

Echelon Research Laboratories, Inc.

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Project Title

SOLUBLE AND ANTIGENIC PHOSPHOINOSITIDE PHOSPHATES (R41GM57705-01)
ISOPRENOID COMPOUNDS FOR BIOLOGICAL STUDIES (R41DK54569-01)

Technology Developed

Echelon Research Laboratories Inc. (ERL) was formed by The University of Utah (UUtah)-based co-founders Glenn D. Prestwich (Chair, Department of Medicinal Chemistry) and C. Dale Poulter (Chair, Department of Chemistry), with G. Thomas Heath as President and manager of business operations. Mr. Heath had a distinguished career as Director, Product Marketing, Pfizer International, Inc. and later Pharmaceutical Division Manager, Pfizer Canada Inc., and also co-founded Delft Pharma International, Inc. (now, ImmunoMed Corp.) in Salt Lake City. ERL is registered in the State of Utah, completed its articles of incorporation in August 1997, and established research and production laboratories in The University Research Park, 421 Wakara Way, Suite 360, Salt Lake City. ERL now employs six Ph.D. scientists in synthetic chemistry, molecular biology, and human genetics. ERL's employees are mostly recruited from the greater Salt Lake City area, and working at ERL provides an exciting, fast-paced entrepreneurial environment, financial rewards, and the opportunity to live in one of the top-rated recreational and educational areas in the United States.

ERL envisaged a three-tier strategy: (i) reagent sales, (ii) development of specific assays for binding proteins and enzymes that process these reagents and for phosphoinositide polyphosphate (PIP_n) localization in cells, and (iii) development of screening platforms for drug discovery. ERL's logo depicts these three echelons, or "steps," as a stylized silhouette of the Escalante Grand Staircase National Monument. ERL was the first company spawned by the Center for Cell Signaling, a Utah Center of Excellence dedicated to commercialization of new faculty technologies.

ERL began operations based on two Phase I STTR awards, one from National Heart, Lung and Blood Institute to Dr. Poulter to synthesize and market isoprenoid diphosphates and associated enzymes, and the other from National Institute of General Medical Sciences to Dr. Prestwich to synthesize and market PIP_ns. Sales began in April 1998, under license from UUtah.

Dr. Rose Ciulla-Bohling, ERL's first employee, became Principal Investigator of the first two Phase I SBIR awards received in July 1999. One award, funded by the National Cancer Institute through the Phased Innovative Research program, will develop enzyme assays and immunohistochemical assays to monitor production of the powerful anti-apoptotic agent phosphatidylinositol-3,4,5-trisphosphate(PIP₃). These assays are forerunners to a new clinical diagnostic method for early detection of pre-metastatic malignancies. The goal of the second Phase I award granted by NIGMS was to develop a rapid high-throughput screening assay to identify inhibitors of the lipid kinase that produces PIP₃. Most recently, ERL received its first Phase II STTR from NIGMS for development of soluble, fluorescent, and antigenic phosphoinositides. The new funding, combined with strong first-year sales, have enabled ERL to expand from one to eleven employees.

Cumulative Sales/Revenues to Date

ERL has commercialized a series of phosphoinositide products based on the molecular scaffolds shown in the Figure. Full product information is available at the company's Web site: www.echelon-inc.com,

Uses of the Technology

Phosphoinositide polyphosphates are now available from ERL. The products from this innovative company are valuable reagents and methods for the biomedical research community not only throughout the United States, but also throughout the world. Phosphoinositide polyphosphates are naturally occurring compounds that provide vital links and signals between the cell environment and intracellular processes. Recent evidence indicates that they may also be involved in the suppression of tumor cell growth. Fluorescent versions of these compounds will allow scientists to monitor where inside the cell these biomedically important act and how they change.

These Echelon Research Laboratories products will make possible new areas of research previously inaccessible to biomedical investigators and allow them to understand how cells turn on and off vital pathways. There has already been substantial impact on the research and business community because these compounds are found in very small amounts in cells and are difficult to purify. The potential impact of the recent and future products is extremely high. To expand their market base, ERL is developing new reagents and materials in kit form as well as proprietary assays for screening of inhibitors of ligand-signaling protein interactions. Their corporate goal is the creation of tools for high-throughput screening of compounds that interfere with the PIP_n signaling pathways in cell-based assays.

Center for Cell Signaling (CCS)

Located in The University of Utah Research Park, Salt Lake City, the CCS is a Utah Center of Excellence affiliated with UUtah. Established in July 1997, CCS comprises research and development activities for new technologies originating in the laboratories of 21 Core and Associate Faculty; 18 of these are in the College of Pharmacy, College of Science, College of Engineering, and School of Medicine at UUtah and three hail from two other nearby Universities.

The CCS, founded and directed by Glenn D. Prestwich, promotes company start-ups, provides seed funding for proof-of-principle experiments to validate new technologies, and conducts core research (in its laboratories) in anti-lipid antibodies, new apoptotic mediators, uses of combinatorial libraries, and development of novel fluorescence polarization assays. ERL is the first start-up company launched by CCS. A second company launched by CCS in 1998 is Salus Therapeutics, Inc. Founded by Duane Ruffner, Ph.D., Salus has just received a fast track Phase I/II SBIR for development of an antisense RNA targeting technology and will soon open new laboratories in the Research Park.

National Institutes of Health Awards

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