Study offers evidence that sunscreen use in childhood prevents melanoma in adults

June 19 2014

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Research conducted at the Texas Biomedical Research Institute, published in the latest issue of the scientific journal *Pigment Cell and Melanoma*, has established unequivocally in a natural animal model that the incidence of malignant melanoma in adulthood can be dramatically reduced by the consistent use of sunscreen in infancy and childhood.

According to senior author John L. VandeBerg, Ph.D., the research was driven by the fact that, despite the increasing use of sunscreen in recent decades, the incidence of malignant melanoma, the most aggressive form of skin cancer, continues to increase dramatically. The American Cancer Society estimates that more than 75,000 new cases of melanoma will be diagnosed in the U.S. this year.

"While sunscreen is highly effective in preventing sunburn, this paradox has led some to question whether sunscreen is effective in preventing melanoma caused by ultraviolet (UV) light," VandeBerg said. "It has been suggested that sunscreen enables people to receive more UV exposure without becoming sunburned, and that increased exposure to UV light has led to an increasing incidence of melanoma."

Questions regarding the effectiveness of sunscreen have remained unanswered in part because, until recently, no natural mammalian model of UV-induced melanoma has existed, noted VandeBerg. Scientists at Texas Biomedical Research Institute have established the gray short-tailed opossum, a small marsupial from South America, as such a model, and tested an over-the-counter facial lotion containing SPF15 sunscreen for its ability to prevent UV-induced melanoma.

The Texas Biomed researchers found that the application of lotion containing sunscreen to infant opossums led to a 10-fold reduction in pre-melanotic lesions (known to progress to melanoma), in comparison to infant opossums receiving lotion that did not contain sunscreen. This difference in the development of lesions occurred even when low doses of UV light were applied – so low that they caused no sunburn or even reddening of the skin in the opossums that did not receive sunscreen.

The pre-melanotic lesions did not appear until the infants had become adolescents (equivalent to early teenagers in humans), and prior experiments established that the pre-melanocytic lesions in opossums do

not progress to melanomas until the animals are well into adulthood, as typically occurs in humans.

"Based on these results, we speculate that the reason it is particularly important that sunscreens be used consistently in childhood, and especially in infancy, is because skin cells during growth are dividing much more rapidly than in adulthood, and it is during cell division that the cells are most susceptible to UV-induced damage," said VandeBerg. "Evidence that supports this hypothesis is that melanoma is not induced in adult opossums when their shaved skin is irradiated by UV light in the absence of sunscreen."

Provided by Texas Biomedical Research Institute