

Heeseon An, Ph. D.

Chemical Biology Program
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PROFESSIONAL EXPERIENCE

- Assistant Member**, Chemical Biology Program, Sloan Kettering Institute for Cancer Research, Memorial Sloan Kettering Cancer Center (MSKCC) 2021-present
- Assistant Professor**, Tri-Institutional Training Program in Chemical Biology, Sloan Kettering Institute, Cornell University, and the Rockefeller University. 2021-present
- Assistant Professor**, Pharmacology Program, Weill Graduate School of Medical Sciences of Cornell University. 2021-present
- Assistant Professor**, Gerstner Sloan Kettering Graduate School of Biomedical Sciences, MSKCC. 2021-present
- Researcher**, Skincare product development team (emulsion chemistry), Amorepacific R&D Center, South Korea 2008-2011

EDUCATION

- Postdoctoral Fellow**, Department of Cell Biology, Harvard Medical School, USA 2016-2020
Advisor: Professor J. Wade Harper
Research area (cell biology): selective autophagy, ribosome homeostasis, proteomics
- Ph.D. in Chemistry**, Department of Chemistry, Northwestern University, USA 2011-2015
Advisor: Professor Alexander V. Statsyuk
Research area (chemical biology): ubiquitin-proteasome system, chemical probes
- M.S. in Chemistry**, Department of Chemistry, Seoul National University, South Korea 2006-2008
Advisor: Professor Seung Bum Park
Research area (organic chemistry): diversity-oriented synthesis, benzopyranyl heterocycles
- B.S. in Chemistry**, Department of Chemistry, Seoul National University, South Korea 2001-2006
Advisor: Professor Seung Bum Park
Research area (organic chemistry): diversity-oriented synthesis

PUBLICATIONS

1. **An, H.***; Ordureau, A.*; Koerner, M.; Paulo, J.A.; Harper, J.W. (2020) Systematic Quantitative Analysis of Ribosome Inventory During Nutrient Stress. *Nature*, 583, 303-309, * *equal contribution*.
2. Ordureau, A.; Paulo, J.A.; Zhang, J.; **An, H.**; Swatek, K.N.; Cannon, J.R.; Wan, Q.; Komander, D.; Harper J.W. (2020) Global landscape and dynamics of Parkin and USP30-dependent ubiquitylomes in iNeurons during mitophagic signaling. *Molecular Cell*, 77, 1124-1142.
3. **An, H.**; Harper, J.W. (2020) Ribosome Abundance Control Via the Ubiquitin-Proteasome System and Autophagy. *J. Mol. Biol.* 432, 170-184, *review article*.
4. **An, H.**; Ordureau, A.; Paulo, J.A.; Shoemaker, C.J.; Denic, V.; Harper, J.W. (2019) TEX264 Is an Endoplasmic Reticulum-Resident ATG8-Interacting Protein Critical for ER Remodeling during Nutrient Stress, *Molecular Cell*, 74, 891-908.
5. **An, H.**; Harper, J.W. (2018) Systematic Analysis of Ribophagy in Human Cells Reveals Bystander Flux During Selective Autophagy, *Nat. Cell Biol.*, 20, 135-143.
6. Juenemann, K.; Jansen, A.H.P.; van Riel, L.; Merkx, R.; Mulder, M.P.C.; **An, H.**; Statsyuk, A.; Kirstein, J.; Ovaa, H.; Reits, E.A. (2018) Dynamic recruitment of ubiquitin to mutant huntingtin inclusion bodies. *Sci. Rep.*, 8, 1405.
7. Misra, M.; Kuhn, M.; Lobel, M.; **An, H.**; Statsyuk, A.V.; Sottriffer, C.; Schindelin, H. (2017) Dissecting the Specificity of Adenosyl Sulfamate Inhibitors Targeting the Ubiquitin-Activating Enzyme, *Structure*, 25, 1120-1129.
8. **An, H.**; Statsyuk, A.V. (2016) Facile Synthesis of Covalent Probes to Capture Enzymatic Intermediates during E1 Enzyme Catalysis, *Chem. Comm.*, 52, 2477-2480.
9. **An, H.**; Statsyuk, A.V. (2015) An Inhibitor of Ubiquitin Conjugation and Aggresome Formation. *Chem. Sci.* 6, 5235-5245.
10. **An, H.**; Krist, D.; Statsyuk, A.V. (2014) Crosstalk between Kinases and Nedd4 family Ubiquitin Ligases. *Mol. BioSyst.*, 10, 1643-1657, *review article*.
11. **An, H.**; Statsyuk, A.V. (2013) Development of Activity-Based Probes for Ubiquitin and Ubiquitin-Like Protein Signaling Pathways. *J. Am. Chem. Soc.*, 135 (45), 16948-16962.
12. Koh, M.; Park, J.; **An, H.**; Park, S.B. (2011) Ratiometric analysis of zidovudine (ZDV) incorporation by reverse transcriptases or polymerases via bio-orthogonal click chemistry. *Chem. Comm.*, 47, 7614-7616.
13. **An, H.**; Eum, S-J.; Koh, M.; Lee, S.K.; Park, S.B. (2008) Diversity-oriented Synthesis of Privileged Benzopyranyl Heterocycles from S-cis Enones. *J. Org. Chem.*, 73, 1752-1761.

PATENTS

1. Alexander V Statsyuk; **Heeseon An**, Analogs of adenosine monophosphate (AMP) as inhibitors of ubiquitin-like modifier activating enzyme ATG7 (Serial No. 62/330,539, US Patent 20,170,312,284).
2. Neil L Kelleher; Alexander V Statsyuk; David T. Krist; **Heeseon An**; Luis Henrique Ferreira do Vale, Photocrosslinking reagents and methods of use thereof (Serial No. 62/173,129, PCT/US2016/036561)
3. Seung Hyoun Kang; So-Woong Choi; **Heeseon An**; Byoung-Gun Chae, Composition for external application to the skin containing cyclohexane dicarboxylic acid derivatives. (Korea Patent Number: 10-2009-0117136)
4. **Heeseon An**; Jinseob Shim; SeongA Cho; Juncheol Cho, Effect of Citral on reducing Retinol-induced skin irritation (Korea Patent Number: 10-2010-0071148)

HONORS AND FELLOWSHIPS

- Josie Robertson Young Investigator's award Investigator, MSKCC and Robertson program 2021-2025
- Keystone Symposia Future of Science Fund scholarship 2018
- Katten Muchin Rosenman Travel Scholarship 2015
The Robert H. Lurie Comprehensive Cancer Center of Northwestern University
- Bordwell Fellowship, Department of Chemistry, Northwestern University 2011-2012
- New Excellent Technology (NET) Ministry of Knowledge Economy, South Korea 2011
- Technology Platform Award (Silver medal), Amorepacific R&D Center, South Korea 2010
- Alumni Association Fellowship, Alumni Association of Chemistry Department 2005
Seoul National University, South Korea
- Chot-Bul Fellowship, Won-ju, Gangwon, South Korea 2001-2002

ORAL PRESENTATIONS

- Keystone Symposia Conference, Selective autophagy, Kyoto, Japan 2018
Selected talk, "Systematic analysis of ribophagy in human cells reveals bystander flux during selective autophagy"
- 6th Annual Biophysics Symposium, Northwestern University, USA 2015
Selected talk, "An Inhibitor of Ubiquitin Conjugation and Aggresome Formation"
- Chemistry of Life Processes Forum, Northwestern University, USA 2015
"An Inhibitor of Ubiquitin Conjugation System: Design Strategies and Pharmacological Properties"
- 4th Annual Biophysics Symposium, Northwestern University, USA 2013
Selected talk, "Discovery of New Ubiquitin-Like Proteins Using an Activity Based Probe for UBL pathways"
- Annual Meeting of Amorepacific R&D Center, South Korea 2011
Award winners invited talk, "Ceramide-Stabilized Macro-Multilamellar Emulsions: Rheological Properties and Skin Hydration Effects"
- 22nd World Congress of Dermatology, Seoul, South Korea 2010
Selected talk, "Effect of Citral Co-treatment for Reducing Retinol Induced Skin Irritation on Human Epidermis"
- 3rd Symposium of the Pharmaceutical Society of Korea (Med. Chem. Division) 2007
"Diversity-oriented Synthesis of Privileged Benzopyranyl Heterocycles"

POSTER PRESENTATIONS IN RECENT 5 YEARS

- Ubiquitins, Autophagy & Disease, Cold Spring Harbor meetings, CO, USA 2019
- Selective Autophagy, Keystone Symposia Conference, Japan 2018
- Autophagy Network Integration in Health and Disease, Keystone Symposia Conference, CO, USA 2017
- The Ubiquitin Family, Cold Spring Harbor meetings, NY, USA 2015