PVLSI PIONEER VALLEY LIFE SCIENCES INSTITUTE
A Baystate Medical Center ■ UMass Amherst Research Partnership

Center of Excellence in Apoptosis Research

The mission of the Center of Excellence in Apoptosis Research (CEAR) is the identification and regulation of the signaling pathways that regulate apoptosis in a tissue-specific manner. As a part of PVLSI, CEAR will share PVLSI's approach to translational research that brings together interdisciplinary teams of research scientists, engineers, and clinicians to improve human health while contributing to the economic well being of its community, its region and beyond.

Current Programs

Membership in CEAR is open to scientists, engineers and physicians at PVLSI, UMass Amherst and Baystate Medical Center. Members are eligible for support from several innovative programs:

- **John Adams Biomedical Investigator** awards provide special support for new CEAR-related life scientists, physical scientists, engineers and clinician appointments to UMass Amherst and the Baystate Medical Center. Our objective is to maximize CEAR's ability to engage in targeted recruiting that will enhance the strengths of its research programs.
- **Interdisciplinary Postdoctoral Fellowships** encourage young scientists, engineers, and physicians to develop novel research programs that span traditionally separate disciplines. The goal is to train researchers at the boundaries between disparate fields to develop new insights and applications.
- The **CEAR Pilot Grants** Program provides funding for high-risk/high-gain interdisciplinary apoptosis–related projects to promote the development of new ideas or extend research results and scientific insights into biomedical applications.

Facilities

CEAR is based in PVLSI's state-of-the-art biomedical research space in Springfield, Massachusetts. General laboratory space is designed to maximize scientific interaction among diverse researchers. It is fully equipped and staffed for animal care, histology, cell culture, and molecular biology. Two surgical suites for work with animal models to facilitate training, research, and medical instrument development are available. Shared equipment includes:

- FACScan, confocal laser microscope
- Whole animal *in vivo* imaging system
- Real-time PCR
- Robotics devices for conventional histology and immunohistochemistry

Research Foci

- Tissue-specific apoptosis-related signaling pathways, especially those relevant to PVLSI's Breast Cancer, Neurodegenerative Disorders, and Diabetes & Metabolic Disorders working groups.
- Protein misfolding and its relationship to cell death and pathology.
- Regulation of apoptosis to enhance the survival of transplanted tissues and stem cells.

Approach

- Coalesce a critical mass of life scientists, physical scientists, engineers and clinicians to focus research efforts on specific regulatory pathways related to apoptosis.
- Develop formal and research-based educational experiences that equip young scientists with an understanding of apoptosis and prepare them to operate in interdisciplinary environments.
- Leverage UMass Amherst's strengths in physical and life sciences and Baystate's clinical expertise and large, stable patient population to enable new discoveries and to attract increased research funding for apoptosis-related projects.
- Stimulate the formation and training of fluid, interdisciplinary teams to overcome technical hurdles and efficiently engage in boundary spanning novel scientific programs
- Develop and commercialize intellectual property resulting from research at CEAR, including innovative tools, diagnostics and therapies.

Anticipated Mechanisms

- Build upon the initial CEAR membership of more than 40 scientists, engineers and physicians.
- Recruit new scientists to PVLSI, UMass Amherst and Baystate to broaden and deepen CEAR's scientific team.
- Use CEAR-based programs to stimulate and support novel interdisciplinary research.
- Offer and collaborate on boundary spanning symposia on apoptosis and complementary fields.
- Apply apoptosis as a crosscutting theme for PVLSI's disease-based working groups to capture the

Location

PVLSI's Springfield location offers proximity to major biomedical business and research centers; modest living and business expenses; and outstanding quality of life.

- Within 100 miles of 8 medical schools and 13 research universities
- 30 minute drive to Bradley International Airport, 10 minute drive to an Amtrak station with direct service to New York, and 90 minute drive to Boston
- Easy access to Baystate Medical Center and UMass Amherst resources, scientists and facilities.

Contact

Lawrence M. Schwartz, Ph.D., Science Director
Pioneer Valley Life Sciences Institute
3601 Main Street
Springfield, MA 01199
Telephone: 413.794.0653
Email: schwartz@bio.umass.edu
Web: http://www.pvlsi.org/

advantages of both scientific research and clinical foci.

- Engage clinician-scientists from Baystate Health to focus on the clinical significance of apoptosis.
- Provide seminars and other continuing educational opportunities to teach industry scientists from diverse disciplines about apoptosis.
- Seek a wide-range of collaborations and relationships with industry and medical foundations with infrastructure that will help to deliver CEAR innovations to the bedside.

Sustainability

- Use the founding investment from the John Adams Innovation Institute of the Massachusetts Technology Collaborative Funding to grow and achieve sustainability.
- Leverage the interdisciplinary research community to pursue a broad range of funding opportunities at the investigator-driven and/or institutional levels.
- Attract and increase support from foundations.
- Develop and offer unique resources and capabilities for industry sponsored and contract research.
- Work with private sector partners to develop and commercialize biomedical innovations based on intellectual property created from CEAR-based research.

Leadership and Administration

Paul Friedmann, M.D., M.B.A., Executive Director, PVLSI

Lawrence M. Schwartz, Ph.D., Science Director, CEAR and PVLSI; Professor, Biology, UMass Amherst

Sallie Smith-Schneider, Ph.D., Associate Director, CEAR; Scientist, PVLSI; Adjunct Research Asst. Professor of Veterinary and Animal Sciences, UMass Amherst

Nicholas DeCristofaro, Ph.D., Director of Technology Transfer, PVLSI

Angelina M. Pizzanelli, M.B.A., Administrative Director, PVLSI

Affiliated Scientists

Dominique Alfandari, Ph. D., Asst. Professor, Veterinary and Animal Sciences, UMass Amherst

Juan Anguita, Ph.D., Asst. Professor, Veterinary and Animal Sciences, UMass Amherst

Kathleen F. Arcaro, Ph.D., Asst. Professor, Veterinary and Animal Sciences, UMass Amherst

Richard Arenas, M.D., Chief of Surgical Oncology, Baystate Health; Adjunct Professor, Biology, UMass Amherst

Surita Bhatia, Ph.D., Assoc. Professor, Chemical Engineering, UMass Amherst

Eric L. Bittman, Ph.D. Professor, Biology, UMass Amherst

Barry Braun, Ph.D. Assoc. Professor, Kinesiology, UMass Amherst

John Burand, Ph.D. Assoc. Professor, Plant, Soil & Insect Sciences, UMass Amherst

Priscilla M. Clarkson, Ph.D., Professor, Kinesiology, UMass Amherst

Geert De Vries, Ph.D., Professor, Psychology, UMass Amherst

Gerald B. Downes, Ph.D., Asst. Professor, Biology, UMass Amherst

Todd Emrick, Ph.D., Asst. Professor, Polymer Science & Engineering, UMass Amherst

Katherine V. Fite, Ph.D., Professor, Psychology, UMass Amherst

Nancy G. Forger, Ph.D., Professor, Psychology, UMass Amherst

Lila M. Gierasch, Ph.D., Professor, Biochemistry and Molecular Biology, UMass Amherst

David J. Gross, Ph.D., Assoc. Professor, Biochemistry and Molecular Biology, UMass Amherst

Hiromi Gunshin, Ph.D., Asst. Professor, Nutrition, UMass Amherst

Joseph Hamill, Ph.D., Professor, Kinesiology, UMass Amherst

Jean Hardy, Ph.D., Asst. Professor, Chemistry, UMass Amherst

Daniel Hebert, Ph.D., Assoc. Professor, Biochemistry and Molecular Biology, UMass Amherst

Michael Henson, Ph.D., Professor, Chemical Engineering, UMass Amherst

Abigail M. Jensen, Ph.D., Asst. Professor, Biology, UMass Amherst

D. Joseph Jerry, Ph.D., Assoc. Professor, Veterinary and Animal Sciences, UMass Amherst; Director, Breast Cancer Working Group, PVLSI

Gary Kamen, Ph.D., Professor, Kinesiology, UMass Amherst

Rolf Karlstrom, Ph.D., Assoc. Professor, Biology, UMass Amherst

Jane Kent-Braun, Ph.D., Professor, Kinesiology, UMass Amherst

Luis A. Moral, M.D., Director, Autopsy/Neuropathology, Baystate Health

James D. Mueller, M.D., Chief, Div. of Molecular Genetics & Pathology Research, Baystate Health

John Nambu, Ph.D., Assoc. Professor, Biology, UMass Amherst

Barbara A. Osborne, Ph.D., Professor, Veterinary and Animal Sciences, UMass Amherst

Christopher N. Otis, M.D., Director, Surgical Pathology and Immunohistochemistry, Baystate Health

Sandra L. Petersen, Ph.D. Professor, Biology, UMass Amherst

Susan C. Roberts, Ph.D., Assoc. Professor, Chemical Engineering, UMass Amherst

Vincent Rotello, Ph.D., Professor, Chemistry, UMass Amherst

Lawrence M. Schwartz, Ph.D., Science Director, CEAR and PVLSI; Professor, Biology, UMass Amherst

Rong Shao, M.D., Ph.D., Research Scientist, PVLSI; Adjunct Research Asst. Professor, Veterinary and Animal Sciences, UMass Amherst

Hava Siegelmann, Ph.D., Assoc. Professor, Computer Science, UMass Amherst

J. Enrique Silva, M.D., Chief, Endocrinology, Baystate Health; Adjunct Professor, Biology, UMass Amherst

Janice C. Telfer, Ph.D., Asst. Professor, Veterinary and Animal Sciences, UMass Amherst

Lynmarie Thompson, Ph.D., Assoc. Professor, Chemistry, UMass Amherst

Christopher L. Woodcock, Ph.D., Gilbert Woodside Professor, Biology, UMass Amherst

R. Thomas Zoeller, Ph.D., Professor, Biology, UMass Amherst