

# Mingyu Chung, Ph.D.

## EDUCATION AND WORK EXPERIENCE

---

- July 2019 – Present     **Postdoctoral Fellow**  
Stanford School of Medicine, Department of Neurology and Neurological Sciences  
Laboratory of Thomas Rando  
Research area: Cell-cycle commitment and quiescence maintenance in tissue regeneration, homeostasis, and aging
- July 2012 – July 2019   **Ph.D. Candidate**  
Stanford School of Medicine, Department of Chemical and Systems Biology  
Laboratory of Tobias Meyer  
Thesis: “Role of CDK4/6 in regulating Rb and the restriction point ”
- Mar 2009 – July 2012   **Research Experience**  
Stanford School of Medicine, Laboratory of Gary Nolan  
Bayesian Network Learning on CyTOF data  
Stanford School of Medicine, Laboratory of Daria Mochley-Rosen  
Ex-vivo rat model of myocardial ischemia  
University of Texas at Austin, Laboratory of Edward Marcotte  
Secondary structure discovery in non-transcribed regions of DNA  
University of Texas at Austin, Laboratory of Dean Appling  
Phylogenetic analysis of folate metabolism genes
- 2008 – 2010           **Undergraduate Coursework in Biochemistry**  
University of Texas at Austin, GPA: 4.0/4.0
- 2004 – 2009           **Product Engineer**  
Samsung Austin Semiconductor  
Development of test programs and environments for DRAM and flash memory  
Failure analysis and customer claim handling  
Software and database development for data mining and yield analysis
- 1999 – 2003           **B.S.E. in Electrical Engineering**  
University of Michigan at Ann Arbor, GPA: 3.3/4.0, Cum Laude

## TEACHING EXPERIENCE

---

- Fall 2012            Teaching Assistant for graduate course in cell signaling
- Summer 2014       Assisted in developing and teaching a graduate-level workshop on image analysis at Stanford

## PUBLICATIONS

---

- Chung, M.**, Liu, C., Yang, H., Köberlin, M.S., Cappell, S.D., Meyer, T. (2019). Transient hysteresis in CDK4/6 activity underlies passage of the restriction point in G1. *Molecular Cell*. Doi:10.1016/j.molcel.2019.08.020

Saldivar, J.C., Hamperl, S., Bocek, M.J., **Chung, M.**, Bass, T.E., Cisneros-Soberanis, F., Samejima, K., Xie, L., Paulson, J.R., Earnshaw, W.C., Cortez, D., Meyer, T., Cimprich, K.A. (2018). An intrinsic S/G2 checkpoint enforced by ATR. *Science*. doi:10.1126/science.aap9346

Daigh, L.\* , Liu, C\* , **Chung, M.**, Cimprich, K.A., Meyer, T. (2018). Stochastic endogenous replication stress causes ATR-triggered fluctuations in CDK2 activity that dynamically adjust global DNA synthesis rates. *Cell Systems*. doi:10.1016/j.cels.2018.05.011

Gu, B., Swigut, T., Spencley, A., Bauer, M.R., **Chung, M.**, Meyer, T., Wysocka, J. (2018). Transcription-coupled changes in nuclear mobility of mammalian cis-regulatory elements. *Science*. doi:10.1126/science.aao3136

Bahrami-Nejad, B.\* , Zhao, M.L.\* , Tholen, S., Hunerdosse, D., Tkach, K.E., van Schie, S., **Chung, M.**, Teruel, M. (2018). A transcriptional circuit filters oscillating circadian hormonal inputs to regulate fat cell differentiation. *Cell Metabolism*. doi:10.1016/j.cmet.2018.03.012

Gookin, S., Min, M., Phadke, H., **Chung, M.**, Moser, M., Miller, I., Carter, D., Spencer, S.L. (2017). A map of protein dynamics during cell-cycle progression and cell-cycle exit. *PLoS Biology*. doi:10.1371/journal.pbio.2003268

Yang, H., **Chung, M.**, Kudo, T., Meyer, T. (2017). Competing memories of mitogen and p53 signalling control cell-cycle entry. *Nature*. doi:10.1038/nature23880

Bajar, B.T., Lam, A.J., Badiiee, R.K., Oh, Y.H., Chu, J., Zhou, X.X., Kim, N., Kim, B.B., **Chung, M.**, Yablonovitch, A.L., Cruz, B.F., Kulalert, K., Tao, J.J., Meyer, T., Su, X.D., Lin, M.Z. (2016). Fluorescent indicators for simultaneous reporting of all four cell cycle phases. *Nature Methods*. doi:10.1038/nmeth.4045

Hayer, A.H., Shao, L., **Chung, M.**, Joubert, L.M., Yang, H., Tsai, F.C., Bisaria, A., Betzig, E., Meyer, T. (2016). Engulfed cadherin fingers are polarized junctional structures between collectively migrating endothelial cells. *Nature Cell Biology*. doi:10.1038/ncb3438

Cappell, S.D., **Chung, M.**, Jaimovich, A., Spencer, S.L., Meyer, T. (2016). Irreversible APC/C-Cdh1 inactivation underlies the point of no return for cell-cycle entry. *Cell*. doi:10.1016/j.cell.2016.05.077

## **SCIENTIFIC MEETINGS**

---

Gordon Research Conference – Cell Growth and Proliferation 2017

Poster Presentation: “CDK4 rather than CDK2 hyperphosphorylates Rb during cell-cycle entry”

International Rb Conference 2016

Poster Presentation: “Absence of bistability in Rb hyperphosphorylation in G1”

Cold Spring Harbor – Cell Cycle 2016

Poster Presentation: “Absence of bistability in Rb hyperphosphorylation during cell-cycle entry”

Gordon Research Conference – Cell Growth and Proliferation 2015

Poster Presentation: “CDK4/6 is necessary and sufficient for switch-like Rb phosphorylation and E2F activation during cell-cycle entry”

## **FUNDING**

---

Stanford Biosciences Grant (2014-2018)

Stanford Chemical and Systems Biology Training Grant (2011-2013)

## CORE COMPETENCIES

---

Methods	<p>Microscopy</p> <p>Live-cell imaging, Immunofluorescence, single-molecule FISH</p> <p>Image Analysis</p> <p>Novel algorithms developed for: segmentation, tracking, live-to-fixed (transition in magnification) image registration, illumination bias correction, bleedthrough correction, background subtraction, novel data structures and analysis pipelines developed for the live-cell analyses of: mitotic events, cell-cycle sensors, group migration, <i>in vivo</i> 3D cell migration, membrane protrusion and cytoskeletal morphology, primary cilium</p> <p>Cell Biology</p> <p>Cell culture, transient and stable transfection, FACS, siRNA, CRISPR</p> <p>Molecular Biology &amp; Biochemistry</p> <p>Cloning, qPCR, Western blot, Immunoprecipitation (IP), IP kinase assays</p> <p><i>In vivo</i> techniques</p> <p>Rodent handling, injury models, muscle dissection and cell isolation via FACS</p>
Mentorship	Supervision and training of rotation students
Languages	English (native), Korean (professional proficiency), Japanese (conversational proficiency)