

Eye color may indicate risk for serious skin conditions

May 6 2012

Eye color may be an indicator of whether a person is high-risk for certain serious skin conditions. A study, led by the University of Colorado School of Medicine, shows people with blue eyes are less likely to have vitiligo. It then follows, according to scientists, that people with brown eyes may be less likely to have melanoma. Vitiligo is an autoimmune skin disease in which pigment loss results in irregular white patches of skin and hair. Melanoma is the most dangerous kind of skin cancer.

The study is published online by the journal *Nature Genetics*. It looked at almost 3,000 people with vitiligo of Non-Hispanic European ancestry, identifying 13 new genes that predispose to vitiligo. Among the vitiligo patients, approximately 27 percent had blue/gray eyes, 43 percent had tan or brown eyes and 30 percent had green or hazel eyes, which is significantly different from the normal distribution of eye color where approximately 52 percent of Americans of Non-Hispanic European ancestry have blue/gray eyes, 22 percent have green/hazel eyes, and 27 percent have tan or brown eyes.

Richard Spritz, MD, is director of the Human Medical Genetics and Genomics Program at the CU School of Medicine, the coordinating center for the research. Spritz said the study primarily looked at vitiligo but also has implications for melanoma.

"Genetically, in some ways vitiligo and melanoma are polar opposites. Some of the same genetic variations that make one more likely to have

vitiligo make one less likely to have melanoma, and vice-versa," said Spritz. "Vitiligo is an autoimmune disease, in which a person's immune system attacks their normal [pigment cells](#). We think that vitiligo represents over-activity of a normal process by which one's immune system searches out and destroys early cancerous melanoma cells."

People with vitiligo are at higher risk for various other [autoimmune diseases](#), such as [thyroid disease](#), [type 1 diabetes](#), [rheumatoid arthritis](#) and lupus. Vitiligo patients' close relatives also are at higher risk for these same diseases, even if they don't have vitiligo. Spritz said this means there must be some genes that push towards these autoimmune diseases in general, while other genes and environmental triggers determine which autoimmune disease occurs and when. So, as scientists learn about the genetics of vitiligo, they also are learning about the genetics of these other autoimmune diseases.

Provided by University of Colorado Denver

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