Stanford

Bomi Lee

Assistant Professor of Pediatrics (Gastroenterology, Hepatology, and Nutrition)

Pediatrics - Gastroenterology

Bio

BIO

My lab is dedicated to unraveling the complexities of the immune microenvironment and its role in the pathogenesis of pancreatic diseases, such as pancreatitis and pancreatic cancer. By leveraging cutting-edge technology, innovative experimental and genetic animal models, as well as human specimens from donors, we aim to identify novel immune markers and potential therapeutic targets. Our goal is to advance the understanding of immune cells and their contributions to these diseases and to translate our findings into innovative treatments.

ACADEMIC APPOINTMENTS

- Assistant Professor, Pediatrics - Gastroenterology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Member, Maternal & Child Health Research Institute (MCHRI), (2025- present)
- Member, Stanford Diabetes Research Center (SDRC), (2025- present)

HONORS AND AWARDS

- Seed Grant, Hirshberg Foundation (2023)
- R01 (MPI), NIH NIDDK (2022)
- Research Scholar Award, American Gastroenterological Association (2022)
- Research Grant, National Pancreas Foundation (2019)
- NIH T32 Immunology Training Grant, Stanford (2017)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Gastroenterological Association (2019 - present)
- Member, American Pancreatic Association (2017 - present)

PROFESSIONAL EDUCATION

- PhD, University of Minnesota, Twin Cities , Pharmacology Department, School of Medicine (2016)
- Master of Science, Kyung Hee University , Microbiology and Immunology, Pharmacy School (2009)
- Bachelor, Kyung Hee University , Oriental Medicine, Pharmacy School (2007)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My lab is dedicated to unraveling the complexities of the immune microenvironment and its role in the pathogenesis of pancreatic diseases, such as pancreatitis and pancreatic cancer. By leveraging cutting-edge technology, innovative experimental and genetic animal models, as well as human specimens from donors, we aim to identify novel immune markers and potential therapeutic targets. Our goal is to advance the understanding of immune cells and their contributions to these diseases and to transl

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Gyuwon Jeong, Jingyuan Wang

Postdoctoral Research Mentor

Gyuwon Jeong, Jingyuan Wang

Publications

PUBLICATIONS

- **A lipid-immune network signature defines susceptibility to asparaginase-associated pancreatitis.** *JCI insight*
  Tsai, C. Y., Bo, N., Tran, T. H., Abu-El-Haija, M., Swaminathan, G., Lee, B., Ghandikota, S., Wen, L., Théorêt, Y., Mittelman, S. D., Ladas, E. J., Jegga, A. G., Silverman, et al
  2026
- **Complications of Pancreatitis-Knowledge Gaps and Research Opportunities: A Workshop Summary.** *Pancreas*
  Saloman, J. L., Andersen, D. K., Abu-El-Haija, M., Bellin, M. D., Conwell, D. L., Faghih, M., Forsmark, C. E., Goodarzi, M. O., Gulla, A. K., Hart, P. A., Hughes, S. J., Kuo, B., Ladd, et al
  2026; 55 (3): e267-e277
- **Uncovering distinct immunofibrotic signatures among subsets of human chronic pancreatitis using spatial multiplexed single-cell cytometric analysis**
  Lee, B., Heo, L., Nair, R., Bellin, M., Park, W., Pandol, S., Habtezion, A., Husain, S.
  LIPPINCOTT WILLIAMS & WILKINS.2025
- **Genetic deficiency of IL-4 and IL-1³ exacerbates alcohol-and cigarette smoke-associated chronic pancreatitis via the pancreas-intestine axis**
  Wang, J., Azar, P., Jeong, G., Apte, M., Pandol, S., Husain, S., Lee, B.
  LIPPINCOTT WILLIAMS & WILKINS.2025
- **Targeting PSC Activation and PSC-Macrophage Interaction in Alcoholic Chronic Pancreatitis IL-4 Blockade and Simvastatin.**
  Xu, Z., Rajan, P., Hosen, S. M., Binang, H., Perera, C., Hyams, T., Killingsworth, M., Lee, B., Husain, S., Pirola, R., Wilson, J., Pandol, S., Apte., et al
  LIPPINCOTT WILLIAMS & WILKINS.2025
- **Deep characterization of the vitamin A apparatus in healthy pancreas and during pancreatitis using open-source transcriptomics data**
  Swaminathan, G., Allawadhi, P., Surucu, I., Tsai, C., Lee, B., Nair, R., Husain., S.
  LIPPINCOTT WILLIAMS & WILKINS.2025
- **Identifying obesity-associated inflammatory biomarkers in pediatric pancreatitis using comparative analysis of NULISAseq and Olink detection platforms**
  Ahmed, F., Garlapally, V., Moreno-Fernandez, M. E., Nguyen, T. T., Maecker, H. T., Lee, B., Farrell, P. R., Husain, S. Z., Abu-El-Haija, M.
  LIPPINCOTT WILLIAMS & WILKINS.2025
- **Genetic Deficiency of Interleukin-4 and Interleukin-13 Exacerbates Alcohol- and Cigarette Smoke-Associated Chronic Pancreatitis via the Pancreas-Intestine Axis.** *Gastro hep advances*

Wang, J., Shams Azar, P. R., Apte, M. V., Pandol, S. J., Husain, S. Z., Lee, B.
2025; 4 (10): 100787

- **Pancreatic stellate cells and macrophage interactions mediated by IL-4 promote alcoholic chronic pancreatitis progression**
  Xu, Z., Rajan, P., Lee, B., Perera, C., Hosen, S., Khan, T., Cohen-Hyams, T., Killingsworth, M., Husain, S., Pirola, R., Wilson, J., Pandol, S., Apte, et al
  WILEY.2024: 53-54
- **GPR15 in colon cancer development and anti-tumor immune responses.** *Frontiers in oncology*
  Namkoong, H., Lee, B., Swaminathan, G., Koh, S. J., Rogalla, S., Paraskevopoulou, M. D., Tang, J., Mikhail, D., Becker, L. S., Habtezion, A.
  2023; 13: 1254307
- **Distinct serum immune profiles define the spectrum of acute and chronic pancreatitis from the multi-center PROCEED study.** *Gastroenterology*
  Lee, B., Jones, E. K., Manohar, M., Li, L., Yadav, D., Conwell, D. L., Hart, P. A., Vege, S. S., Fogel, E. L., Serrano, J., Andersen, D., Bellin, M. D., Topazian, et al
  2023
- **A systems approach points to a therapeutic role for retinoids in asparaginase-associated pancreatitis.** *Science translational medicine*
  Tsai, C. Y., Saito, T., Sarangdhar, M., Abu-El-Haija, M., Wen, L., Lee, B., Yu, M., Lipata, D. A., Manohar, M., Barakat, M. T., Contrepois, K., Tran, T. H., Theoret, et al
  2023; 15 (687): eabn2110
- **Genetically Engineered Mouse Models Shine New Light on Decades-old Story of Trypsin in Pancreatitis.** *Gastroenterology*
  Lee, B., Husain, S. Z., Gukovsky, I.
  2023
- **Vitamin A and association with asparaginase-associated pancreatitis in children with acute lymphocytic leukemia.**
  Tsai, C., Saito, T., Sarangdhar, M., Abu-El-Haija, M., Wen, L., Lee, B., Manohar, M., Barakat, M. T., Contrepois, K., Bo, N., Ding, Y., Stevenson, K. E., Ladas, et al
  LIPPINCOTT WILLIAMS & WILKINS.2022
- **Single-cell sequencing unveils distinct immune microenvironments with CCR6-CCL20 crosstalk in human chronic pancreatitis.** *Gut*
  Lee, B., Namkoong, H., Yang, Y., Huang, H., Heller, D., Szot, G. L., Davis, M. M., Husain, S. Z., Pandol, S. J., Bellin, M. D., Habtezion, A.
  2021
- **Single-cell Sequencing Unveils Distinct Immune Microenvironment in Human Chronic Pancreatitis**
  Lee, B., Namkoong, H., Yang, Y., Huang, H., Heller, D., Szot, G., Davis, M., Pandol, S. J., Bellin, M. D., Husain, S., Habtezion, A.
  LIPPINCOTT WILLIAMS & WILKINS.2021: 1073
- **Antitumor effects of iPSC-based cancer vaccine in pancreatic cancer.** *Stem cell reports*
  Ouyang, X., Liu, Y., Zhou, Y., Guo, J., Wei, T., Liu, C., Lee, B., Chen, B., Zhang, A., Casey, K. M., Wang, L., Kooreman, N. G., Habtezion, et al
  2021
- **Distinct immune characteristics distinguish hereditary and idiopathic chronic pancreatitis.** *The Journal of clinical investigation*
  Lee, B., Adamska, J. Z., Namkoong, H., Bellin, M. D., Wilhelm, J. J., Szot, G. L., Louis, D. M., Davis, M. M., Pandol, S., Habtezion, A.
  2020
- **Prevalence, risk factors and clinical outcomes of COVID-19 in patients with a history of pancreatitis in Northern California.** *Gut*
  Gubatan, J. n., Levitte, S. n., Patel, A. n., Balabanis, T. n., Sharma, A. n., Jones, E. n., Lee, B. n., Manohar, M. n., Swaminathan, G. n., Park, W. n., Habtezion, A. n.
  2020
- **RIP140 in Osteoclast Precursors Regulates Bone Homeostasis, Growth and Osteoclast Activity.**
  Lee, B., Iwaniec, U. T., Turner, R. T., Lin, Y., Clarke, B. L., Wei, L., Gingery, A.
  WILEY.2017: S36
- **Immunology of pancreatitis and environmental factors** *CURRENT OPINION IN GASTROENTEROLOGY*
  Lee, B., Zhao, Q., Habtezion, A.
  2017; 33 (5): 383–89

- **RIP140 in monocytes/macrophages regulates osteoclast differentiation and bone homeostasis** *JCI INSIGHT*
  Lee, B., Iwaniec, U. T., Turner, R. T., Lin, Y., Clarke, B. L., Gingery, A., Wei, L.
  2017; 2 (7): e90517
- **Synergistic activation of Arg1 gene by retinoic acid and IL-4 involves chromatin remodeling for transcription initiation and elongation coupling** *NUCLEIC ACIDS RESEARCH*
  Lee, B., Wu, C., Lin, Y., Park, S., Wei, L.
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- **Receptor-Interacting Protein 140 Orchestrates the Dynamics of Macrophage M1/M2 Polarization** *JOURNAL OF INNATE IMMUNITY*
  Lin, Y., Lee, B., Liu, P., Wei, L.
  2016; 8 (1): 97–107
- **Reducing RIP140 Expression in Macrophage Alters ATM Infiltration, Facilitates White Adipose Tissue Browning, and Prevents High-Fat Diet-Induced Insulin Resistance** *DIABETES*
  Liu, P., Lin, Y., Lee, B., McCrady-Spitzer, S. K., Levine, J. A., Wei, L.
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- **Linker Histone H1.2 cooperates with Cul4A and PAF1 to drive H4K31 ubiquitylation-mediated transactivation.** *Cell reports*
  Kim, K., Lee, B., Kim, J., Choi, J., Kim, J. M., Xiong, Y., Roeder, R. G., An, W.
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- **Selective requirement of H2B N-Terminal tail for p14ARF-induced chromatin silencing.** *Nucleic acids research*
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  2011; 39 (21): 9167-80
- **Inhibitory effects of steroidal timosaponins isolated from the rhizomes of Anemarrhena asphodeloides against passive cutaneous anaphylaxis reaction and pruritus** *IMMUNOPHARMACOLOGY AND IMMUNOTOXICOLOGY*
  Lee, B., Trinh, H., Jung, K., Han, S., Kim, D.
  2010; 32 (3): 357–63
- **Anti-scratching Behavioral Effects of N-Stearoyl-phytosphingosine and 4-Hydroxysphinganine in Mice** *LIPIDS*
  Ryu, K., Lee, B., Lee, I., Oh, S., Kim, D.
  2010; 45 (7): 613–18
- **Timosaponin AIII, a saponin isolated from Anemarrhena asphodeloides, ameliorates learning and memory deficits in mice (vol 93, pg 121, 2009)** *PHARMACOLOGY BIOCHEMISTRY AND BEHAVIOR*
  Lee, B., Jung, K., Kim, D.
  2010; 94 (3): 496
- **Mangiferin Inhibits Passive Cutaneous Anaphylaxis Reaction and Pruritus in Mice** *PLANTA MEDICA*
  Lee, B., Trinh, H., Bae, E., Jung, K., Kim, D.
  2009; 75 (13): 1415–17
- **Timosaponin AIII, a saponin isolated from Anemarrhena asphodeloides, ameliorates learning and memory deficits in mice** *PHARMACOLOGY BIOCHEMISTRY AND BEHAVIOR*
  Lee, B., Jung, K., Kim, D.
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- **Glycosaminoglycan Degradation-inhibitory Lactic Acid Bacteria Ameliorate 2,4,6-Trinitrobenzenesulfonic Acid-Induced Colitis in Mice** *JOURNAL OF MICROBIOLOGY AND BIOTECHNOLOGY*
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- **Mangiferin Ameliorates Scopolamine-Induced Learning Deficits in Mice** *BIOLOGICAL & PHARMACEUTICAL BULLETIN*
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- **Lactobacillus suntoryeus inhibits pro-inflammatory cytokine expression and TLR-4-linked NF-kappa B activation in experimental colitis** *INTERNATIONAL JOURNAL OF COLORECTAL DISEASE*
  Lee, J., Lee, B., Lee, H., Bae, E., Lee, H., Ahn, Y., Lim, K., Huh, C., Kim, D.

2009; 24 (2): 231–37

- **Antiallergic effect of the root of Paeonia lactiflora and its constituents paeoniflorin and paeonol** *ARCHIVES OF PHARMACAL RESEARCH*
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- **Antiasthmic effect of fermented Artemisia princeps in asthmic mice induced by ovalbumin** *JOURNAL OF MICROBIOLOGY AND BIOTECHNOLOGY*
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  2007; 17 (9): 1554–57
- **Inhibitory effect of schizandrin on passive cutaneous anaphylaxis reaction and scratching behaviors in mice** *BIOLOGICAL & PHARMACEUTICAL BULLETIN*
  Lee, B., Bae, E., Trinh, H., Shin, Y., Phuong, T., Bae, K., Kim, D.
  2007; 30 (6): 1153–56
- **In vitro and in vivo antiallergic effects of Glycyrrhiza glabra and its components** *PLANTA MEDICA*
  Shin, Y., Bae, E., Lee, B., Lee, S., Kim, J., Kim, Y., Kim, D.
  2007; 73 (3): 257–61
- **Effect of fermented lactic acid bacteria on antiallergic effect of Artemisia princeps Pampanini** *JOURNAL OF MICROBIOLOGY AND BIOTECHNOLOGY*
  Shin, Y., Bae, E., Lee, B., Min, S., Baek, N., Ryu, S., Chung, H., Kim, D.
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- **Lactic acid bacteria increase antiallergic effect of Artemisia princeps Pampanini SS-1** *ARCHIVES OF PHARMACAL RESEARCH*
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