

CAROLINE AJO-FRANKLIN

Harvard Medical School
Department of Systems Biology
200 Longwood Avenue
Warren Alpert Building 536
Boston, MA 02115
(617) 432-6403
Caroline_Ajo-Franklin@hms.harvard.edu

195 Erie St. Apt. 2
Cambridge, MA 02139
(617) 460-4641

EDUCATION:

Ph.D. Chemistry, September 2004
Stanford University, Stanford CA

B.S. Chemistry, May 1997
Emory University, Atlanta GA

EXPERIENCE:

Mar. 2005-present

Department of Systems Biology, Harvard Medical School and
Department of Cancer Biology, Dana-Farber Cancer Institute
Postdoctoral Fellow, P.I. Pamela A. Silver

- Construction and quantitative characterization of a series of novel zinc-finger based transcriptional activators and repressors in *Saccharomyces cerevisiae*
- Use of transcriptional activators and repressors to rationally engineer artificial genetic networks, including a positive autofeedback loop and a feedback loop composed of both activators and repressors
- Design and construction of a daughter-specific arrester which conditionally halts division of daughter cells to create populations of cells that age
- Supervision and instruction of graduate students in experimental design and basic molecular biology techniques

June-Sept. 2004

New Technologies Department, Kosan Biosciences
Intern (part of NIH Biotechnology Training Grant), supervisor Mark Welch

- Progress towards a medium-throughput assay to determine the association constant for binary combinations in a large library of polyketide synthase (PKS) modules

Sept.-Dec. 2004

Department of Chemistry, Stanford University
Consulting Postdoctoral Fellow, P. I. Steven G. Boxer

Sept. 1997-June 2004

Graduate research assistant, advisor Steven G. Boxer

- Introduction and development of Variable Incidence Angle Fluorescence Interference Contrast Microscopy (*VIA-FLIC*), a simple and novel technique to image individual objects with high z-resolution
- Development of Variable Incidence Angle Total Internal Reflection Fluorescence Microscopy (*VIA-TIRFM*)
- Quantitative comparison of *VIA-TIRFM* data and prediction using ~40 nm polystyrene beads as well-defined fluorescent structure

- Development of Fluorescence Interference Contrast Microscopy (*FLIC*) technique, resulting in ability to distinguish individual leaflets of lipid bilayer by z-position
- Use of *FLIC* to characterize new model system of tethered oligonucleotides

1998, 2000

Department of Chemistry, Stanford University

Teaching assistant

Recitation section leader for undergraduate introductory chemistry

Laboratory instructor for undergraduate physical chemistry

AWARDS:

Stanford Department of Chemistry Evelyn Laing McBain Fellowship, 2001.

NIH Graduate Training in Biotechnology Fellowship, 1998.

General Electric Faculty for the Future Fellowship, 1997.

American Chemical Society Minority Scholar, 1996.

PUBLICATIONS:

"From Synthetic Parts to a Synthetic Memory Network: Rational engineering in *S. cerevisiae*" **C. M. Ajo-Franklin**, D. A. Drubin, J. A. Eskin, E. Gee, P. A. Silver. *manuscript in preparation*.

"Variable Incidence Angle Fluorescence Interference Contrast Microscopy for z-Imaging Single Objects" **C. M. Ajo-Franklin**, P. V. Ganesan, S. G. Boxer, *Biophys. J.*, 89, 2759-2769 (2005).

"Probing the structure of supported membranes and tethered oligonucleotides by fluorescence interference contrast microscopy" **C. M. Ajo-Franklin**, C. Yoshina-Ishii, S. G. Boxer, *Langmuir*, 11, 4976-83 (2005).

"Patterned Supported Lipid Bilayers and Monolayers on PDMS." P. Lenz, **C. M. Ajo-Franklin**, S. G. Boxer, *Langmuir*, 20, 11092-11099 (2004).

"High refractive index substrates for fluorescence microscopy of biological interfaces with high z contrast." **C. M. Ajo-Franklin**, L. Kam, S. G. Boxer, *Proc. Natl. Acad. Sci. USA*, 98, 13643-13648 (2001).

PRESENTATIONS:

“Engineering an activation-based cell-cycle counter.” C.M. Ajo-Franklin, D. Landgraf, B. Afonso, I. Phillips, E. Gee, P. A. Silver. Presented at the Synthetic Biology 2.0 Conference 2006.

“Hybrid substrates for fluorescence microscopy of biological interfaces (poster).” **C. M. Ajo-Franklin**, L. Kam, S. G. Boxer, *Biophys. J.* 82, 500A. Presented at the Biophysical Society 46th Annual Meeting 2002.

“High z-resolution of Biological Interfaces (oral)” **C. M. Ajo-Franklin**, L. Kam, S. G. Boxer. Presented at the AVS 48th International Symposium

“A high refractive index substrate to study membrane interfaces with high z-resolution (oral)” **C. M. Ajo**, L. Kam, S. G. Boxer, *Biophys. J.* 80, 504A. Presented at the Biophysical Society 45th Annual Meeting 2001.

“Formation and Patterning of Supported Fluid Lipid Bilayers on a High Refractive Index Substrate (oral)” **C.M. Ajo**, L. Kam, S. G. Boxer. Presented at the AVS 47th International Symposium.

REFERENCES:

Postdoctoral Research Advisor
Prof. Pamela A. Silver
Department of Systems Biology
Harvard Medical School
200 Longwood Ave. WAB 536
Boston, MA 02115
(617) 432-6401
pamela_silver@hms.harvard.edu

Thesis Advisor
Prof. Steven G. Boxer
Department of Chemistry
Stanford University
Stanford, CA 94025
(650) 723-4482
sboxer@stanford.edu

Prof. Tom Knight
MIT CSAIL
The Stata Center
32 Vassar Street, 32-312
Cambridge, MA 02139
(617) 253-7807
tk@mit.edu