Key Indicator for Malignant Melanoma Found

Curious Cat Science and Engineering Blog

Skin cancer detection breakthrough [1]
The researchers found that certain biochemical elements in the DNA of normal pigment-producing skin cells and benign mole cells are absent in melanoma cells. Loss of these methyl groups â known as 5-hmC â in skin cells serves as a key indicator for malignant melanoma. Loss corresponded to more-advanced stages of melanoma as well as clinical outcome.
Strikingly, researchers were able to reverse melanoma growth in preclinical studies. When the researchers introduced enzymes responsible for 5-hmC formation to melanoma cells lacking the biochemical element, they saw that the cells stopped growing.

â It is difficult to repair the mutations in the actual DNA sequence that are believed to cause cancer,â said Christine Lian, a physician-scientist in the Department of Pathology at BWH and one of the lead authors. â So having discovered that we can reverse tumor cell growth by potentially repairing a biochemical defect that exists â not within the sequence but just outside of it on the DNA structure â provides a promising new melanoma treatment approach for the medical community to explore.â

Because cancer is traditionally regarded as a genetic disease involving permanent defects that directly affect the DNA sequence, this new finding of a potentially reversible abnormality that surrounds the DNA (thus termed â epigenetic [2]â) is a hot topic in cancer research, according to the researchers.

In the United States, melanoma is the fifth most common type of new cancer diagnosis in men and the seventh most common type in women. The National Cancer Institute estimates that in 2012 there will be 76,250 new cases and 9,180 deaths in the United States owing to melanoma.

Thankfully scientists keep making great progress in understanding and finding potential clues to treating cancer. And big gains have been made in treating some cancers over the last few decades. But the research successes remain difficult to turn into effective solutions in treating patients.

I am thankful we have so many scientists doing good work in this difficult and important area (cancer).

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[1] http://news.harvard.edu/gazette/story/2012/09/skin-cancer-detection-breakthrough/
[2] http://engineering.curiouscatblog.net/2011/10/26/epigenetic-effects-on-dna-from-living-conditions-in-childhood-persist-well-into-middle-age/