BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Kim, Hahn

eRA COMMONS USER NAME (credential, e.g., agency login): hahnkim

POSITION TITLE: Director, Princeton University Small Molecule Screening Center

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Seoul National University	B.S.	1999	Chemistry
Seoul National University	M.S	2001	Organic Chemistry
Princeton University	Ph.D	2006	Organic Chemistry

A. Personal Statement

Princeton University Screening Center is a research center with the goals to enable the cutting-edge biological sciences on Princeton campus through discovery of highly innovative small molecules. Under my leadership, the screening center has established itself as an effective and efficient discovery engine that has initiated and successfully executed to demonstrate numerous first-in-class in vivo proof of concept studies.

Having been trained in the Nobel prize winning synthesis lab of Prof. David MacMillan, along with my unique experience of having collaborated with Merck on a diabetes therapeutics dpp-4 project as the lead scientist, has allowed the various screening collaborations on Princeton campus to be driven with focus on resolving the critical biological questions by discovery of the highly effective chemical probes that allows to interrogate those issues while enabling the deeper understanding of the related biology at large.

At the screening center, we have at our disposal all the necessary infrastructure and intellectual input to support wide range of activities as evidenced by high impact publications originating from the discoveries made at the PUSC. Our vertically integrated scientific engine allows us to engage a given project from target ID, assay development, hit-to-lead optimization in supporting first-in-class in vivo proof of concept studies and potentially pre-IND enabling studies depending on the objectives of the project.

B. Positions and Honors

Positions and Employment

2001	Visiting Scientist, Dept. of Chemistry, "G. Ciamician", University of Bologna, Italy
2001 - 2006	Graduate Research Associate, Princeton University
2007 - 2009	NIH/NCI NRSA postdoctoral fellow, Princeton University
2009 - 2013	Organic Synthesis and Catalysis Specialist, Princeton University
2014 - Present	Director, Princeton University Small Molecule Screening Center
2017 – Present	Associate Member, Cancer Pharmacology Program, Rutgers-Cancer Institute of New Jersey

Awards and Honors

1995 – 1999	Seoul National University Merit Scholarship
1999 – 2000	Seoul National University Graduate Fellowship for Excellence in Physical Sciences
1999 – 2001	National Research Laboratory Fellowship, KISTEP
2001 – 2005	Hugh Stott Taylor Fellowship, Princeton University
2002 – 2003	Atofina Fellowship
2003 – 2004	Bristol-Myers Squibb Graduate Fellowship in Synthetic Organic Chemistry
2004	Pickering Teaching Award, Princeton University

2005 – 2006 Harold W. Dodds Honorific Fellowship, Princeton University
2007 – 2009 NIH/NCI NRSA Postdoctoral Fellowship
2010 First Place, 5th Innovation Forum, Princeton University

Entrepreneurial Activities

2009-present Co-founder & acting Chief Science Architect, Chiromics LLC
2015-present Co-founder & Board member, Crescenta Biosciences Inc.
2020-present Co-founder & Board member, Farber Partners LLC

Professional Memberships
American Chemical Society

C. Contribution to Science

1. One of my major contributions to the scientific community is the application of the chemical concept "Accessible Complexity" in the context of chemical biology. Using cascade organocatalysis from the MacMillan laboratories that culminated in the Nobel Prize in chemistry for 2022, I built the chemistry program where a collection of chemical compounds were constructed that were found to be substantially differentiated from the historical collection of screening compounds while maintaining favorable physicochemical properties to be used as valuable chemical probes. As result, these compound collections have been extensively used in the pharmaceutical and biotech industry through the founding of Chiromics LLC.

a) Organocascade Catalysis: A new synthetic strategy is taking Affinity Screening Mass Spectrometry to the next level" 248th ACS National Meeting, San Francisco, CA, August 2014. (Invited oral presentation)

b) "Collaboration between pharma and academia: The combination of organocascade catalysis and affinity selection mass spectrometry for lead identification" 243th ACS National Meeting, San Diego, CA, March 2012. (Invited oral presentation)

c) "Accelerated Lead Identification of DPP-4 via Organocascade / Affinity Selection Technology" Merck Co. & Inc., Rahway, NJ, October 2008. (Invited oral presentation)

d) "Accelerated Lead Identification of DPP-4 via Organocascade / Affinity Selection Technology" 57th Natural Products Gordon Research Conference, Tilton, NH, July 2008. (poster)

2. The lessons learned from these extensive collaborative experience with the drug discovery efforts had a direct application in building a vertically integrated discovery engine at the Princeton University Screening center (PUSC). As evidenced by its publication records over the last 9 years under my leadership, PUSC has discovered and developed various first-in-class *in vivo* active chemical probes for many therapeutically relevant novel targets. Fully integrated success from design of screening assay to hit-to-lead optimization of compounds for in vivo proof of concept studies have been able to identify probes for historically challenging targets ranging from Protein-Protein interactions for cancer indications and Gram-Negative pathogens for antibacterial therapeutics. The intellectual properties generated from these efforts have directly led to numerous patents while forming the basis technology of multiple biotech companies through its licensing pacts.

a) Jon E. Paczkowski, Sampriti Mukherjee, Amelia R. McGready, Jian-Ping Cong, Brad R. Henke, Christopher J. Aquino, **Hahn Kim**, Chari D. Smith, & Bonnie L. Bassler* "Flavonoids suppress *Pseudomonas aeruginosa* virulence through allosteric inhibition of quorum-sensing receptors" *J. of Biological Chemistry*, **2017**, 292(10): 4064-4076.

b) Gregory S. Ducker, Jonathan M. Ghergurovich, Nello Mainolfi, Vipin Suri, Stephanie K. Jeong, Sophia Hsin-Jung Li, Adam Friedman , Mark Manfredi, Zemer Gitai, **Hahn Kim** , Joshua D. Rabinowitz "Human SHMT inhibitors reveal defective glycine import as a targetable metabolic vulnerability of diffuse large B-cell lymphoma" *Proc. Natl. Acad. Sci. USA*. **2017**;114(43):11404-11409

c) Jonathan Ghergurovich, Juan Carlos Garcia Canaveras, Joshua Wang, Emily Schmidt , Zhaoyue Zhang, Tara TeSlaa, **Hahn Kim** and Josh Rabinowitz* "A small molecule G6PD inhibitor reveals immune cell dependence on the pentose phosphate pathway" *Nature Chem. Bio*. **2020**, (16): 731-739

d) James Martin, Joseph Sheehan, Ben Bratton, Gabriel Moore, Andre Mateus, Sophia Li, **Hahn Kim**, Josh Rabinowitz, Athanasios Typas, Mikhail Savitski, Maxwell Wilson, Zemer Gitai* "A Dual-Mechanism Antibiotic kills Gram-negative bacteria and avoids drug resistance" *Cell,* **2020**, (181): 1518-1532.

e) Ila Nimgaonkar, Nicholas Archer, Isabelle Becher, Mohammad Shahrad, Andre Mateus, Qiang Ding, Florian Douam, Jenna Gaska, Mikhail Savitski, **Hahn Kim**, and Alexander Ploss* "Isocotoin inhibits hepatitis E virus replication through interference with heat shock protein 90" *Antiviral Research* **2021**, 185:104997

f) Juan Carlos Garcia Canaveras, Olga Lancho, Gregory Ducker, Jonathan Ghergurovich, Xincheng Xu, Victoria da Silva-Diz, **Hahn Kim**, Daniel Herranz*, Joshua Rabinowitz* "SHMT inhibition is effective and synergizes with methotrexate in T-cell acute lymphoblastic leukemia" *Leukemia***, 2021**, 35(2): 377-388

g) Minhong Shen, Yong Wei, **Hahn Kim**, Liling Wan, Yi-Zhou Jiang, Xiang Hang, Michael Raba, Stacy Remiszewski, Michelle Rowicki, Lanjing Zhang, Xin Lu, Min Yuan, Heath A. Smith, Aiping Zheng, Hongxia Lin, Joseph Bertino, John F. Jin, Yongna Xing, Zhi-Ming Shao, Yibin Kang* "Therapeutic Targeting of the MTDH-SND1 Complex Suppresses Breast Cancer Progression and Metastasis" *Nature Cancer,* **2022**, *3, 43-59*

h) Wilke AC, Doebele C, Zindel A, Lee KS, Ceribelli M, Comoglio F, Phelan JD, Wang JQ, Pikman Y, Jahn D, Häupl B, Schneider C, Tosto FA, Bohnenberger H, Stauder P, Schnuetgen F, Slabicki M, Coulibaly ZA, Rieke SA, Wolf S, Bojarczuk K, Chapuy B, Brandts C, Stroebel P, Lewis CA, Xu X, **Kim H**, Stegmaier K, Urlaub H, Serve H, Rabinowitz JR, Vander Heiden MG, Thomas C, Staudt LM, Zenz T, Oellerich T. "SHMT2 controls Burkitt lymphoma cell survival by maintaining an oncogenic TCF3 transcription program" *Blood,* **2022**, *139(4): 538-553*

D. Research Support (selected active support)

N/A