Po-Lin Chiu, Ph.D.

School of Molecular Sciences, Arizona State University
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EDUCATION

Ph.D. Biophysics 2009
Biophysics Graduate Group
University of California, Davis, California

M.EE. Electrical Engineering 2001
Department of Electrical Engineering
National Taiwan University, Taipei, Taiwan

B.Sc. Pharmacy 1999
School of Pharmacy
National Taiwan University, Taipei, Taiwan

RESEARCH EXPERIENCE

Assistant Professor, Arizona State University 2016 - now
School of Molecular Sciences
Center for Applied Structural Discovery, The Biodesign Institute, Tempe, Arizona

Postdoctoral Fellow, Harvard Medical School 2010 - 2016
Department of Cell Biology, Boston, Massachusetts
Laboratory of Thomas Walz
"Studying the structural basis of lipid-protein interaction using cryo-electron microscopy in electron crystallographic and single-particle approaches"

Postdoctoral Researcher, University of California, Davis 2009 - 2010
Section of Molecular and Cellular Biology, Davis, California
Laboratory of Henning Stahlberg and James E. Evans
"Developing lipid nanodisc samples for studying membrane protein structures using cryo-electron microscopy"

Graduate Researcher, University of California, Davis 2004 - 2009
Section of Molecular and Cellular Biology, Davis, California
Laboratory of Henning Stahlberg
"Studying the structure of the prokaryotic cyclic nucleotide-modulated potassium channel, MloK1, using single-particle electron microscopy and electron crystallography"

Graduate Student, National Taiwan University 1999-2001

Institute of Electrical Engineering, Taipei, Taiwan
Laboratory of Jenho Tsao
"Designing and evaluating a novel drug delivery system using ultrasonic imaging as a monitoring unit and liposome cavitation as a control unit"

Undergraduate Research Assistant, National Yang-Ming University 1998-1999
Department of Life Sciences, Taipei, Taiwan
Laboratory of Shwu-Huey Liaw
"Studying the structures of the helicase of Epstein-Barr virus using X-ray crystallography"

Undergraduate Research Assistant, National Taiwan University 1996-1997
Department of Chemistry, Taipei, Taiwan
Laboratory of Shiuh-Tzung Liu
"Synthesizing cyclic metal carbene complexes"

PUBLICATIONS

Klara, S.S., Saboe, P.O., Sines, I.T., Babaei, M., **Chiu, P.-L.**, DeZorzi, R., Dayal, K., Walz, T., Kumar, M., and Mauter, M.S. 2016. Magnetically directed two-dimensional crystallization of OmpF membrane proteins in block copolymers. *J Am Chem Soc* **138**:28-31.

Chiu, P.-L.*, Li, X.*, Li, Z., Beckett, B., Brilot, A.F., Grigorieff, N., Agard, D.A., Cheng, Y., and Walz, T. 2015. Evaluation of super-resolution performance of the K2 electron counting camera using 2D crystals of aquaporin-0. *J Struct Biol* **192**:163-173. (*equal contributions)

Kalbermatter, D., Jeckelmann, J.-M., **Chiu, P.-L.**, Ucurum, Z., Walz, T., and Fotiadis, D. 2015. 2D and 3D crystallization of the wild-type IIC domain of the glucose PTS transporter from *Escherichia coli*. *J Struct Biol* **191**:376-380.

Chiu, P.-L.*, Bou-Assaf, G.*, Chhabra, E.S., Chambers, M.G., Liu, L., Peters, R., Kulman, J.D., and Walz, T. 2015. Mapping the interaction between factor VIII and von Willebrand factor by electron microscopy and mass spectrometry. *Blood* **126**:935-938. (*equal contributions)

Commentary in Blood*: Krishnaswamy, S. 2015. FVIII-VWF dos-à-dos.* Blood ***126****:923-924.*

Hite, R.K.*, **Chiu, P.-L.***, Schuller, J., and Walz, T. 2015. Effect of lipid head groups on double-layered two-dimensional crystals formed by aquaporin-0. *PLoS ONE* **10**:e0117371. (*equal contributions)

Kowal, J., Chami, M., Baumgartner, P., Arheit, M., **Chiu, P.-L.**, Rangl, M., Scheuring, S., Nimigean, C.M., and Stahlberg, H. 2014. Ligand-induced structural changes in the cyclic nucleotide-modulated potassium channel MloK1. *Nature Comm* **5**:3106-3115.

Hopkins, L.E., Patchin, E.S., **Chiu, P.-L.**, Brandenberger, C., Smiley-Jewell, S., and Pinkerton, K.E. 2014. Nose-to-brain transport of aerosolized quantum dots following acute exposure. *Nanotoxicol* **8**:885-893.

Evans, J.E., Jungjohann, K.L., Wong, P.C.K., **Chiu, P.-L.**, Dutrow, G.H., Arslan, I., and Browning, N.D. 2013. Visualizing macromolecular complexes with *in situ* liquid scanning transmission electron microscopy. *Micron* **43**:1085-1090.

Chiu, P.-L., Kelly, D.F., and Walz, T. 2011. The use of trehalose in the preparation of specimens for electron microscopy. *Micron* **42**:762-772.

Paoli, E.-E., Kruse, D.E., Seo, J.W., Zhang, H., Kheirolomoom, A., Watson, K.D., **Chiu, P.-L.**, Stahlberg, H., and Ferrara, K.W. 2010. An optical and microPET assessment of thermally-sensitive liposome biodistribution in the Met-1 tumor model: importance of formulation. *J Control Release* **143**:13-22.

Chiu, P.-L., Pagel, M.D., Evans, J.E., Chou, H.-T., Zeng, X., Gipson, B., Stahlberg, H., and Nimigean, C.M. 2007. The structure of the prokaryotic cyclic nucleotide-modulated potassium channel MloK1 at 16 Å resolution. *Structure* **15**:1053-1064.

Feature in Structure: *Taraska, J.W. and Zagotta, W. 2007. Cyclic nucleotide-regulated ion channel: Spotlight on symmetry.* Structure ***15****:1023-1024.*

Renault, L., Chou, H.-T., **Chiu, P.-L.**, Hill, R.M., Zeng, X., Gipson, B., Zhang, Z.Y., Cheng, A., Unger, V., and Stahlberg, H. 2006. Milestones in electron crystallography. *J Comput Aided Mol Des* **20**:519-527.

Chiu, P.-L., Wu, C.-Y., Taso, J.-H., and Chang, F.-H. 2001. Drug delivery through liposome by ultrasonic cavitation. *Biomed Eng-App, Basis, & Comm* **13**:47-52.

INVITED TALKS

The 10th International Conference on Computational Physics, Macau, China.
(Jan 2017). *"Probing lipid-protein interaction using cryo-electron microscopy"*.

School of Molecular Sciences, Arizona State University, Tempe, Arizona.
(May 2016). *"Probing lipid-protein interaction using cryo-electron microscopy"*.

Department of Biological Sciences, Purdue University, West Lafayette, Indiana.
(Apr 2016). *"Probing lipid-protein interaction using cryo-electron microscopy"*.

Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan.
(Feb 2016). *"Probing lipid-protein interaction using cryo-electron microscopy"*.

Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan.
(Feb 2016). *"Probing lipid-protein interaction using cryo-electron microscopy"*.

EITC 2015, Massachusetts Institute of Technology, Cambridge, Massachusetts.
(Aug 2015). *"Structural studies of lipid-protein interaction using electron crystallography"*.

Boston Taiwanese Biotechnology Association Symposium 2015, Cambridge, Massachusetts.
(Jun 2015). *"Structural studies of lens aquaporin-0 with raft lipids using electron crystallography"*.

"Pizza talk" series, Department of Cell Biology, Harvard Medical School, Boston, Massachusetts.
(Mar 2014). *"Structural studies of lipid-protein interaction by using two-dimensional crystals of aquaporin-0"*.

Institute of Chemistry, Academia Sinica, Taipei, Taiwan.
(Jun 2012). *"Lipid-protein interaction revealed by electron crystallography"*.

Department of Life Science, National Yang-Ming University, Taipei, Taiwan.
(Jun 2012). *"Lipid-protein interaction revealed by electron crystallography"*.

The Center for Structures of Membrane Proteins (CSMP), UCSF, San Francisco, California.
(Aug 2007). *"Structural studies of the cyclic nucleotide-modulated potassium channel, MloK1"*.

Bay Area Cryo-EM Meeting, UCDavis, Davis, California.
(May 2007). *"Structural studies of the cyclic nucleotide-modulated potassium channel, MloK1"*.

TEACHING EXPERIENCE

BCH 598 - "Electron Microscopy of Biological Macromolecules", Tempe, Arizona, 2016.
Instructor of the course about the principles of single-particle cryo-EM and electron crystallography.

Workshop on Electron Crystallography, Davis, California, 2008.
Teaching assistant of the practical courses of membrane protein 2D crystallization and data collection of EM image and diffraction data.

MCB198/EMS298 Fall Quarter, University of California, Davis, 2006.
Teaching assistant of the EM practical demonstration from principles to applications.

Workshop on Electron Crystallography, Davis, California, 2006.
Teaching assistant of the practical courses of membrane protein 2D crystallization.

PROFESSIONAL MEMBERSHIP

The American Association for the Advancement of Science (AAAS) Membership, 2014-2015.
Biophysical Society Membership, 2009-2011.

HONORS AND AWARDS

NVIDIA's GPU Grant Program, 2016.
Graduate Researcher Fellowship from University of California, Davis, 2005-2009.

Taiwan National Science Foundation Scholarship, 1999-2001.
Certified by National Qualification Examination for Medical Professionals – Pharmacy, 1999.
Taiwan Nan-Ya Incorporation Scholarship, 1995-1999.

CLINICAL PRACTICES

Pharmacy administrator, Ming-Ching Clinics, Taipei, Taiwan, 2003-2004.
Pharmacy administrator, Armed Forces Beitou Psychiatric Medical Center, Taipei, Taiwan, 2001-2003.
Internship in the National Taiwan University Hospital, Taipei, Taiwan, 1998-1999.