Beyond the Genome: Folding the Blueprint of Life

Sharon Dent

Professor and Chair, Epigenetics and Molecular CarcinogenesisDirector, Center of Cancer Epigenetics

CURRENT RESEARCH

Studying the role of chromatin and chromatin-modifying proteins in regulating gene expression

When putting together furniture or Lego blocks, it is critical to follow instructions carefully as specified on the manual, as misreading them will result in deformed furniture or blocks. Fortunately, it's usually a reversible process that allows the designer to undo and reorder the steps. Likewise, every cell in an organism contains the same genetic blueprint, in the form of the DNA genome. However, different cells have need of and use different parts of the blueprint, and missing the cues on this manual result in mutations that can manifest in cancer, birth defects, and other diseases. Dr. Sharon Dent, Professor and Chair of Epigenetics and Molecular Carcinogenesis and Director of Center of Cancer Epigenetics at the University of Texas MD Anderson Cancer Center, studies how mutations lead to abnormal chromatin folding that contributes to disease, by understanding the normal functions of epigenetic factors. Such knowledge will facilitate development of new therapies aimed at correcting the epigenetic states to a more normal condition, helping cells regress the process.

Pioneers in epigenetics, Dr. Dent's lab has developed novel mouse models that are revealing new insights to the etiology of debilitating human diseases. Using state-of-the-art gene editing tools to develop yeast and mice models that contain specific mutations in the gene encoding, the team is able to define the changes in phenotype caused by these mutations. This approach helps them understand all the factors affecting the way DNA is folded, which has implications in embryonic abnormalities, neurodegenerative diseases, and cancer, as well as brain functions that control memory, aggression, and perhaps even compulsive behaviors....

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AFFILIATION

University of Texas: MD Anderson Cancer Center

EDUCATION

- Ph.D. in Biochemistry 1986,Rice University
- B.Sc. Magna cum laude in Biochemistry 1980,North Texas State University
- Postdoctoral Fellow in Biochemistry 1988,Baylor College of Medicine
- Senior Staff Fellow at Laboratory of Cellular & Developmental Biology in 1993,National Institute of Health

AWARDS

- President's Leadership Award, 2015
- AAAS Fellow, 2012
- Paul E. Darlington Mentor Award, 2009
- Faculty Achievement Award in Basic Science, 2001

RESEARCH AREAS

Health & Wellness, Longevity, Immortality Research

FUNDING REQUEST

Your contributions will support the continued research of Dr. Sharon Dent at the University of Texas: MD Anderson Cancer Center as she studies chromatin folding and its relation to cancer, birth defects, and neurodegeneration. Donations will help fund each project requiring $250K/year, supporting personnel, supplies, and special services. Partner with her team to address questions that may unveil solutions to next generation therapeutics!