

Why humans became so hairless

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A picture taken on March 26, 2018, shows a molding of a Neanderthal man face displayed for the Neanderthal exhibition at the Musee de l'Homme in Paris, France. Photo by: Stephane De Sakutin/AFP/Getty Images.

Millions of humans look in the mirror and ask themselves: Why am I so hairy? Humans spend millions of dollars a year on hair waxing, laser hair removal and shaving.

However, it turns out we are asking the wrong question. Scientists who study human evolution and genetics ask the opposite question. Genetics is the study of how human characteristics, such as hair or eye color, are passed from parent to child. For these scientists, the big mystery is that we have so little hair.

Scientists still aren't sure of the answer. Some, though, are beginning to understand the physical system that makes humans mostly hairless. A recent study shows how scientists are solving the mystery by looking at molecules. These are tiny particles that make up the cells in a human body.

Sarah Millar helped write the study in which scientists looked closely at parts of animals that are hairless like humans. In many animals, an area known as the plantar skin is like the underside of the wrist in humans. The plantar skin, along with the footpads, are hairless on most animals.

On rabbits, however, the plantar area is furry. A scientist studying the furry plantar region of rabbits noticed there wasn't a high level of one type of inhibitor protein. An inhibitor protein slows a normal system in the body. This protein is called Dkk2. Dkk2 can slow hair growth.

Reasons Our Palms And Feet Aren't Hairy

The team of scientists looked at the hairless plantar region of mice. They found high levels of Dkk2. The high levels suggested the protein might keep skin hairless by blocking a signaling pathway called WNT. This pathway controls hair growth.

The scientists concluded Dkk2 can prevent hair growth. However, Millar said that doesn't rule out other possibilities for why humans lost their fur.

Still, the new findings could be important in learning about other conditions, such as losing the hair on one's head. The WNT pathway is likely still present in people who lose this hair. However, it's being blocked by Dkk2 or similar inhibitors.

The big question remaining is why humans became almost hairless. Millar says there are some obvious reasons. For example, hair on our palms and wrists would make life difficult. Humans would have trouble using stone tools or operating machinery. Furry feet would also cause problems. We would constantly get sap and acorns caught in them. The reason the rest of our body lost its fur, however, is up for debate.

Better Body Temperature Control

A widely accepted idea is based on our human ancestors moving from the cool shady forests into hotter open areas, like savannas. When this happened, people needed better control of their temperature. Losing fur made it possible to hunt during the day without getting too hot. Humans also became able to sweat more. This kept early humans cooler during the day. Meanwhile, they'd learned to start fire and make clothes. With these inventions, they could stay warm at night.

Another possibility is that humans lost hair on their faces to help with communicating emotions. Mark Changizi is a scientist who studies vision and color. Changizi says many animals have two types of cones in their eyes. Cones are the receptors in the eye that detect color. Humans have three cones. Our third cone gives us extra power to see shades of color that aren't necessary for hunting or tracking.

For example, humans can see a baby whose skin looks a little green. This can mean illness. A pink blush might show you are attracted to someone. A face flushing with red could mean anger. The only way to see these emotional states is without fur on our faces.

Millar says it's unlikely her work will find the final answer to why humans lost so much fur. However, she hopes it will get us closer to the truth. Or, at least it will get some people closer to a fuller head of hair.

Quiz

- 1 Read the introduction [paragraphs 1-5]. Select the sentence from the section that explains one reason why hair growth might differ across animals.
- (A) For these scientists, the big mystery is that we have so little hair.
 - (B) Some, though, are beginning to understand the physical system that makes humans mostly hairless.
 - (C) Sarah Millar helped write the study in which scientists looked closely at parts of animals that are hairless like humans.
 - (D) An inhibitor protein slows a normal system in the body.
- 2 Read the section "Reasons Our Palms And Feet Aren't Hairy." Which sentence from this section supports the conclusion that human beings lost their fur so that life would be easier?
- (A) The high levels suggested the protein might keep skin hairless by blocking a signaling pathway called WNT.
 - (B) The WNT pathway is likely still present in people who lose this hair.
 - (C) Humans would have trouble using stone tools or operating machinery.
 - (D) The reason the rest of our body lost its fur, however, is up for debate.
- 3 What is the relationship between the Dkk2 protein and hair growth?
- (A) Scientists conclude that hair growth in mice is caused by the Dkk2 protein.
 - (B) Scientists believe that the presence of the Dkk2 protein stops hair growth.
 - (C) Scientists think that the protein Dkk2 causes humans to lose their hair.
 - (D) Scientists propose that the protein Dkk2 helps keep human palms hairless.
- 4 Why is it important for humans to be able to see the colors on people's faces?
- (A) so that we can learn where to hunt and track
 - (B) so that we can understand how others are feeling
 - (C) so that we can have better eyesight and clearer vision
 - (D) so that we are able to sweat more during the day