Stanford

Lance Prince

Philip Sunshine, MD, Professor of Neonatology

Pediatrics - Neonatal and Developmental Medicine

Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

- **Neonatology**

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ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

  Nancy Phan - Executive Assistant

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Bio

BIO

Lawrence (Lance) S. Prince, MD, PhD, is the Division Chief for Neonatal and Developmental Medicine at Stanford School of Medicine. Dr. Prince was previously a Professor of Pediatrics and Chief of the Division of Neonatology at the University of California, San Diego and Rady Children's Hospital, San Diego.

Dr. Prince has a long and distinguished career mentoring clinical and scientific trainees and students, many of whom have gone on to establish their own successful careers as academic physician investigators. As a physician scientist, Dr. Prince leads a basic science laboratory focusing on the mechanisms regulating developmental immunology and lung injury and repair. Dr. Prince received a Bachelor of Science in Chemistry from University of Miami, an MD/PhD with a focus in Cell Biology from University of Alabama at Birmingham, and postdoctoral fellowship, Pediatrics residency, and Neonatal-Perinatal Medicine Fellowship training at the University of Iowa. Before arriving in California, Dr. Prince was an Associate Professor of Pediatrics at Vanderbilt University.

Dr. Prince's research interests include the molecular and cellular mechanisms controlling lung development and the maturation of the fetal and neonatal immune systems. He has a particular clinical interest in managing and treating neonatal lung diseases, especially bronchopulmonary dysplasia (BPD) in babies born extremely preterm. Dr. Prince's research team focuses primarily on the development of innate immunity during fetal life as it impacts health and disease in preterm infants. The laboratory is investigating how microbes including Group B streptococcus exploit the unique features of neonatal macrophages to avoid immune detection and cause disease, as well as leading a number of clinical and translational investigations.

CLINICAL FOCUS

- Neonatal-Perinatal Medicine

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Pediatrics - Neonatal and Developmental Medicine

ADMINISTRATIVE APPOINTMENTS

- Chief, Division of Neonatal and Developmental Medicine, Stanford University School of Medicine, (2020- present)

- Professor of Pediatrics, Stanford University School of Medicine, (2020- present)
- Co-Director, Johnson Center for Pregnancy and Newborn Services, Lucile Packard Children's Hospital, (2020- present)

HONORS AND AWARDS

- Fellow Basic Research Award, Society for Pediatric Research (1999)
- Trainee Investigator Award, Midwest Society for Pediatric Research (2000)
- National Staff Research Award, American Lung Association (2005)
- Philip Sunshine, M.D Endowed Professorship in Neonatology, Stanford University School of Medicine (2020)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Society for Pediatric Research (2007 - present)
- Member, American Association of Immunologists (2011 - present)
- Member, Western Society for Pediatric Research (2014 - present)
- Member, American Pediatric Society (2023 - present)
- Member, Lucile Packard Children's Hospital Medical Staff Executive Committee (2024 - present)

PROFESSIONAL EDUCATION

- Fellowship: University of Iowa Hospitals and Clinics (2002) IA
- Residency: University of Iowa Hospitals and Clinics (2000) IA
- Medical Education: University of Alabama at Birmingham School of Medicine (1996) AL
- Board Certification: Neonatal-Perinatal Medicine, American Board of Pediatrics (2005)

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Jorge Rodriguez Gil

Doctoral Dissertation Co-Advisor (NonAC)

Chloe Kashiwagi

Publications

PUBLICATIONS

- **Macrophage Polarizations in the Placenta and Lung are Associated with Bronchopulmonary Dysplasia.** *bioRxiv : the preprint server for biology*
  Mestan, K. K., Sharma, A., Lazar, S., Pandey, S., Parast, M. M., Laurent, L. C., Prince, L. S., Sahoo, D.
  2024

- **Advances and potential of omics studies for understanding the development of food allergy.** *Frontiers in allergy*
  Sindher, S. B., Chin, A. R., Aghaeepour, N., Prince, L., Maecker, H., Shaw, G. M., Stevenson, D. K., Nadeau, K. C., Snyder, M., Khatri, P., Boyd, S. D., Winn, V. D., Angst, et al
  2023; 4: 1149008

- **Data-driven longitudinal characterization of neonatal health and morbidity.** *Science translational medicine*
  De Francesco, D., Reiss, J. D., Roger, J., Tang, A. S., Chang, A. L., Becker, M., Phongpreecha, T., Espinosa, C., Morin, S., Berson, E., Thuraiappah, M., Le, B. L., Ravindra, et al
  2023; 15 (683): eadc9854

- **Sp3 is essential for normal lung morphogenesis and cell cycle progression during mouse embryonic development.** *Development (Cambridge, England)*

McCoy, A. M., Lakhdari, O., Shome, S., Caoili, K., Hernandez, G. E., Aghaeepour, N., Butcher, L. D., Fisch, K., Prince, L. S.
2023

- **Progressive Metabolic Abnormalities Associated with the Development of Neonatal Bronchopulmonary Dysplasia.** *Nutrients*
  Ye, C., Wu, J., Reiss, J. D., Sinclair, T. J., Stevenson, D. K., Shaw, G. M., Chace, D. H., Clark, R. H., Prince, L. S., Ling, X. B., Sylvester, K. G.
  2022; 14 (17)

- **The Lung Microenvironment Instructs Gene Transcription in Neonatal and Adult Alveolar Macrophages.** *Journal of immunology (Baltimore, Md. : 1950)*
  Honda, A., Hoeksema, M. A., Sakai, M., Lund, S. J., Lakhdari, O., Butcher, L. D., Rambaldo, T. C., Sekiya, N. M., Nasamran, C. A., Fisch, K. M., Sajti, E., Glass, C. K., Prince, et al
  2022

- **Antenatal Mesenchymal Stromal Cell Extracellular Vesicle Therapy Prevents Preeclamptic Lung Injury in Mice.** *American journal of respiratory cell and molecular biology*
  Taglauer, E. S., Fernandez-Gonzalez, A., Willis, G. R., Reis, M., Yeung, V., Liu, X., Prince, L. S., Mitsialis, S. A., Kourembanas, S.
  2021

- **Black swans and ambitious overgeneralization in newborn intensive care.** *Pediatric research*
  Stevenson, D. K., Wong, R. J., Shaw, G. M., Aghaeepour, N., Maric, I., Prince, L. S., Reiss, J. D., Katz, M.
  2021

- **50 Years Ago in TheJournalofPediatrics: Neonatal Hypoglycemia: Progress and Predicaments.** *The Journal of pediatrics*
  Ikle, J. M., Prince, L. S., Maahs, D. M.
  2021; 235: 82

- **An RCT of Rapid Genomic Sequencing among Seriously Ill Infants Results in High Clinical Utility, Changes in Management, and Low Perceived Harm.** *American journal of human genetics*
  Dimmock, D. P., Clark, M. M., Gaughran, M., Cakici, J. A., Caylor, S. A., Clarke, C., Feddock, M., Chowdhury, S., Salz, L., Cheung, C., Bird, L. M., Hobbs, C., Wigby, et al
  2020; 107 (5): 942–52

- **Developmental Immaturity of Siglec Receptor Expression on Neonatal Alveolar Macrophages Predisposes to Severe Group B Streptococcal Infection** *ISCIENCE*
  Lund, S. J., Patras, K. A., Kimmey, J. M., Yamamura, A., Butcher, L. D., Del Rosario, P. B., Hernandez, G. E., McCoy, A. M., Lakhdari, O., Nizet, V., Prince, L. S.
  2020; 23 (6): 101207

- **Transcriptional profiling of lung macrophages identifies a predictive signature for inflammatory lung disease in preterm infants** *COMMUNICATIONS BIOLOGY*
  Sahoo, D., Zaramela, L. S., Hernandez, G. E., Mai, U., Taheri, S., Dang, D., Stouch, A. N., Medal, R. M., McCoy, A. M., Aschner, J. L., Blackwell, T. S., Zengler, K., Prince, et al
  2020; 3 (1): 259

- **Computational Approach to Identifying Universal Macrophage Biomarkers** *FRONTIERS IN PHYSIOLOGY*
  Dang, D., Taheri, S., Das, S., Ghosh, P., Prince, L. S., Sahoo, D.
  2020; 11: 275

- **Transcriptomic and epigenetic mechanisms underlying myeloid diversity in the lung** *NATURE IMMUNOLOGY*
  Sajti, E., Link, V. M., Ouyang, Z., Spann, N. J., Westin, E., Romanoski, C. E., Fonseca, G. J., Prince, L. S., Glass, C. K.
  2020; 21 (2): 221-+

- **A Randomized, Controlled Trial of the Analytic and Diagnostic Performance of Singleton and Trio, Rapid Genome and Exome Sequencing in III Infants** *AMERICAN JOURNAL OF HUMAN GENETICS*
  Kingsmore, S. F., Cakici, J. A., Clark, M. M., Gaughran, M., Feddock, M., Batalov, S., Bainbridge, M. N., Carroll, J., Caylor, S. A., Clarke, C., Ding, Y., Ellsworth, K., Farnaes, et al
  2019; 105 (4): 719–33

- **Differential Immune Activation in Fetal Macrophage Populations** *SCIENTIFIC REPORTS*
  Lakhdari, O., AsamiYamamura, Hernandez, G. E., Anderson, K. K., Lund, S. J., Oppong-Nonterah, G. O., Hoffman, H. M., Prince, L. S.
  2019; 9: 7677

- **TLR Activation Alters Bone Marrow-Derived Macrophage Differentiation** *JOURNAL OF INNATE IMMUNITY*

Oppong-Nonterah, G. O., Lakhdari, O., Yamamura, A., Hoffman, H. M., Prince, L. S.
2019; 11 (1): 99–108

- **FGF10 and Human Lung Disease Across the Life Spectrum** *FRONTIERS IN GENETICS*
  Prince, L. S.
  2018; 9: 517

- **IKK beta Activation in the Fetal Lung Mesenchyme Alters Lung Vascular Development but Not Airway Morphogenesis** *AMERICAN JOURNAL OF PATHOLOGY*
  McCoy, A. M., Herington, J. L., Stouch, A. N., Mukherjee, A. B., Lakhdari, O., Blackwel, T. S., Prince, L. S.
  2017; 187 (12): 2635–44

- **The innate immune response in fetal lung mesenchymal cells targets VEGFR2 expression and activity** *AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY*
  Medal, R. M., Im, A. M., Yamamoto, Y., Lakhdari, O., Blackwell, T. S., Hoffman, H. M., Sahoo, D., Prince, L. S.
  2017; 312 (6): L861–L872

- **TLR3 signaling is downregulated by a MAVS isoform in epithelial cells** *CELLULAR IMMUNOLOGY*
  Lakhdari, O., McAllister, C. S., Wang, M., Minev, I., Prince, L. S., Eckmann, L., Kagnoff, M. F.
  2016; 310: 205–10

- **Epithelial-Derived Inflammation Disrupts Elastin Assembly and Alters Saccutar Stage Lung Development** *AMERICAN JOURNAL OF PATHOLOGY*
  Benjamin, J. T., van der Meer, R., Im, A. M., Plosa, E. J., Zaynagetdinov, R., Burman, A., Havrilla, M. E., Gleaves, L. A., Polosukhin, V. V., Deutsch, G. H., Yanagisawa, H., Davidson, J. M., Prince, et al
  2016; 186 (7): 1786–1800

- **IL-1 beta and Inflammasome Activity Link Inflammation to Abnormal Fetal Airway Development** *JOURNAL OF IMMUNOLOGY*
  Stouch, A. N., McCoy, A. M., Greer, R. M., Lakhdari, O., Yull, F. E., Blackwell, T. S., Hoffman, H. M., Prince, L. S.
  2016; 196 (8): 3411–20

- **Molecular Imaging of Folate Receptor beta-Positive Macrophages during Acute Lung Inflammation** *AMERICAN JOURNAL OF RESPIRATORY CELL AND MOLECULAR BIOLOGY*
  Han, W., Zaynagetdinov, R., Yull, F. E., Polosukhin, V. V., Gleaves, L. A., Tanjore, H., Young, L. R., Peterson, T. E., Manning, H., Prince, L. S., Blackwell, T. S.
  2015; 53 (1): 50–59

- **Epithelial beta 1 integrin is required for lung branching morphogenesis and alveolarization** *DEVELOPMENT*
  Plosa, E. J., Young, L. R., Gulleman, P. M., Polosukhin, V. V., Zaynagetdinov, R., Benjamin, J. T., Im, A. M., van der Meer, R., Gleaves, L. A., Bulus, N., Han, W., Prince, L. S., Blackwell, et al
  2014; 141 (24): 4751–62

- **Epithelial-mesenchymal co-culture model for studying alveolar morphogenesis** *ORGANOGENESIS*
  Greer, R. M., Miller, J., Okoh, V. O., Halloran, B. A., Prince, L. S.
  2014; 10 (4): 340–49

- **I kappa B Kinase Activity Drives Fetal Lung Macrophage Maturation along a Non-M1/M2 Paradigm** *JOURNAL OF IMMUNOLOGY*
  Stouch, A. N., Zaynagetdinov, R., Barham, W. J., Stinnett, A. M., Slaughter, J. C., Yull, F. E., Hoffman, H. M., Blackwell, T. S., Prince, L. S.
  2014; 193 (3): 1184–93

- **Epithelial-mesenchymal co-culture model for studying alveolar morphogenesis.** *Organogenesis*
  Greer, R. M., Miller, J. D., Okoh, V. O., Halloran, B. A., Prince, L. S.
  2014; 10 (3)

- **Molecular determinants of lung development.** *Annals of the American Thoracic Society*
  Morrisey, E. E., Cardoso, W. V., Lane, R. H., Rabinovitch, M., Abman, S. H., Ai, X., Albertine, K. H., Bland, R. D., Chapman, H. A., Checkley, W., Epstein, J. A., Kintner, C. R., Kumar, et al
  2013; 10 (2): S12-6