WEI-CHIEN **HUNG**

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Education and Training

Johns Hopkins University, Whiting School of Engineering
- Postdoctoral Fellow in Chemical & Biomolecular Engineering (2014-present)
- Advisor: Konstantinos Konstantopoulos

Johns Hopkins University, Whiting School of Engineering
- Ph.D. in Chemical & Biomolecular Engineering (2009-2014)
- Cumulative GPA: 3.9
- Advisor: Konstantinos Konstantopoulos

Johns Hopkins University, Bloomberg School of Public Health
- MHS in Bioinfomatics (2007-2009)
- Cumulative GPA: 4.0
- Advisor: Fernado Pineda

Missouri University-Columbia
- B.S. in Biochemistry, Minor in Mathematics (2002-2007)
- Cumulative GPA: 3.81

Research Experience

Predoctoral research fellow
Physical Science - Oncology Center, Johns Hopkins University
September 2009- 2014
- **Topic: Distinct signaling mechanisms regulate migration in unconfined versus confined spaces:** Developed novel microchannel assay to investigate alpha4-integrin-mediated migration and the crosstalk between Rac1 and Myosin II pathway.
- **Topic: Fluid Shear Promotes Chondrosarcoma Cell Invasion by Activating Matrix Metalloproteinase-12 via IGF-2- and VEGF-Signaling Pathways:** Developed microchannel-based invasion and migration assay to simulate environment of in-vivo cancer metastasis regulated by MMP-12 pathway.
- **Topic: Cell migration adapts physical environments via modulating protein kinase A activity:** Employed FRET (fluorescence resonance energy transfer) based (protein kinase A) PKA biosensor to probe global/local PKA cellular activity in response to different degrees of physical confinement.
- **General**: Provided advise and mentored 6 undergraduate, master and graduate students on their research/career; Collaborated with postdocs, pathologists, oncologists, and cell biologist from Johns Hopkins medical school and continued developing new projects; Maintained safe laboratory environment as lab safety officer.

Department of Biostatistics
Johns Hopkins Bloomberg School of Public Health 2007-2009
- **Topic**: Developed a mosquito-human interacting model to predict the incidence of malaria.

Grant Writing Experience

$ 2.1 million, 5-year RO1 from NIH/NCI (April 1st, 2014)
- **Supported Research:** Pancreatic cancer mechanics and imaging

$ 200,000, 3-year grant-in-aid from American Heart Association(May 27th, 2014)
- **Supported Research:** The role of alpha-4 cytoplasmic tail in confined migration

Articles and Publications

- **Total citation (until March 2015): 132**
- **Hung WC**, Chen SH, Paul CD, Stroka KM, Lo YC, Yang JT, Konstantopoulos K. (2013) "Distinct signaling mechanisms regulate migration in unconfined versus confined spaces" J Cell Biol. 202(5):807-24 (**highlighted by J Cell Biol; selected by F1000Prime, Rating: "Very Good"; Emphasized by Nature Review Molecular Cell Biology 15 813-824(2014)), impact factor:10.8**
- Wang P*, Chen SH*, **Hung WC*** (***equally contributed**), Paul CD, Zhu F, Guan P, Huso DL, Kontrogianni-Konstantopoulos A, Konstantopoulos K "Fluid Shear Promotes Chondrosarcoma Cell Invasion by Activating Matrix Metalloproteinase-12 via IGF-2- and VEGF-Signaling Pathways" Oncogene, **impact factor:8.5**
- **Hung WC***, Jessica Yang* (*equally contributed), Gu ZZ, Yankaskas C, Chaing J, Zhang J, Yang JT,

Konstantopoulos K."Cell migration adapts physical environments via modulating protein kinase A activity", in preparation.

- Chen SH, **Hung WC**, Wang P, Paul CD, Konstantopoulos K. (2013)"Mesothelin binding to CA125/MUC16 promotes pancreatic cancer cell motility and invasion via MMP-7 activation" Sci Rep. 3:1870, **impact factor: 5.07**
- Norris LC, Fornadel CM, **Hung WC**, Pineda FJ, Norris DE (2010) "Frequency of multiple blood meals taken in a single gonotrophic cycle by Anopheles arabiensis mosquitoes in Macha, Zambia." Am J Trop Med Hyg. 83(1):33-7, **impact factor: 2.5**
- Tong Z, Balzer EM, Dallas MR, **Hung WC**, Stebe KJ, Konstantopoulos K (2012) "Chemotaxis of cell populations through confined spaces at single-cell resolution" PLoS One. 7(1):e29211, **impact factor: 3.5**
- Balzer EM, Tong Z, Paul CD, **Hung WC**, Stroka KM, Boggs AE, Martin SS, Konstantopoulos K (2012) "Physical confinement alters tumor cell adhesion and migration phenotypes" FASEB J. 26(10):4045-56, **impact factor: 5.48**

Technical Skills

Language Skills: Traditional Mandarin Chinese (fluent), English (fluent).
Software Skills: Microsoft Office applications, Adobe Photoshop, R, MATLAB, Perl.
Laboratory Skills:

- ***Molecular Biology***: PCR, miniprep, gel electrophoresis/imaging, E. coli culture/transformation, cell culture, dielectrophoresis.
- ***Microfabrication***: cleanroom protocols, digital mask design, microfabrication techniques including soft lithography, metal evaporation/etching, and PDMS preparation/casting.
- ***Microscopy***: confocal microscopy, live imaging, atomic force microscopy (AFM).

Presentations

Alpha4-mediated Confined versus Unconfined Migration

- Institute of NanoBiotechnology (INBT) mini-symposium
- 2011, John Hopkins University

Distinct Mechanisms Regulating Confined and Unconfined Migration

- BMES (Biomedical Engineering Society)
- 2013, Annual Meeting in Seattle, WA

Awards

- Dean list from Missouri University-Columbia (2002-2007)
- Golden Key honor society
- Phi Beta Kappa honor society
- Article selected by F1000Prime "Distinct signaling mechanisms regulate migration in unconfined versus confined spaces"
- Excellent research award of Johns Hopkins, Chemical and Biomolecular Engineering (2014-2015).

Teaching Experience

Teaching Assistant

- **Chemical and Biomolecular Engineering, Johns Hopkins Whiting School of Engineering**
- 2009-2011
- Involve in teaching approximately 120 sophomore undergraduate students the fundamentals of transport phenomena.
- Guest lectured for professor several times throughout the semester.
- Teach three recitation sections (20-30 students each section) each week.

Teaching Assistant

- **Bioinformatics, Johns Hopkins Bloomberg School of Public Health**
- 2007-2009
- Guide graduate students to develop general biostatistics skill

Affiliations and Activities

- Chemical and Biomolecular Engineering Department (Johns Hopkins University), GSLC committee (2010)
- Taiwanese Student Association Chair Assistant (2010)
- INBT (Institute of Nano-biotechnology) mini-symposium convener (2012)

References

Konstantinos Konstanpotoulos, Ph.D (Advisor)

- Chair of Chemical and Biomolecular Engineering at Johns Hopkins University School of Engineering
- Professor of Chemical and Biomolecular Engineering at Johns Hopkins University School of Engineering
- Office: (410)-516-6290
- Email: konstant@jhu.edu

Joy T. Yang, Ph.D (Co-advisor)

- Associate professor of Cell Biology Department at Johns Hopkins University School of Medicine
- Office: (410)-614-5938
- Email: jyang@jhmi.edu

Denis Wirtz, Ph.D (INBT director)

- Vice Provost of Research at Johns Hopkins University
- TH Smoot Professor of Engineering Science, Oncology, Pathology
- Professor of Chemical and Biomolecular Engineering at Johns Hopkins University School of Engineering
- Director of The Johns Hopkins Institute for NanoBioTechnology (INBT)
- Office: (410) 516-8094
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