

Stanford



Anna Kim

Postdoctoral Research Fellow, Molecular and Cellular Physiology

Bio

BIO

During my doctoral studies, I worked on the development of micro-scale platforms for investigations of biological structures, encompassing microfluidic devices and patterned surfaces. My current project at Stanford focuses on studying the role of mechanical forces in adaptive resizing of the *Drosophila* midgut, using novel microsystems.

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Chalmers University of Technology (2016)

STANFORD ADVISORS

- Lucy O'Brien, Postdoctoral Research Mentor
- Lucy O'Brien, Postdoctoral Faculty Sponsor

LINKS

- LinkedIn: <https://www.linkedin.com/in/annaakim/>
- Doctoral thesis: <http://publications.lib.chalmers.se/publication/244716>
- Google Scholar: <https://scholar.google.com/citations?user=r4W3cT0AAAAJ&hl=>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The small intestine has the remarkable ability to adapt its size to the availability of resources. It can grow dramatically in size to increase its digestive capacity when food is abundant and shrink to conserve energy when food is scarce. Stem cells play an important role in at least some of the mechanisms which modulate this reversible remodelling of adult organs.

We aim to understand how the stem cells can sense the different levels of functional demand. To address this question, we will exploit the genetic toolbox of the *Drosophila* and establish a reductionist model of its midgut. We will also develop new micro-scale devices to delivering forces and chemical stimuli. Using this interdisciplinary approach, we will study the interplay between the physical forces in the intestine and the nutrients in the adaptive resizing of the *Drosophila* midgut.

LAB AFFILIATIONS

- Lucy O'Brien, The O'Brien Lab (4/17/2017)
- Beth Pruitt, Stanford Microsystems Laboratory (4/17/2017)

Publications

PUBLICATIONS

- **Using a Microfluidics Device for Mechanical Stimulation and High Resolution Imaging of *C. elegans*** *JOVE-JOURNAL OF VISUALIZED EXPERIMENTS*
Fehlauer, H., Nekimken, A. L., Kim, A. A., Pruitt, B. L., Goodman, M. B., Krieg, M.
2018
- **Microfluidics for mechanobiology of model organisms.** *Methods in cell biology*
Kim, A. A., Nekimken, A. L., Fechner, S., O'Brien, L. E., Pruitt, B. L.
2018; 146: 217–59
- **Pneumatic stimulation of *C. elegans* mechanoreceptor neurons in a microfluidic trap.** *Lab on a chip*
Nekimken, A. L., Fehlauer, H., Kim, A. A., Manosalvas-Kjono, S. N., Ladpli, P., Memon, F., Gopisetty, D., Sanchez, V., Goodman, M. B., Pruitt, B. L., Krieg, M.
2017