Center for Development and Molecular Biology

Mission

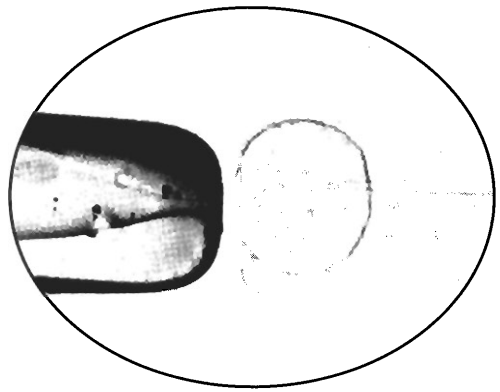
To facilitate product development, supplement near-term research, stimulate additional patent development, and increase the commercialization process of current near-term products in biotechnology, agriculture, and human medicine.

The Center

Utah State University (USU) in cooperation with Hyclone Laboratories, Inc., has established, through the Utah Centers of Excellence program, the Center for Development and Molecular Biology (CDMB): Mammalian Tissue Culture, Immuno-modulation and Lytic Peptide Research. CDMB research will have a direct impact on important areas within biotechnology. The focus of this research team is in the following areas:

PRIMARY CELL CULTURE MEDIUM DEVELOPMENT

Researchers at Hyclone Laboratories, Inc. working in conjunction with scientists at USU have developed a lymphocyte culture fluid that out-performs all other culture media in the culture of lymphocytes and embryos. It is anticipated that this research will result in development of additional medium formulations for cells which are currently difficult to culture. Marketable products in this area include a tumor infiltrating lymphocyte medium and cells transected with the Lytic peptide gene for treatment of several types of tumors in vitro embryos and embryonic stern cells.



DNA injection into pro-nuclear stage embryo to produce transgenetic animals.

LYTIC PEPTIDE EXPRESSION AND EXPRESSION VECTOR DESIGN

Researchers at USU have evaluated, developed, synthesized, and characterized several synthetic chemotherapeutic peptides referred to as Lytic peptides. These peptides have shown to be effective against a number of disease states that are currently very difficult or impossible to treat with conventional therapy. CDMB research focuses on the enhanced disease resistance of animals, plants, and fish by the transfer and expression of Lytic peptide genes. In addition, immuno-modulation of lymphocytes by Lytic peptide gene therapy for treatment of certain tumors has become a research focus of the Center. Recently, a patent application through the USU Office of Technology Transfer has been filed for the transfer and expression of Lytic peptides in transgenitic animals and mammalian cells to confer disease resistance.

Center Accomplishments:

- The development of lymphocyte culture fluid (LCF) and Embryo culture fluid (ECF) that out perform all other culture media. Commercialization of these products will be through Hyclone Laboratories, Inc..
- Results of the subsequent efforts in culture media development will serve to provide additional products.
- Results of work on Lytic peptides and expression vector development will lead to the foundation of new companies as well as license agreements with existing companies.

For more information, please contact:

Kenneth L. White
Associate Professor
Center for Development and Molecular Biology
Utah State University, BioTech Center
Logan, Utah 84322-4500
(801) 750-2149