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> *****Sunlight paralyzes skin's ability to fight off cancerous cells

DALLAS--Soon millions of American sun worshippers will spend endless hours seeking the sunny rays of summer.

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But a Dallas skin cancer authority cautions against trying to maintain a "healthy," deep tan by either natural sunlight or by artificial sunlight from tanning parlors.

"The effects of tanning are cumulative and the more sunlight you get, the more likely you are to develop skin cancer," warns Dr. Paul Bergstresser, professor and chairman of the Department of Dermatology at The University of Texas Health Science Center at Dallas.

How does skin cancer occur? There appear to be two keys to skin cancer's development, Bergstresser says. The first is the damaging effect that ultraviolet light has on the genetic material (DNA) of skin cells, causing mutations in the DNA that lead to cancerous growth. The second is the capacity of ultraviolet light to paralyze the skin's immune system so that it fails to recognize and kill off the mutant cancer cells.

"Our research and the work of others indicate that the target of this sunlightinduced paralysis is probably the Langerhans cell. This is the star-shaped cell responsible for initiating a protective immune response," says Bergstresser, director of the National Institutes of Health's Center of Immunodermatology at UTHSCD.

An important observation on the development of skin cancer emerged in 1984 as Bergstresser led a research project with Dr. Harold Helderman, professor of internal medicine and kidney transplant expert. The project dealt with the fact that persons who get kidney transplants and take immunosuppressant drugs to prevent rejection have a high frequency of skin cancer. Skin cancer in these transplant patients arises primarily in areas exposed to sunlight, such as the face, arms and hands.

The researchers compared skin cells from sun-exposed areas of these patients with skin cells from non-exposed areas. They made further comparisons with skin cells from age-matched normal volunteers.

"Profound alterations were observed in the number and the appearance of skin cells from the sun-exposed areas of the transplant patients," Bergstresser says.

"From these observations and subsequent studies, we believe that the ultraviolet radiation disables Langerhans cells. Furthermore, immunosuppressive treatment prevents new Langerhans cells from repopulating the exposed areas. These two processes conspire to permit the development of skin cancer in these patients.

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"While normal persons have the capacity to repopulate damaged Langerhans cells, repeated sun exposure over years can create a likelihood that skin cancer will develop."

Bergstresser explains that when the defender role played by Langerhans cells fails to operate, cells with damaged DNA proliferate. Tumor cells are not recognized as foreign and are allowed to survive.

Recent studies at the health science center have concentrated on cells that surround the Langerhans cells and affect their function. Currently, molecular genetic research aims at sorting through these various cells to pinpoint the precise target of UV radiation--the Langerhans cells or others.

"In order to protect skin selectively against UV radiation, we must know for certain which cell is the target."

To make this assessment, the UTHSCD dermatology research group has chosen to look at a skin disease other than cancer in which the Langerhans cell is pivotal--contact allergic dermatitis.

"The process of recognizing an allergen has great similarity with the process of recognizing tumor cells. We are working with purified cells from the outermost portion of the skin where UV light is greatest.

"New methods of cell isolation now permit fundamental questions to be addressed about the role of Langerhans cells".

In the meantime, he adds, be sure to wear your sunscreens. People who want to continue basking in the sun should protect themselves against light's damaging rays.

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NOTE: The University of Texas Health Science Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and the School of Allied Health Sciences.