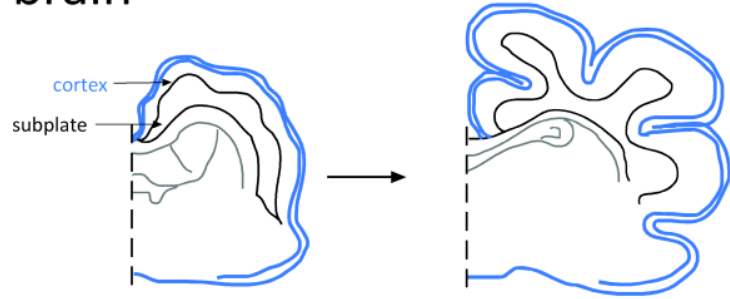
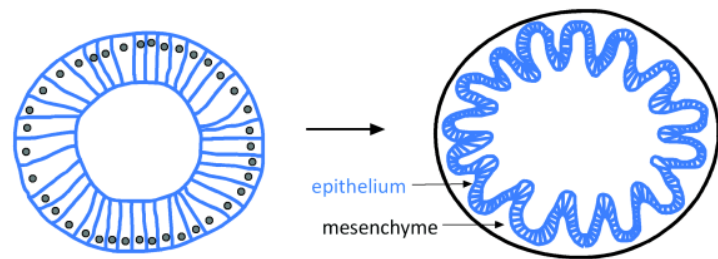


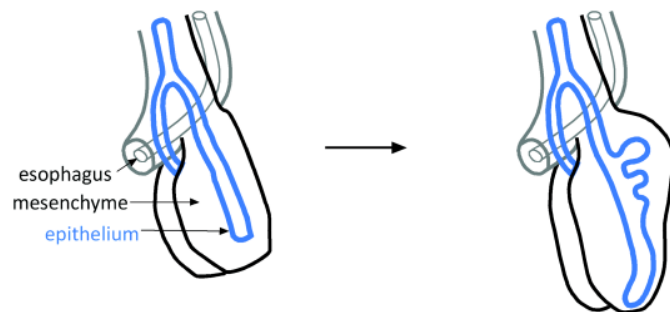
brain



intestine



lung



Professor Celeste M. Nelson

From: Celeste M. Nelson, "On buckling morphogenesis", ASME Journal of Biomechanical Engineering, Vol. 138, No. 2, 021005, January 2016, DOI: 10.1115/1.4032128

See:

<http://www.princeton.edu/~cmngroup/>

<http://www.princeton.edu/cbe/people/faculty/nelson/>

<https://www.princeton.edu/~cmngroup/Celeste.htm>

<https://scholar.google.com/citations?user=AKAHOvwAAAAJ>

<http://www2.technologyreview.com/tr35/profile.aspx?TRID=954>

<https://www.hhmi.org/scientists/celeste-nelson>

<https://www.aiche.org/sbe/community/bio/celeste-nelson>

Director, Program in Engineering Biology, Dept. of Chemical and Biological Engineering
Princeton University, Princeton, New Jersey, USA

Biography:

Celeste M. Nelson is an Associate Professor in the Departments of Chemical & Biological Engineering and Molecular Biology at Princeton University. She earned S.B. degrees in Chemical Engineering and Biology at MIT in 1998, a Ph.D. in Biomedical Engineering from the Johns Hopkins University School of Medicine in 2003, followed by postdoctoral training in Life Sciences at Lawrence Berkeley National Laboratory until 2007. Her laboratory specializes in using engineered tissues and computational models to understand how mechanical forces direct developmental patterning events during tissue morphogenesis. She is the co-author of over 60 peer-reviewed publications. Dr. Nelson's contributions to the fields of tissue mechanics and morphogenesis have been recognized by a number of awards (listed below).

Education:

S.B., Chemical Engineering, Massachusetts Institute of Technology, 1998
S.B., Biology, Massachusetts Institute of Technology, 1998
Ph.D., Biomedical Engineering, Johns Hopkins University, 2003

Honors and Awards:

President's Award for Distinguished Teaching, 2016
Distinguished Teacher Award, Princeton School of Engineering and Applied Science, 2014
Camille Dreyfus Teacher-Scholar Award, 2012
Allan P. Colburn Award, American Institute of Chemical Engineers, 2011
Sloan Fellow, 2010
Packard Fellowship, David and Lucile Packard Foundation, 2008
Burroughs Wellcome Career Award at the Scientific Interface, 2007
DOD Breast Cancer Research Program Postdoctoral Fellowship, 2004

Research Interests:

Our group seeks to answer the following fundamental questions: How are the final architectures of tissues and organs determined? Specifically, how do individual cells -- the building blocks of these materials -- integrate complex biological signals (both biochemical and mechanical) dynamically and spatially within tissues to direct the development of organs?

Selected Publications:

Nelson CM, Jean RP, Tan JL, Liu WF, Sniadecki NJ, Spector AA, Chen CS (2005) Emergent patterns of growth controlled by multicellular form and mechanics. *Proc Natl Acad Sci* 102(33): 11594–11599
Nelson, C. M. , 2013, "Forces in Epithelial Origami," *Dev. Cell*, 26(6), pp. 554–556.
Varner, V. D. , Gleghorn, J. P. , Miller, E. , Radisky, D. C. , and Nelson, C. M. , 2015, "Mechanically Patterning the Embryonic Airway Epithelium," *Proc. Natl. Acad. Sci. U.S.A.*, 112(30), pp. 9230–9235
Siedlik, M. J. , and Nelson, C. M. , 2015, "Regulation of Tissue Morphodynamics: An Important Role for Actomyosin Contractility," *Curr. Opin. Genet. Dev.*, 32, pp. 80–85
Kim, H. Y. , Pang, M. F. , Varner, V. D. , Kojima, L. , Miller, E. , Radisky, D. C. , and Nelson, C. M. , 2015, "Localized Smooth Muscle Differentiation is Essential for Epithelial Bifurcation During Branching Morphogenesis of the Mammalian Lung," *Dev. Cell*, 34(6), pp. 719–726.
Celeste M. Nelson, "On buckling morphogenesis", *ASME Journal of Biomechanical Engineering*, Vol. 138, No. 2, 021005, January 2016, DOI: 10.1115/1.4032128