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Role of HMGI-C Protein in Breast Cancer

[To study the role of HMGI-C Protein in Breast Cancer]

We are working on a protein called high mobility group protein I-C (HMGIC). This protein is very important for the development of embryo during gestation. At physiological level, HMGIC acts as a master switch for many genes. We have developed a mouse that has lost the gene for this protein. This causes dwarfism in the mouse. Interestingly, the deficiency of this protein also causes reduction of the body fat. Recently, it has been noticed that although most normal adult tissues do not express HMGIC, many cancer tissues, particularly breast cancer tissues, do express it at a high levels. Cancer cells commit to death if HMGIC is experimentally inhibited. However, its exact contribution to the development of cancer is not known. We are proposing to examine the expression of HMGIC in the cancerous tissues from breast cancer patients. We also plan to examine the development of breast cancer in our mouse model. Our proposed studies are aimed at understanding the role played by HMGIC in breast cancer. Because HMGIC is a master switch for many genetic events, knowledge gathered from these studies will be very important to identify novel diagnostic markers that may help early detection of breast cancer and may also provide clues to develop new drugs.