

**New Jersey State Commission on Cancer Research  
LAY ABSTRACT OF RESEARCH PROJECT**

NAME OF PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: **Richard Eckner**

Project Title: **Role of p300/CBP in Id expression and breast cancer**

Description: **This project investigates the role of the epigenetic regulators p300 and CBP in breast cancer formation.**

Apart from the DNA containing our genetic information (all our genes), there are very important instructions on how to 'read' the information contained in our genes. This information is stored in the proteins that cover our DNA. These chromosomal proteins and the DNA make up our chromosomes. The chromosomal proteins contain the information in the form of more than 80 different small chemical 'tags'. These tags contain the information known as epigenetic information and determine how active a gene is. If a gene contains the wrong tags, it will be too active or inactive. The result can be cancer or other diseases. The proposed project investigates two of the enzymes (called p300 and CBP) that are responsible for adding a certain class of tags to the chromosomal proteins. These enzymes control the reading of genes that prompt breast epithelial cells to either divide or differentiate and produce milk (following pregnancy). These enzymes represent ideal targets for drug development. We would like to understand how breast epithelial cells react if there is a diminished amount of these two enzymes available. Using a mouse model of breast tumor formation, we are interested to learn whether there is a tendency to form fewer and/or less metastatic tumors if the amount of these two enzymes is decreased. The results of our study will tell us whether it is possible to interfere with breast cancer progression by inhibiting the function of the p300 or CBP epigenetic enzyme.