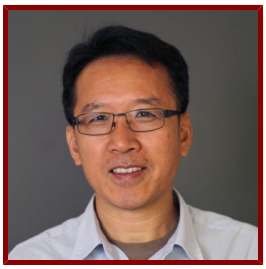
Stanford



Bingwei Lu

Professor of Pathology

NIH Biosketch available Online

Bio

ACADEMIC APPOINTMENTS

- Professor, Pathology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Research Fellow, The Alfred P. Sloan Foundation (2002)
- Young Investigator Award, The Arnold and mabel Beckman Foundation (2002)
- Speaker's Fund for Biomedical Research Award, New York Academy of Sciences (2002)
- Career Scientist Award, Monique Weill-Caulier Trust (2002)
- McKnight Scholar Award, The McKnight Endowment Fund for Neurosciences (2002)
- Brain Disorders Award, The McKnight Endowment Fund for Neurosciences (2008)

PROFESSIONAL EDUCATION

- Ph.D., Cornell University , Genetics and Development (1995)
- B.S., Fudan University , Genetics (1987)

LINKS

- Lu Lab Website: http://med.stanford.edu/lulab.html

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our laboratory is interested in understanding how the diverse neuronal cell types are generated and maintained in the nervous system. We are taking a combined molecular, cellular, genetic, and genomic approach in the model organisms Drosophila and mouse. To study how neuronal diversity is generated, we focus on investigating the mechanisms of asymmetric division of neural stem cell that balances the self-renewal and differentiation potentials of neural stem cells. Of particular interest to us is the mechanism by which aberrant regulation of neural stem cell asymmetric division leads to brain tumor-like phenotypes. To study how neurons are properly maintained after they are integrated into neural networks, we are creating neurodegenerative phenotypes in Drosophila similar to that observed in Alzheimer’s and Parkinson’s diseases in humans. We are employing the power

of fly genetics to identify genetic modifiers that can suppress or enhance these disease phenotypes. Given the unanticipated high level conservation of signaling pathways, regulatory mechanisms, and physiological processes between flies and mammals, our research promises to provide insights into fundamental mechanisms that control the generation and maintenance of neuronal diversity in humans.

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Sunil Bhurtel, Ehsaneh Khodadadi, Jaehyuk Lee, Eva Lepinay, Bowei Li, Yu Li, Martyna Ewa Nalepa, Rida Rehman, Parvathy Surendran

Doctoral Dissertation Co-Advisor (AC)

Sopida Pimcharoen

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (PhD Program)
- Neurosciences (PhD Program)

Publications

PUBLICATIONS

- **PINK1 and Parkin Control Localized Translation of Respiratory Chain Component mRNAs on Mitochondria Outer Membrane.** *Cell metabolism*
  Gehrke, S., Wu, Z., Klinkenberg, M., Sun, Y., Auburger, G., Guo, S., Lu, B.
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- **Roles of PINK1, mTORC2, and mitochondria in preserving brain tumor-forming stem cells in a noncanonical Notch signaling pathway.** *Genes & development*
  Lee, K., Wu, Z., Song, Y., Mitra, S. S., Feroze, A. H., Cheshier, S. H., Lu, B.
  2013; 27 (24): 2642-2647
- **Tricornered/NDR kinase signaling mediates PINK1-directed mitochondrial quality control and tissue maintenance** *GENES & DEVELOPMENT*
  Wu, Z., Sawada, T., Shiba, K., Liu, S., Kanao, T., Takahashi, R., Hattori, N., Imai, Y., Lu, B.
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- **Parkinson's Disease-Associated Kinase PINK1 Regulates Miro Protein Level and Axonal Transport of Mitochondria** *PLOS GENETICS*
  Liu, S., Sawada, T., Lee, S., Yu, W., Silverio, G., Alapatt, P., Millan, I., Shen, A., Saxton, W., Kanao, T., Takahashi, R., Hattori, N., Imai, et al
  2012; 8 (3)
- **Regulation of cell growth by Notch signaling and its differential requirement in normal vs. tumor-forming stem cells in Drosophila** *GENES & DEVELOPMENT*
  Song, Y., Lu, B.
  2011; 25 (24): 2644-2658
- **Pathogenic LRRK2 negatively regulates microRNA-mediated translational repression** *NATURE*
  Gehrke, S., Imai, Y., Sokol, N., Lu, B.
  2010; 466 (7306): 637-U9
- **Pink1 regulates mitochondrial dynamics through interaction with the fission/fusion machinery** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Yang, Y., Ouyang, Y., Yang, L., Beal, M. F., McQuibban, A., Vogel, H., Lu, B.
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- **Polo inhibits progenitor self-renewal and regulates Numb asymmetry by phosphorylating Pon** *NATURE*
  Wang, H., Ouyang, Y., Somers, W. G., Chia, W., Lu, B.

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  2007; 53 (2): 201-215
- **Mitochondrial pathology and muscle and dopaminergic neuron degeneration caused inactivation of Drosophila Pink1 is rescued by by Parkin** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Yang, Y., Gehrke, S., Imai, Y., Huang, Z., Ouyang, Y., Wang, J., Yang, L., Beal, M. F., Vogel, H., Lu, B.
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- **Inactivation of Drosophila DJ-1 leads to impairments of oxidative stress response and phosphatidylinositol 3-kinase/Akt signaling** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Yang, Y. F., Gehrke, S., Haque, M. E., Imai, Y., Kosek, J., Yang, L. C., Beal, M. F., Nishimura, I., Wakarnatsu, K., Ito, S., Takahashi, R., Lu, B. W.
  2005; 102 (38): 13670-13675
- **PAR-1 kinase plays an initiator role in a temporally ordered phosphorylation process that confers tau toxicity in Drosophila** *CELL*
  Nishimura, I., Yang, Y. F., Lu, B. W.
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- **Adherens junctions inhibit asymmetric division in the Drosophila epithelium** *NATURE*
  Lu, B. W., Roegiers, F., Jan, L. Y., Jan, Y. N.
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- **Partner of numb colocalizes with numb during mitosis and directs numb asymmetric localization in Drosophila neural and muscle progenitors** *CELL*
  Lu, B. W., Rothenberg, M., Jan, L. Y., Jan, Y. N.
  1998; 95 (2): 225-235
- **The myriad roles of Miro in the nervous system: axonal transport of mitochondria and beyond** *FRONTIERS IN CELLULAR NEUROSCIENCE*
  Lee, K., Lu, B.
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  Lu, B., Gehrke, S., Wu, Z.
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  Liu, C., Sun, Y., Arnold, J., Lu, B., Guo, S.
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- **Zinc binding directly regulates tau toxicity independent of tau hyperphosphorylation.** *Cell reports*
  Huang, Y., Wu, Z., Cao, Y., Lang, M., Lu, B., Zhou, B.
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- **Phospho-dependent ubiquitination and degradation of PAR-1 regulates synaptic morphology and tau-mediated A beta toxicity in Drosophila** *NATURE COMMUNICATIONS*
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  Iijima-Ando, K., Sekiya, M., Maruko-Otake, A., Ohtake, Y., Suzuki, E., Lu, B., Iijima, K. M.
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Lee, S., Liu, H., Lin, W., Guo, H., Lu, B.
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- **Reduction of Protein Translation and Activation of Autophagy Protect against PINK1 Pathogenesis in Drosophila melanogaster** *PLOS GENETICS*
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- **The Loss of PGAM5 Suppresses the Mitochondrial Degeneration Caused by Inactivation of PINK1 in Drosophila** *PLOS GENETICS*
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- **Atypical Cadherins Dachsous and Fat Control Dynamics of Noncentrosomal Microtubules in Planar Cell Polarity** *DEVELOPMENTAL CELL*
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- **Mitochondrial Morphogenesis, Distribution, and Parkinson Disease: Insights From PINK1** *JOURNAL OF NEUROPATHOLOGY AND EXPERIMENTAL NEUROLOGY*
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- **Drosophila Models of Neurodegenerative Diseases** *ANNUAL REVIEW OF PATHOLOGY-MECHANISMS OF DISEASE*
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  Wang, J., Imai, Y., Lu, B.
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  Lu, B. W.
  2004; 6 (1): 1-12
- **Parkin suppresses dopaminergic neuron-selective neurotoxicity induced by Pael-R in Drosophila** *NEURON*
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  Lu, B. W., Ackerman, L., Jan, L. Y., Jan, Y. N.
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- **Flamingo controls the planar polarity of sensory bristles and asymmetric division of sensory organ precursors in Drosophila** *CURRENT BIOLOGY*
  Lu, B. W., Usui, T., Uemura, T., Jan, L., Jan, Y. N.
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- **Asymmetric cell division: Lessons from flies and worms** *CURRENT OPINION IN GENETICS & DEVELOPMENT*
  Lu, B. W., Jan, L. Y., Jan, Y. N.
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