

CURRICULUM VITAE

NAME: Chang Y. Chung, Ph.D.

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NATIONALITY: U.S.A.

EDUCATION:	Institution	Degree	Date	Field
	Seoul National University, Korea	B.S.	1986	Zoology
	Seoul National University, Korea	M.S.	1988	Zoology
	Duke University	Ph.D.	1995	Cell Biology

Ph.D. Dissertation Research: Interactions of Tenascin with cell surface receptors and extracellular matrix proteins, 1990-1995. *Thesis Advisor:* Harold P. Erickson, Ph.D.

Postgraduate Training:

Postdoctoral Fellow, Department of Biology, University of California at San Diego, San Diego, CA - 8/95-9/97. *Research focus:* Molecular genetic study of signaling pathways regulating *Dictyostelium* chemotaxis. *Advisor:* Richard A. Firtel, Ph.D.

ACADEMIC APPOINTMENTS: **Assistant Project Scientist**, Department of Biology, UCSD, 10/1997 – 08/2001
Assistant Professor, Department of Pharmacology, Vanderbilt University Medical Center (primary appt), 09/01 – 12/09
Assistant Professor, Department of Biological Sciences, Vanderbilt University (secondary appt), 8/03-12/09
Faculty Fellow, Vanderbilt Institute of Integrative Biosystems Research and Education, Vanderbilt University (secondary appt), 01/05- present
Associate Professor (with tenure), Department of Pharmacology, Vanderbilt University Medical Center (primary appt), 12/09-09/14
Associate Professor, Department of Biological Sciences, Vanderbilt University (secondary appointment), 12/09- present
Adjunct Associate Professor, Department of Pharmacology, Vanderbilt University Medical Center, 09/14-present
Professor, The School of Pharmaceutical Science and Technology, Tianjin University 09/14-present

FELLOWSHIPS, HONORS, AND AWARDS:

Kyemong Fellowship: 1982-1986
Ministry of Education Grant-in-Aid of Research: 1986-1988
American Society of Cell Biology Student Travel Award: 1994
Duke University Graduate School Fellowship: 1990 - 1995
Special Fellow Award from the Leukemia and Lymphoma Society 2000-2003
Best Teacher Award, The School of Pharmaceutical Science and Technology, 2015

PROFESSIONAL ORGANIZATIONS: American Society for Cell Biology
American Association for the Advancement of Science
Biophysical Society

**PROFESSIONAL
ACTIVITIES:*****Extramural Activities*****Grant Review**

Member of AHA Review Committee SOV 5C (2004-2007)
Ad hoc Member of NIH Innate Immunity and Inflammation Study Section [III](2005)
Ad hoc Reviewer of NSF Molecular and Cellular Biosciences Panel (2005)
Ad hoc Member of NIH HLBP1 Study Section (2006, 2007)
Ad hoc Reviewer of MRC NC3R panel, U.K. (2006)
Ad hoc Reviewer of Wellcome Trust, U.K. (2009)
 Member of NIH ZGM1 BRT-9 KR Study Section (2010)
 Member of NIH ZGM1 MBRS-0 (NP) (2011)

Meeting Organization/Session Chair

04/15 Chair, Session "Glia & Neurons", 2015 Annual World Congress of Molecular & Cell Biology.
 05/10 co-Chair, Session "Dendritic cells, Macrophages, and other Innate Immune Cells", 2010 World Congress of Immunodiseases and Therapy.
 09/08 Chair, Session "Cytoskeleton and Cell motility I", International *Dictyostelium* Conference 2008
 09/06 Chair, Session "Polarity and Chemotaxis II", International *Dictyostelium* Conference 2006.

Editorial Board

Associate Editor BMC Cell Biology

Reviewer for Professional Journals

Developmental Cell
 Biophysical Journal
 Current Biology
 Journal of Biological Chemistry
 Journal of Cell Science
 Molecular Biology of the Cell
 EMBO Journal
 Journal of Leukocyte Biology
 Molecular Pharmacology
 BBA-Molecular Cellular Research
 Brain, Behavior, and Immunity
 BMC Cell Biology

TEACHING ACTIVITIES:***Graduate School Course Organization***

Spring 2002 IGP/Cell Signaling section (role: Co-organizer with Lee Limbird)
 Spring 2003 IGP/Cell Signaling section (role: organizer)
 Spring 2004 IGP/Cell Signaling section (role: organizer)
 Spring 2005 IGP/Cell Signaling section (role: organizer)
 Spring 2006 IGP/Cell Signaling section (role: organizer)
 Spring 2007 IGP/Cell Signaling section (role: organizer)

Interdisciplinary Graduate Program (IGP) Lectures

Jan. 2002 IGP Bioregulation/cell signaling.
 Jan. 2003 IGP Bioregulation/cell signaling.
 Feb, 2004 IGP Bioregulation/cell signaling.
 Feb, 2005 IGP Bioregulation/cell signaling.

Feb, 2006	IGP Bioregulation/cell signaling.
Sep, 2006	IGP/BioS341 Cell Movements.
Mar, 2007	IGP Bioregulation/cell signaling.
Sep, 2007	IGP/BioS341 Cell Movements.
Jan, 2008	IGP Bioregulation/cell signaling.
Sep, 2008	IGP/BioS341 Cell Movements.
Jan. 2009	IGP Bioregulation/cell signaling.
Oct. 2009	IGP/BioS341 Cell Movements.
Jan. 2010	IGP Bioregulation/cell signaling.

IGP Flextime Small Group Sessions

Jan, 2002	IGP/Cell Signaling. Organizing point person for flextimes.
Jan, 2003	IGP/Cell Signaling. Organizing point person for flextimes.
Feb, 2004	IGP/Cell Signaling. Organizing point person for flextimes.
Feb, 2005	IGP/Cell Signaling. Organizing point person for flextimes.
Feb, 2006	IGP/Cell Signaling. Organizing point person for flextimes.
Mar, 2007	IGP/Cell Signaling. Organizing point person for flextimes.

Pharmacology Lectures

Fall 2003	Graduate Student Journal Club.
Fall 2004	PHAR 322 "Scientific Communications".
Fall 2005	PHAR 322 "Scientific Communications".
Fall 2006	PHAR 322 "Scientific Communications".
Fall 2007	PHAR 322 "Scientific Communications".
Fall 2011	PHAR 322 "Scientific Communications".
Fall 2011	PHAR 320 "Targets, Systems, and Drug Action"/Cancer cell invasion.
Fall 2012	PHAR 320 "Targets, Systems, and Drug Action"/Cancer cell invasion.

Undergraduate Teaching:

Fall 2013	Molecular Biology
Fall 2014	Genetic Engineering

Lectures at SPST

Fall 2015, 2016	Introductory Biology (Undergraduate Freshmen)
Spring 2016	Drug ADMET, Introduction to Pharmaceutical Sciences (M.S. Students)
Fall 2016	Introductory Biology Lab (Undergraduate Freshmen)
Spring 2017	Introductory Biology Lab (Undergraduate Freshmen)

TRAINEES

Visiting Professor

2008-2009	Hyeokil Kwon, Ph.D., Hallym University Medical Center, Korea
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Postdoctoral Fellows

2003-2006	Ji Woong Han, Ph.D. <i>Current position: Instructor, Emory University, Atlanta, GA.</i>
2006-2012	Sang-Hyun Lee, Ph.D. <i>Current position: Principal Investigator, KRIBB, Korea.</i>
2012-2013	Neetu Sud, Ph.D.
2015-present	Nasir Jalal, Ph.D.
2015-present	Janak Pathak, Ph.D.
2015-present	Austin Surendranath, Ph.D.
2015-present	Selvaraj Subramaniam, Ph.D.

Graduate Students

2002-2006	Scott A. Myers (Graduate student, Pharmacology) <i>Current position: Senior Fellow, Univ. of Louisville Medical Center, Louisville, KY.</i>
2003-2009	Jonathan S. Gruver (Graduate student, Pharmacology) <i>Current position: Postdoctoral Fellow, Harvard Medical School, Boston, MA.</i>
2004-2006	Odilia Okorokwu (Initiative for Minority Student Development student) <i>Current position: Research Associate, Centers for Disease Control and Prevention</i>
2006-2008	Wan-Hsin Lin (Graduate student, Biological Sciences) <i>Current position: Postdoctoral Fellow, Scripps Institute.</i>
2014-present	Shi Yu (Graduate Student, SPST, Tianjin University)
2014-present	Fan Yang (Graduate Student, SPST, Tianjin University)
2016-present	Zhao Wennan (Graduate Student, SPST, Tianjin University)
2016-present	Feng Xiaye (Graduate Student, SPST, Tianjin University)

Research Interns

2002-2003	Yoonsung Lee <i>Current position: Postdoctoral Fellow, UC San Diego, CA.</i>
2004-2005	Ji-Hyun Moon <i>Current position: Postdoctoral Fellow, UC Berkley, Berkley, CA.</i>
2010-2011	Zhen Cao <i>Current position: Graduate Student, Cornell School of Medicine, N.Y.</i>
2011-2012	Narae Lee
2011-2014	Chanung Wang <i>Current position: Graduate Student, U. of Kentucky, KY.</i>
2012-2014	Dayoung Jung <i>Current position: Graduate Student, U. of Texas, Austin, TX.</i>

Undergraduate Students

2005	Luwa Cai	BSCI 286 Independent Research Student
2006	Ruby Kwak	BSCI 286 Independent Research Student
2005-2007	Sasha Feoktistov	BSCI 286 and Honor Research Student
2007	Elizabeth Prescott	BSCI 280 Research Student
2007-2008	Eric Yunxiang Zhao	BSCI 286 and VUSRP Research Student
2008	Janani Balasundaram	BSCI 283 Independent Research Student
2009-2010	Nicole S. Mandel	BSCI 286 and VUSRP Research Student
2010	Siyul Kim	BSCI 286 Independent Research Student
2011	Margaret Means	ENG 343 Independent Research Student
2011	Mark Wells	BSCI 280 Research Student
2013	Ben Bessett	BSCI 283 Research Student
2016	Chen Zhilu	SPST Research Student
2016	Zhang Heng	SPST Research Student
2017	Hua XiangMei	SPST Research Student

Dissertation Committees

2016-present	Feng Xiaye (SPST)
2016-present	Zhao Wennan (SPST)
2014-2016	Yuntao Wang (SPST)
2015-Present	Fan Yang (SPST)
2015-Present	Shi Yu (SPST)
2010-2015	Michele LeNoue-Newton (Pharmacology)
2010-2013	Yuantai Wu (Biological Sciences)
2007-2009	Wan-Hsin Lin (Biological Sciences)
2009	Seon-Myung Kim (JIST, Korea)
2002-2006	Scott A. Myers (Pharmacology)
2004-2009	J. Scott Gruver (pharmacology)
2005	Harold Olivey (Pharmacology)
2004-2008	Joy Purdy (Pharmacology)

2005-2009	Xiaohui Yan (Pharmacology)
2007-2008	Nathan Mundell (Pharmacology)
2008-2009	Cindy Hill (pharmacology)
2005-2009	Hua Cheng (Cell Biology)
2004-2008	Leigh Carmody (Molecular Physiology and Biophysics)
2006	Brandon Kirby (Biological Sciences)
2008-2010	Guanglei Zhuang (Cancer Biology)
2007	Alexander Feoktistov (Biological Sciences, Honor thesis committee)
2008	Rohini Khatri (Biological Sciences, Honor thesis committee)

UNIVERSITY SERVICE:

2002-2007	Director of IGP Cell Signaling Section
2008	Internal Scientific Advisory Board of Vanderbilt Integrative Cancer Biology Center

SPST, Tianjin University committees

2015-Present	Admission Committee, Chair
2015-Present	Academic Committee, member
2015-Present	Academic-Degree Committee, member
2015-Present	Curriculum & Teaching Committee, member
2015-Present	Facility and Building Committee, member

Vanderbilt Departmental Committees

2003- Present	Graduate Education Committee
2004-2006	Qualifying Examination Committee
2007- Present	Graduate Curriculum Committee
2011-Present	Qualifying Examination Committee

RESEARCH PROGRAM:

Research Support (Current):

Role of iPLA2 in the regulation of integrin alpha V and MT1-MMP recycling

National Foundation of Science China Fund

01/2017-12/2018

Principal Investigator: Chang Chung

National Foundation of Science China

Total Award: 600,000 RMB

985 Program Research Fund

09/2014-08/2018

Principal Investigator: Chang Chung

Ministry of Education China

Total Award: 4,000,000 RMB

Research Support (Completed):

Spatial regulation of cytoskeleton during chemotaxis

5/01/09 – 4/30/14

Principal Investigator: Chang Chung

NIH/NIGMS (Competitive Renewal of RO1 GM068097)

Total Award: \$1,245,894

NIH/NIGMS (3R01GM068097-06A1S1)

Principal Investigator: Chang Chung

12/30/2009 - 12/31/2010

Total Award: \$95,263

Spatial regulation of cytoskeleton during chemotaxis

5/01/03 – 4/30/09

Principal Investigator: Chang Chung

NIH/NIGMS (RO1 GM068097)

Total Award: \$1,460,866

Cytoskeleton regulation by VASP phosphorylation

Grant-in Aid (0655167B)

Principal Investigator: Chang Chung

Period: 07/01/2006 - 06/30/2008

American Heart Association

Dissection of signaling pathways regulating WASP function

Period: 7/1/00 - 6/30/03

Special Fellow Award

Principal Investigator: Chang Chung

The leukemia and Lymphoma Society

NIH/NHLBI (1R01HL089466)

Saturated fatty acid-induced macrophage migration: Role of toll-like receptor

Period: 09/15/2007-06/30/2012

Principal Investigator: Alyssa Hasty

Role: Consultant

PUBLICATIONS:

- Kang, M. S., W. K. Song, H. W. Nam, and **C. Y. Chung**. (1985). Alterations in cellular and plasma membrane glycoproteins in chicken myogenesis in vitro. *Korean J. Zool.* 28:125-136.
- **Chung, C. Y.** and M. S. Kang. (1987). Decrease of surface fibronectin availability required for myoblast adhesion by tunicamycin. *Korean J. Zool.* 30:325-340.
- **Chung, C. Y.** and M. S. Kang. (1988). Alterations in the level of fibronectin and its receptors during chick myoblast differentiation. *Korean J. Zool.* 31:95-103.
- **Chung, C. Y.** and M. S. kang. (1990). A correlation between fibronectin and its receptor in chick myoblast differentiation. *J. Cell. Physiol.* 142:392-400.
- Joshi, P., **C. Y. Chung**, I. Aukhil, H. P. Erickson. (1993). Endothelial cells adhere to the RGD domain and the fibrinogen-like terminal knob of tenascin. *J. Cell Sci.* 106:389-400.
- **Chung, C. Y.** and H. P. Erickson. (1994). Cell surface annexin II is a high affinity receptor for the alternatively spliced segment of Tenascin-C. *J. Cell Biol.* 126:539-548.
- **Chung, C. Y.**, L. Zardi, and H. P. Erickson. (1995). Binding of tenascin-C to soluble fibronectin and matrix fibrils. *J. Biol. Chem.* 270:29012-29017.
- **Chung, C. Y.**, J. E. Murphy-Ullrich, and H. P. Erickson. (1996). Mitogenesis, cell migration, and loss of focal adhesions induced by tenascin-C interacting with its cell surface receptor, annexin II. *Mol. Biol. Cell*, 7:883-892.

- **Chung, C. Y.** and H. P. Erickson. (1997). Glycosaminoglycans modulate fibronectin matrix assembly and are essential for matrix incorporation of tenascin-C. *J. Cell Sci.*, 110:1413-1419.
- **Chung, C.**, T.B.K. Reddy, K. Zhou and R.A. Firtel (1998). A novel, putative MEK kinase controls developmental timing and spatial patterning in Dictyostelium and is regulated by ubiquitin-mediated protein degradation. *Genes Devel.*12:3564-3578.
- **Chung, C.Y.** and R.A. Firtel (1999). PAKa, a putative PAK family member, is required for cytokinesis and the regulation of the cytoskeleton in Dictyostelium cells during chemotaxis. *J. Cell Biol.* 147: 559-575.
- Chien, S., **C.Y. Chung**, S. Sukumaran, N. Osborne, S. Lee, C. Ellsworth, J. G. McNally, and R. A. Firtel (2000). The Dictyostelium LIM domain-containing protein LIM2 is essential for proper chemotaxis and morphogenesis. *Mol. Biol. Cell* 11:1275-1291.
- **Chung, C.**, S. Lee, C. Briscoe, C. Ellsworth, and R.A. Firtel (2000). Role of Rac in controlling the actin cytoskeleton and chemotaxis in motile cells. *Proc. Natl. Acad. Sci. U.S.A.* 97:5225-5230.
- Firtel, R.A. and **C.Y. Chung** (2000). The molecular genetics of chemotaxis: Sensing and responding to chemoattractant gradients. *BioEssays* 22:603-615.
- **Chung, C. Y.**, G. Potikyan and R.A. Firtel (2001). Control of cell polarity and chemotaxis by Akt/PKB and PI3 kinase through the regulation of PAKa. *Molecular Cell* 7:937-947.
- **Chung, C. Y.**, S. Funamoto, and R.A. Firtel (2001). Sensing and responding to chemoattractants: signaling pathways controlling cell polarity and directional cell movement. *Trends in Biochem. Sci.* 26(9):557-66.
- Han, Y.-H., **C. Y. Chung**, D. Wessels, S. Stephens, M. A. Titus, D. R. Soll, and R. A. Firtel (2002). Requirement of a vasodilator-stimulated phosphoprotein (VASP) family member for cell adhesion, the formation of filopodia, and chemotaxis in Dictyostelium. *J. Biol. Chem.* 277, 49877-87.
- **Chung, C.Y.** and R.A. Firtel (2003). Signaling pathways at the leading edge of chemotaxing cells. *J. Musc. Res. Cell Motil.*, 23, 773-779.
- Myers, S., J. Han, Y. Lee, R. A. Firtel, and **C. Y. Chung** (2005). A Dictyostelium homologue of WASP is required for polarized F-actin assembly during chemotaxis. *Mol. Biol. Cell* 16:2191-206.
- Walker, G.M., J. Sai, A. Richmond, M. Stremler, **C.Y. Chung**, and J.P. Wikswo (2005). Effects of flow and diffusion on chemotaxis studies in a microfabricated gradient generator. *Lab Chip* 5:611-618.
- Myers, S., L. leeper, J. moon, **C. Y. Chung** (2006). WASP-Interacting Protein (WIPa) is Important for Actin Filament Elongation and Prompt Pseudopod Formation in Response to a Dynamic Chemoattractant Gradient. *Mol. Biol. Cell* 17:4564-4575.
- Han, J.W., L. Leeper, F. Rivero, **C. Y. Chung** (2006). Role of RacC for the regulation of WASP and PI3 kinase during chemotaxis of Dictyostelium. *J. Biol. Chem* 281:35224-35234.
- J.S. Gruver, J.P. Wikswo, and **C.Y. Chung** (2008). 3'-phosphoinositides regulate coordination and persistence during cell motility and chemotaxis. *Biophys. J.* 95:4057-67.

- Lee, S., J.W. Han, L.R. Leeper, J.S. Gruver, and **C.Y. Chung** (2009). Regulation of the formation and trafficking of vesicles from Golgi by PCH Family Proteins During Chemotaxis. *BBA - Molecular Cell Research* 1793:1199-1209.
- Lee, S. and **C.Y. Chung** (2009). Role of VASP phosphorylation for the regulation of microglia chemotaxis via the regulation of focal adhesion formation/maturation. *Molecular Cellular Neuroscience* 42:382-390.
- Lin, W., S.E. Nelson, R. J. Hollingsworth, and **C. Y. Chung** (2010). Functional roles of VASP phosphorylation in the regulation of chemotaxis and osmotic stress response. *Cytoskeleton* 67:259-271
- Gruver, J.S., A. Potdar, J. Sai, B. Anderson, W. Lin, D. Webb, A. Richmond, V. Quaranta, P. Cummings, and **C. Chung** (2010). Bimodal analysis reveals general scaling laws governing directed and non-directed eukaryotic cell motility. *Biophys. J.* 99:367-376.
- Lee, S., Schneider C., Higdon, A.N., Darley-Usmar, V.M., and **C.Y. Chung** (2011). Role of iPLA₂ in the regulation of Src trafficking and microglia chemotaxis. *Traffic* 12:878-89.
- Sang-Hyun Lee, Ryan Hollingsworth, Hyeok-Yil Kwon, **Chang Y. Chung** (2012). β -Arrestin 2-dependent activation of ERK1/2 is required for ADP-induced paxillin phosphorylation at Ser83 and microglia chemotaxis. *Glia* 60: 1366–1377.
- Wang D, Dasari S, Chambers MC, Holman JD, Chen K, Liebler DC, Orton DJ, Purvine SO, Monroe ME, **Chung CY**, Rose KL, Tabb DL (2013). Basophile: accurate fragment charge state prediction improves peptide identification rates. *Genomics Proteomics Bioinformatic* 11:86-95.
- **Chung, C. Y.**, A. Feoktistov, R. J. Hollingsworth, F. Rivero, N. S. Mandel (2013). An attenuating role of a WASP-related protein, WASP-B, in the regulation of F-actin polymerization and pseudopod formation via the regulation of RacC during Dictyostelium chemotaxis. *Biochem Biophys Res Comm* 436:719-24.
- Oliver, KH, Jessen, T, Crawford, EL, **Chung, CY**, Sutcliffe, JS, Carneiro, AM (2014). Pro32Pro33 Mutations in the Integrin α IIb β 3 PSI Domain Results in allbb3 Priming and Enhanced Adhesion: Reversal of the Hypercoagulability Phenotype by the Src Inhibitor SKI-606. *Mol Pharmacol* 85:921-31.
- C. Wang, D. Jung, Z. Cao, **C. Y. Chung** (2015). Adenylyl cyclase localization to the uropod of aggregating *Dictyostelium* cells requires RacC. *Biochem Biophys Res Comm* 465:613-9.
- Sang-Hyun Lee, Neetu Sud, Narae Lee, **Chang Y. Chung** (2016). Regulation of Integrin α 6 Recycling by iPLA₂ to Promote Microglia Chemotaxis on Laminin. *J. Biol. Chem.* 291:23645-23653.
- **Chung, CY**, Shi, Y, Surendranath, AR, Jalal, N, Pathak, JL, Subramaniyam, S (2017). Role of calcium-independent phospholipase A₂ (iPLA₂) VIA in mediating neurological disorder and cancer. *Trans. Tanjin Univ.* 23:1-10.
- Yang Fan, Lirui Xie, and **Chang Y. Chung** (2017). Signaling Pathways Controlling Microglia Chemotaxis. *Mol. Cells* 40:12-15.
- Nasir Jalal, Austin R. Surendranath, Janak L. Pathak, Shi Yu, and **Chang Y. Chung** (2017). Bisphenol A (BPA) the mighty and the mutagenic. *Toxicol. Rep.* (In press)

BOOK CHAPTERS

- **Chung, C.Y.** and R.A. Firtel (2000). Dictyostelium: A model experimental system for elucidating the pathways and mechanisms controlling chemotaxis. In: Molecular Regulation (eds. P.M. Conn and A. Means), Totowa, NJ: The Humana Press pp. 99-114.

PATENTS

- Wikswo, John P.; Baudenbacher, Franz J.; Prokop, Ales; LeBoeuf, Eugene; **Chung, Chang Y.**; Cliffel, David E.; Haselton, Frederick R.; Hofmeister, William H.; Lin, Charles P.; McCawley, Lisa J.; Reiserer, Randall S.; and Stremmer, Mark A., to Vanderbilt University. *Capillary perfused bioreactors with multiple chambers* [08003378](#) Cl. 435-289.1.