

# Minhee Lee

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## EDUCATION

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M.A., M.Phil., Ph.D., CHEMISTRY (Organic/Biochem), COLUMBIA UNIVERSITY, New York, 2005-2010

*Thesis Title: Development of Luminescent and Fluorescent Probes for Monitoring Biological Events*

B.S., CHEMISTRY, B.S., BIOLOGY, YONSEI UNIVERSITY, Seoul, Korea, 2000-2004

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## PROFESSIONAL EXPERIENCE

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### ASSISTANT PROFESSOR

Seattle Pacific University, Seattle, Sep 2014-Current

- Taught lecture classes of CHM1110, CHM1100, CHM1310, and CHM1212.
- Taught lab classes of CHM1100, CHM1310, CHM1360, CHM1211, CHM1212, and CHM4760
- Mentored and Supervised undergraduate research
- Developed/modified curriculum for lecture and lab classes
- Attended various faculty development workshops and trainings

### ADJUNCT FACULTY

Bellevue College, Bellevue, Sep 2012-June 2014

- Taught classes and labs of: Introduction of General Chemistry, Introduction of Organic and Biological Chemistry, and General Chemistry I & II
- Developed exams, worksheets, PowerPoints, quizzes, and any other useful resources
- Worked and interacted effectively with colleagues, staff, students, administrators, and others of various backgrounds

### POSTDOCTORAL FELLOW

Fred Hutchinson Cancer Research Center, Seattle, Mar 2011- Nov 2012 (*Advisor: Dr. Samir Hanash*)

- Profiled protein expression in cancer cell lines and blood samples of cancer patients by using LC-MS/MS to discover cancer biomarkers for early breast and pancreatic cancer diagnosis and tumor molecular characterization
- Identified pancreatic cancer-overexpressed serine hydrolases and utilized their enzymatic activity for personalized pancreatic chemotherapy
- Identified a protease overexpressed on colon cancer cell surface and imaged colon tumor in vivo using antibody conjugates

### GRADUATE RESEARCH ASSISTANT

Columbia University, New York, Jan 2006- Nov 2010 (*Advisor: Prof. Dalibor Sames*)

- Designed, synthesized, and utilized chemical probes to monitor biological processes
  - a. Fluorescent dopamine mimics to visualize live-cell neurotransmission and measure pH
  - b. Kinase/phosphatase enzymatic activity probes based on luminescent lanthanides
  - c. Tb<sup>3+</sup> or Eu<sup>3+</sup> complexes to image cell surface and polarity-dependent resonance energy transfer
- Collaborated with fellow researchers to ensure successful and timely completion of projects
- Managed various lab instruments (HPLC, fluorescence microscope, fluorimeter, and etc.) and cell culture facilities
- Mentored 1<sup>st</sup>-year graduate students for project management and lab techniques

### GRADUATE TEACHING ASSISTANT

Columbia University, New York, Sep 2005- Dec 2006

- Taught recitation classes of organic chemistry II and III
- Instructed lab classes of organic chemistry and general chemistry as well as graded exams and lab reports

### RESEARCH SCIENTIST

Yonsei University, Korea, Seoul, Jan 2004- Jul 2005 (*Advisor: Prof. Kyu-Sung Jeong*)

- Synthesized and physicochemically characterized oligoindole-based folameric supramolecules with a helical conformation induced by chloride anion

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## POSITIONS AND HONORS

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2013 to Present	Assistant Professor of Chemistry, Seattle Pacific University
2016 – 2020	National Science Foundation (NSF) grant for The Next Generation of STEM Teacher Preparation in WA State, Co-Investigator
2016 – 2017	Faculty Research and Scholarship Grant – Principle Investigator
2016	Washington Junior Science and Humanities Symposium oral presentation - Judge
2011 – 2012	Postdoctoral Fellow, Fred Hutchinson Cancer Res. Ctr., Seattle, WA
2008 – 2010	International Students Representative, Graduate Student Council, Columbia University
2005 – 2007	National Research Foundation of Korea (NRFK) Pre-doctoral Fellowship
2005 – 2007	Pre-doctoral Fellowship (National Research Foundation of Korea),
2001 –2004	Jeju Scholarship for recognition of high academic achievements,

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## RESEARCH PUBLICATIONS AND PATENTS

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1. Capello, M.; **Lee, M.**; Wang, H.; Babel, I.; Katz, M.H.; Fleming, J.B.; Maitra, A.; Tian, W.; Taguchi, A.; Hanash, S.M. "Cocaine Esterase 2 as a Determinant of Response to Irinotecan and Neoadjuvant FOLFIRINIX Therapy in Pancreatic Ductal Adenocarcinoma", *J. Natl. Cancer. Inst.* **2015**, 107(8).
2. LeBeau, A.M.; **Lee, M.**; Murphy S.T.; Hann, B.C.; Warren, R.S.; Santos, R.D.; Kurhanewicz, J.; Hanash, S.M.; VanBrocklin, H.F.; Craik, C.S. "Capturing Tumorigenic Proteolytic Activity In Vivo", *Proc. Nat. Acad. Sci. USA.* **2013**, 110, 93-98.
3. **Lee, M.**; Tremblay, M. S.; Jockusch, S.; Turro, N. J.; Sames, D. "Intermolecular Energy Transfer from Tb<sup>3+</sup> to Eu<sup>3+</sup> in Aqueous Micelles and on the Surface of Human Cells", *Org. Lett.* **2011**, 13, 2802-2805.
4. Sames, D.; Sulzer, D.; **Lee, M.**; Gubernator, N. "pH-Responsive Fluorescent False Neurotransmitters and Their Use", US Patent PCT/US2011/022951.
5. **Lee, M.**; Sulzer, D.; Sames, D. "Development of pH-Responsive Fluorescent False Neurotransmitters", *J. Am. Chem. Soc.* **2010**, 132, 8828-8830.
6. Tremblay, M. S.; **Lee, M.**; Sames, D. "A Luminescent Sensor for Tyrosine Phosphorylation", *Org. Lett.* **2008**, 10, 5-8.
7. Lee, J.-Y.; **Lee, M.-H.**; Jeong, K.-S. "Synthesis and Binding Properties of Anion Receptors Containing Multiple Hydrogen Bond Donors", *Supramolecular Chemistry* **2007**, 19, 257-263.
8. Chang, K.-J.; Kang, B.-N.; **Lee, M.-H.**; Jeong, K.-S. "Oligoindole-Based Foldamers with a Helical Conformation Induced by Chloride", *J. Am. Chem. Soc.* **2005**, 127, 12214-12215.

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## RESEARCH SKILLS

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### CHEMISTRY

- Multi-step organic synthesis of various types of compounds  
: Small molecules, supra-molecules, organometallic lanthanide complex, unnatural amino acids, and medium size peptides (of about 10 amino acids)
- Rational design of chemical probes for monitoring enzyme activities
- Rational design of fluorescent mimics of neurotransmitters
- Purification and characterization of organic compounds, organic metallic complex, peptides, and proteins (by HPLC, NMR, IR, Mass spectroscopy, UV/VIS spectroscopy, fluorescence spectroscopy)

### BIOCHEMISTRY

- Diverse molecular biology/biochemistry techniques  
: Tissue culture, enzyme kinetics, drug inhibition assay, cytotoxicity assay, western blot, transcription, gene knockdown by siRNA
- Fluorescent probe-based biological imaging and Immunofluorescence in cells and tissues by two-photon laser confocal microscopy
- Bio-statistical data analysis (t-test, correlation, cluster analysis, ROC curve)
- Proteomic analysis based on LC-MS/MS using SILAC labeling and sub-cellular compartment protein purification