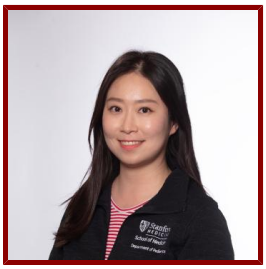
Stanford



Yunkyeong Lee

Postdoctoral Scholar, Endocrinology and Metabolism

Bio

BIO

Yun is a postdoctoral research scholar in the Translational Genomics of Diabetes Laboratory under the mentorship of Dr. Anna Gloyn. Since joining the lab in August 2022, she has been investigating type 2 diabetes (T2D) susceptible genes and their molecular mechanisms in pancreatic β-cell dysfunction and the development of T2D. Her primary focus is on how T2D effector transcripts alter autophagy/mitophagy pathways in human pancreatic β-cells, contributing to β-cell failure, mitochondrial dysfunction, and T2D pathology. She also investigated the impact of genetic mutations underlying neonatal diabetes using CRISPR HDR knockin genome editing in human induced pluripotent stem cell (hiPSC) models and their derivatives.

During her PhD, she explored the role of an epigenetic regulator and its molecular machinery in the pathogenesis of non-alcoholic fatty liver disease (NAFLD), now termed metabolic dysfunction-associated steatotic liver disease (MASLD). In parallel, she studied the interplay between endoplasmic reticulum (ER) stress-mediated unfolded protein response (UPR) signalling and autophagy, and examined how these processes are modulated by bioactive plant extracts in various cellular contexts.

She is particularly interested in exploring inter-organ communication, such as pancreas-liver crosstalk, and how these interactions influence systemic metabolism and contribute to the onset and progression of T2D, along with its complications. Her long-term research goal is to advance our understanding of the cellular and molecular mechanisms driving T2D and to identify novel therapeutic targets and strategies.

INSTITUTE AFFILIATIONS

- Member, Maternal & Child Health Research Institute (MCHRI)

HONORS AND AWARDS

- Late-Breaking Abstract, ADA 2026 Scientific Sessions, American Diabetes Association (Jun 2026)
- American Diabetes Association Postdoctoral Fellowship, American Diabetes Association (Apr 2026 - Mar 2028)
- Outstanding Poster Presentation Award, 16th Annual Stanford Pediatrics Research Retreat (May 2025)
- Best Poster Award, 5th Bay Area Metabolism Meeting (Sep 2024)
- Poster Award Finalist, 15th Annual Stanford Pediatrics Research Retreat (Apr 2024)
- Keystone Symposia Scholarship Award ($1,200), Keystone Symposia & NIH NIDDK (Aug 2022)
- Best Poster Award, The Korean Society for Integrative Biology Conference (Dec 2021)
- Keystone Financial Aid-Scholarship Program, Keystone Symposia (Jun 2021)
- Brain Korea 21 Scholarship, Brain Korea 21 Program (Mar 2017 - Feb 2019)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Professional Member, American Diabetes Association (2026 - present)
- Professional Member, American Heart Association (2024 - present)
- Member, Stanford Maternal & Child Health Research Institute (2024 - present)
- Member, Stanford Diabetes Research Center (2022 - present)

STANFORD ADVISORS

- Anna Gloyn, Postdoctoral Faculty Sponsor

LINKS

- X: https://x.com/yunkyeong_lee
- LinkedIn: https://www.linkedin.com/in/yunkyeonglee/?locale=en_US

Research & Scholarship

LAB AFFILIATIONS

- Anna Gloyn, Translational Genomics of Diabetes Lab (8/15/2022)

Publications

PUBLICATIONS

- **Complete Loss of PAX4 causes Transient Neonatal Diabetes in Humans.** *Molecular metabolism*
  Russ-Silsby, J., Lee, Y., Rajesh, V., Amoli, M., Mirhosseini, N. A., Godbole, T., Johnson, M. B., Ibarra, D. E., Sun, H., Krentz, N. A., Wakeling, M. N., Flanagan, S. E., Hattersley, et al
  2025: 102201

- **Complete Loss of PAX4 causes Transient Neonatal Diabetes in Humans.** *medRxiv : the preprint server for health sciences*
  Russ-Silsby, J., Lee, Y., Rajesh, V., Amoli, M., Mirhosseini, N. A., Godbole, T., Johnson, M. B., Ibarra, D. E., Sun, H., Krentz, N. A., Wakeling, M. N., Flanagan, S. E., Hattersley, et al
  2025

- **Effect of RNF113A deficiency on oxidative stress-induced NRF2 pathway** *Animal Cells and Systems*
  Cho, N., Kim, Y., Lee, Y., Choi, D., Park, C., Kim, J., Kim, K., Kim, K.
  2024; 28 (1): 261-271

- **PAX4 loss of function increases diabetes risk by altering human pancreatic endocrine cell development.** *Nature communications*
  Lau, H. H., Krentz, N. A., Abaitua, F., Perez-Alcantara, M., Chan, J. W., Ajeian, J., Ghosh, S., Lee, Y., Yang, J., Thaman, S., Champon, B., Sun, H., Jha, et al
  2023; 14 (1): 6119

- **Kazinol C from Broussonetia kazinoki stimulates autophagy via endoplasmic reticulum stress-mediated signaling** *ANIMAL CELLS AND SYSTEMS*
  Lee, Y., Kwon, J., Jeong, J., Ryu, J., Kim, K.
  2022; 26 (1): 28-36

- **Inhibition of autophagy sensitizes lignan-induced endoplasmic reticulum stress-mediated cell death** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
  Kwon, J., Lee, Y., Jeong, J., Ryu, J., Kim, K.
  2020; 526 (2): 300-305

PRESENTATIONS

- Biallelic loss of PAX4 is a novel cause of transient neonatal diabetes mellitus - 9th Annual Frontiers in Diabetes Research Symposium/Stanford Diabetes Research Center (May 14, 2025)

- Biallelic loss of PAX4 is a novel cause of transient neonatal diabetes mellitus - 16th Annual Pediatrics Research Retreat (May 6, 2025)
- Unravelling the role of CALCOCO2 in pancreatic beta cell mitophagy - Dr Anniek Lubberding Lab (Immuno-Endocrinology Lab), Department of Biomedical Sciences, University of Copenhagen (January 8, 2025 - January 8, 2025)
- The type 2 diabetes gene CALCOCO2 alters pancreatic b-cell function through defects in mitophagy - Western Region Islet Study Group Annual Meeting (October 16, 2024 - October 18, 2024)
- CALCOCO2 orchestrates insulin content by modulating autophagy and mitochondrial functions in human pancreatic b-cells - 5th Bay Area Metabolism Meeting (September 19, 2024)
- Unravelling the role of CALCOCO2 in pancreatic beta cell mitophagy - Stanford Diabetes Research Center Research In Progress Seminar Series (September 6, 2024)
- CALCOCO2 orchestrates insulin content by modulating autophagy and mitochondrial function in human pancreatic b-cells - 8th Annual Frontiers in Diabetes Research Symposium (April 26, 2024)
- CALCOCO2 orchestrates insulin content by modulating autophagy and mitochondrial function in human pancreatic b-cells - 15th Annual Pediatrics Research Retreat (April 25, 2024)
- CALCOCO2 orchestrates insulin content by modulating autophagy and mitochondrial function in human pancreatic b-cells - 2nd Stanford Research Park Research Symposium (October 19, 2023)
- Determining the impact of CALCOCO2 loss on human beta-cell function supports a role of autophagy in type 2 diabetes - 7th Annual Frontiers in Diabetes Research Symposium (April 28, 2023)
- Suppression of X phosphorylation can be a potential therapeutic target for non-alcoholic fatty liver disease (NAFLD) by robustly reducing hepatic excess lipids - 1st Stanford Research Park Research Symposium (October 21, 2022)
- Suppression of X phosphorylation can be a potential therapeutic target for non-alcoholic fatty liver disease (NAFLD) by robustly reducing hepatic excess lipids - 3rd Bay Area Metabolism Meeting (September 8, 2022)
- Suppression of X phosphorylation can be a potential therapeutic target for non-alcoholic steatohepatitis (NASH) by robustly reducing hepatic excess lipids - Keystone Symposia on Inter Organ Crosstalk in NASH (August 7, 2022 - August 10, 2022)
- Epigenetic regulation of X, a game changer in hepatic lipid metabolic pathways - The Korean Society for Integrative Biology Conference (December 20, 2021 - December 22, 2021)
- Impairment of X phosphorylation ameliorates the pathogenesis of non-alcoholic fatty liver diseases - Cold Spring Harbor Laboratory Conference on Mechanisms of Metabolic Signaling, Virtual (October 26, 2021 - October 29, 2021)
- The natural compound Kazinol C induces autophagy via endoplasmic reticulum (ER) stress-mediated signalling - FASEB Conference on The Endoplasmic Reticulum: Structure, Function, and Disease, Virtual (June 16, 2021 - June 17, 2021)
- The natural compound Kazinol C induces autophagy by regulating an endoplasmic reticulum (ER) stress response to maintain cellular homeostasis - Keystone Symposia's eSymposia on Targeted Protein Degradation: From Small Molecules to Complex Organelles (June 7, 2021 - June 8, 2021)
- Studies on the autophagy-lysosome pathway through which Ferulate degrade FoxM1 and its role on the reduction of cancer cell growth - EMBO Conference: Autophagy (September 25, 2017 - September 29, 2017)