

Stanford



John R. Pringle

Professor of Genetics

 Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Professor, Genetics
- Member, Bio-X

PROFESSIONAL EDUCATION

- Ph.D., Harvard University , Biology (1971)
- A.B., Harvard University , Mathematics (1963)

LINKS

- Pringle Lab website: <http://pringlelab.stanford.edu/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Much of the research in the Pringle laboratory exploits the power of yeast as an experimentally tractable model eukaryote to investigate fundamental problems in cell and developmental biology such as the mechanisms of cell polarization and cytokinesis. In regards to cell polarization, the major current foci are the roles of cortical marker proteins and of a GTPase-based signal-transduction cascade in the selection of the polarization axes (as defined by the bud sites). Interestingly, the marker proteins appear to be delivered to polarized sites in the cell surface by an unconventional arm of the secretory pathway. In regards to cytokinesis, the major current foci are the roles of the septin proteins and the interactions among the actomyosin contractile ring, the enzymes of extracellular-matrix (cell-wall) synthesis, and proteins that appear to be involved in plasma-membrane reorganization. Our working hypothesis is that the conserved core mechanism is the rearrangements of the membrane during cleavage-furrow formation and that the actomyosin ring and extracellular matrix play accessory roles.

In a departure from our many years of yeast work, a major new project involves developing the small sea anemone *Aiptasia pallida* as a model system for study of the molecular and cellular biology of the dinoflagellate-cnidarian symbiosis, which is critical for the survival of most reef-building corals but still very poorly understood. Processes to be investigated include the recognition and signaling events involved in symbiosis establishment, the temporal and spatial coordination of symbiont and host cell cycles during symbiosis maintenance, and the signaling and cellular processes involved in symbiosis breakdown under stress. Currently much of our effort is directed at genomic analysis and method development that will underpin later studies.

Teaching

COURSES

2018-19

- Advanced Genetics: GENE 205 (Win)

- Frontiers in Biological Research: BIOC 215, DBIO 215, GENE 215 (Aut, Win, Spr)
- Genetics and Developmental Biology Training Camp: DBIO 200, GENE 200 (Aut)

2017-18

- Advanced Genetics: GENE 205 (Win)
- Frontiers in Biological Research: BIOC 215, DBIO 215, GENE 215 (Aut, Win, Spr)

2016-17

- Advanced Genetics: GENE 205 (Win)

2015-16

- Advanced Genetics: GENE 205 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Phillip Cleves, Lorraine Ling, Christian Renicke

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Genetics (Phd Program)

Publications

PUBLICATIONS

- **F-actin homeostasis through transcriptional regulation and proteasome-mediated proteolysis.** *Proceedings of the National Academy of Sciences of the United States of America*
Onishi, M., Pecani, K., Jones, T. 4., Pringle, J. R., Cross, F. R.
2018
- **CRISPR/Cas9-mediated genome editing in a reef-building coral** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Cleves, P. A., Strader, M. E., Bay, L. K., Pringle, J. R., Matz, M. V.
2018; 115 (20): 5235–40
- **Role of the Hofl-Cyk3 interaction in cleavage-furrow ingression and primary-septum formation during yeast cytokinesis** *MOLECULAR BIOLOGY OF THE CELL*
Wang, M., Nishihama, R., Onishi, M., Pringle, J. R.
2018; 29 (5): 597–609
- **Glucose-Induced Trophic Shift in an Endosymbiont Dinoflagellate with Physiological and Molecular Consequences** *PLANT PHYSIOLOGY*
Xiang, T., Jinkerson, R. E., Clowez, S., Tran, C., Krediet, C. J., Onishi, M., Cleves, P. A., Pringle, J. R., Grossman, A. R.
2018; 176 (2): 1793–1807
- **Evidence for miRNA-mediated modulation of the host transcriptome in cnidarian-dinoflagellate symbiosis** *MOLECULAR ECOLOGY*
Baumgarten, S., Cziesielski, M. J., Thomas, L., Michell, C. T., Esherick, L. Y., Pringle, J. R., Aranda, M., Voolstra, C. R.
2018; 27 (2): 403–18

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