

Bankhead-Coley Cancer Research Program

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Bridge (1-year project)*

Project Title: Function and Regulation of SirT1 in Cancer

Project Summary: Previous research in yeast identified a gene named Sir2 that can extend life span by more than 50 percent during starvation conditions. The human version of this gene (SirT1) is expected to promote cell survival under stressful conditions. Recent work showed that SirT1 controls the activities of several human genes that normally promote cell death, including several tumor suppressor genes. Therefore, human SirT1 may be involved in the development of cancer by interfering with the functions of tumor suppressors. The research team plans to further investigate whether abnormal SirT1 production in human tumor cells leads to resistance to cell death induced by chemotherapy drugs and whether suppressing SirT1 activity can improve the therapeutic effects of cancer drugs. Another goal is to determine whether SirT1 activity is closely linked to the overall malignant status of the tumor cell by a signaling mechanism called phosphorylation. Discovery of new signaling mechanisms may lead to development of drugs that modify SirT1 activity and improve response to cancer chemotherapy.