2009-2011
Lecturer (MCDB 900a)
- Designed and presented lecture on achieving success in graduate school.

Yale University — Fall 2007, 2008
Teaching Fellow, Genetics (MCDB 200a)
- Designed and led weekly teaching sessions of undergraduate students
- Provided one-on-one instruction, graded work, provided detailed feedback

Presentations

Mid-Atlantic Regional Society for Developmental Biology Meeting — 2018
- Poster title: *The mechanics of cerebellar foliation*

EMBL Symposium, Tissue Self-Organization: Challenging the System — 2018
- Talk title: *Cerebellar folding and Differential Expansion*

NeuroDevelopment Seminar Series — 2018
- Talk title: *Cerebellar folding Through Differential Expansion*

Mathematical Biosciences Institute, Modeling of Tissue Growth and Form — 2017
- Invited Participant
- Poster title: *Mechanics of Cerebellar Foliation*

Jacques Monod Conference: building, repairing and evolving biological tissues — 2015
- Poster title: *The mechanics of cerebellar foliation*

Santa Cruz Developmental Biology Meeting — 2012
- Talk title: *The mechanics of cell flow during Zebrafish trunk elongation*

Mid-Atlantic Regional Zebrafish Meeting — 2010
- Talk title: *Cell migration and axis elongation*