



## Medical Education and Research Grant Outcome Report

**Name: Metabolic Control of Metastasis by a Master Regulator of Neurogenesis: Molecular Mechanisms and Therapeutics**

**Principal Investigator:** Avtar Roopra, PhD

**Phone/Email:** 608-265-9072/roopra@neurology.wisc.edu

**Department:** Neurology

**Program:** New Investigator Program

**Grant Duration:** 10-01-2007 to 09-30-2009 (24 months)

**Expenditures:** \$99,990 (100%)

**Use of Funds (Taxonomy):** Basic research

**Research Keywords:** Cancer, Metabolism, NRSF, Chromatin, Metastasis

► **Description:** More than 90 percent of breast cancer deaths are due to the spreading of tumors throughout the body, a process called metastasis. This project aimed to inhibit that process, focusing on a metabolic sensor that controls migration of tumor cells in the body.

► **Contributions/Results:** The investigators identified and isolated a metabolic sensor in cancer cells that controls migration. This sensor can be activated and deactivated by use of certain compounds. The existence of this sensor suggests that reducing carbohydrate intake may limit the spread of breast cancer into other tissues.

The Principal Investigator also identified a gene that causes an aggressive and therapy-resistant strain of breast cancer. Loss of function in this gene, the REST pathway, accounts for about 20 percent of the breast cancer cases seen in the United States. This discovery reoriented the direction of the project, as researchers focused their attention on this compelling

these findings and disseminating them through journal articles.

► **Met Objectives:** Project complete

► **Timeline for Application of Results:** 3 to 5 years

► **New Partnerships or Collaborations:** This work has led to collaboration between basic scientists and clinicians in the UW Comprehensive Cancer Center, as well as with a pathologist at Harvard Medical School. Dr. Roopra's lab has joined with four others to help prepare a larger grant to study these findings.

► **Matched Dollars (cash or in-kind):** None

► **Dissemination:** Findings related to the gene discovery has led to a patent and publication in the journals *Cancer Cell* and the *Proceedings of the National Academy of Science*. The findings from this project were featured in a news report on WISC-TV in Madison.

► **Additional Funding:** The investigators have completed a \$7.5M Komen-Promise Grant application.