

Doogie Oh, Ph.D.

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Harvard Medical School
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Boston, MA 02115

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RESEARCH EXPERIENCE

Postdoctoral Researcher (Harvard University, 2009 – present)

Research Fellow 2019 – present
Wyss Institute for Biologically Inspired Engineering, Harvard University
Department of Systems Biology, Harvard Medical School
Boston, MA (Supervisor: Professor Peng Yin)
Research project: engineering chromosome imaging techniques and developing biomedical and non-biomedical applications based on such systems

Research Associate 2014 – 2019
FAS Center for Systems Biology
Department of Molecular and Cellular Biology, Harvard University
Cambridge, MA

Postdoctoral Fellow 2009 – 2014
FAS Center for Systems Biology
Department of Molecular and Cellular Biology, Harvard University
Cambridge, MA

EDUCATION

Ph.D. in Chemistry (Physical Chemistry) 2009
School of Chemistry and Biochemistry
Georgia Institute of Technology
Atlanta, GA (Thesis advisor: Professor Thomas M. Orlando)

M.S. in Materials Science and Engineering (Polymer Material) 2002
School of Materials Science and Engineering
Gwangju Institute of Science and Technology
Gwangju, Republic of Korea

B.S. in Chemical Engineering 1997
Department of Industrial Chemistry
Hanyang University
Seoul, Republic of Korea

PUBLICATIONS

1. **Doogie Oh**, Che-Hang Yu, and Daniel J. Needleman, “Spatial organization of the Ran pathway by microtubules in mitosis,” *Proceedings of the National Academy of Sciences*, 113(31), **2016**, 8729-8734

2. Hai Hu, Ashish Juvekar, Costas A. Lyssiotis, Evan C. Lien, John G. Albeck, **Doogie Oh**, Gopal Varma, Yin Pun Hung, Soumya Ullas, Josh Luring, Pankaj Seth, Mark R. Lundquist, Dean R. Tolan, Aaron K. Grant, Daniel J. Needleman, John M. Asara, Lewis C. Cantley, and Gerburg M. Wulf, "Phosphoinositide 3-kinase regulates glycolysis through mobilization of Aldolase from F-Actin," *Cell*, 164(3), **2016**, 433-446.
3. **Doogie Oh**, Alexandra Zidovska, Yangqing Xu, and Daniel J. Needleman, "Development of time-integrated multipoint moment analysis for spatially resolved fluctuation spectroscopy with high time resolution," *Biophysical Journal*, 101(6), **2011**, 1546-1554.
4. **Doogie Oh**, Matthew T. Sieger, and Thomas M. Orlando, "A theoretical description and experimental demonstration of diffraction in electron-stimulated desorption," *Journal of Physics: Condensed Matter*, 604(2), **2010**, 84-88.
5. Nikhil Sharma, **Doogie Oh**, Harry Abernathy, Meilin Liu, Phillip N. First, and Thomas M. Orlando, "Signatures of epitaxial graphene grown on Si-terminated 6H-SiC (0001)," *Surface Science*, 604(2), **2010**, 84-88.
6. Thomas M. Orlando, **Doogie Oh**, Yanfeng Chen, and Alexandr B. Aleksandrov, "Low- energy electron diffraction and induced damage in hydrated DNA," *The Journal of Chemical Physics*, 128(19), **2008**, 195102.
7. **Doogie Oh**, Matthew T. Sieger, and Thomas M. Orlando, "Zone specificity in low-energy electron stimulated desorption of Cl⁺ from reconstructed Si (111)-7×7:Cl surfaces," *Surface Science*, 600(19), **2006**, L245-L249.
8. Thomas M. Orlando, **Doogie Oh**, Matthew T. Sieger, and Christopher D. Lane, "Electron collisions with complex targets: Diffraction effects in stimulated desorption," *Physica Scripta*, T110, **2004**, 256-261.

CONFERENCE PROCEEDINGS

Doogie Oh, Namwoong Song, and Jang-Joo Kim, "Plastic optical amplifier using europium complex," *Proceedings of SPIE*, 4282, **2001**, 1-8.

PRESENTATIONS

Invited Talks/Seminars

- "Feedback and spatial organization of the Ran pathway by spindle microtubules", National Institute of Health, Bethesda, MD, August 2016
- "Spatial organization of the Ran pathway by microtubules in mitosis", Korea Institute for Advanced Study, Seoul, South Korea, Jun 2016
- "Spatial organization of the Ran pathway by microtubules in mitosis", Department of Materials Science and Engineering, Seoul National University, Seoul, South Korea, Jun 2016
- "Spatial organization of the Ran pathway by microtubules in mitosis", Korea Institute of Science and Technology, Seoul, South Korea, Jun 2016

Oral Presentations

- "Spatial regulation of chromosome-derived signals for spindle assembly" at 17th International Xenopus Conference, Seattle, WA, USA, Aug 2018
- "Spatial regulation of chromosome-derived signals and spindle assembly" at 5th Annual Boston Area Mitosis and Meiosis Meeting, Cambridge, MA, USA, May 2018

“Feedback and spatial organization of the Ran pathway in mitosis” at Cellular Dynamics & Models, Cold Springs Harbor Laboratory Meeting, Cold Spring Harbor, NY, USA, March 2015

“Dissociative electron attachment induced growth of thin graphite films or graphene on Si(111)-7×7” at American Vacuum Society’s 54th International Symposium & Exhibition, Seattle, WA, USA, October 2007

“The role of diffraction in low-energy electron induced damage of DNA” at American Chemical Society’s 231st National Meeting, Atlanta, GA, USA, March 2006

“Plastic optical amplifier using europium complex” at Photonics West 2001: Integrated Optoelectronics, San Jose, CA, USA, January 2001

SKILLS

Software

- R and Python (genomics analysis)
- C++ (programming)
- Labview (instrumental control programming, data acquisition and analysis)
- Mathematica (analytical computation, programming)
- Comsol Multiphysics (finite element analysis 3D simulation)
- Matlab (data analysis, image analysis, programming)
- ImageJ (image analysis)

Experimental

- Cell Culture methods (mammalian cell lines and plasmid transfection)
- DNA cloning techniques (Gibson Assembly, In-fusion cloning)
- Gene Knockdown techniques (siRNA, shRNA, qRT-PCR)
- Spinning Disk Confocal Microscope (live cell fluorescence imaging)
- Fluorescence Correlation Spectroscopy (measuring behaviors of soluble molecules)
- Fluorescence Lifetime Imaging Microscope (measuring protein-protein interactions)
- UV-Vis, IR, and Raman Spectroscopy (measuring electronic and vibrational states)