Are you a mosquito magnet? Here’s why mosquitoes like some people more than others

What is the science behind the differences in mosquito-human attractiveness?

Mosquitoes track down potential hosts with visual cues as well as with combinations of odorants called “kairomones”. The final short-range phase of the mosquito’s human-sensing flight is directed by the host’s body heat. Heat and odor suffice for the versatile mosquito if CO2 sensing is impaired.

Mosquitoes have multiple ‘noses’ or olfactory organs – the antennae, the proboscis, and the maxillary palps. These are rich in olfactory receptors. The signals are carried back to olfactory sensory neurons (OSNs).

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The human scent is made up of hundreds of volatile substances forming individual signatures. These include carbon dioxide (CO2), lactic acid, ammonia, organic fatty acids, ketones, aldehydes, alcohols, and esters. Combinations of human kairomones are stronger than single attractants.

Mosquito-human attraction depends on body odor intensity and composition. The human scent depends on the number of skin glands, the skin pH, the metabolic rate, body mass, and the rate and intensity of respiration, as well as the skin microbiota.

Mosquito attractiveness is thus determined by genetic, dietary, and environmental factors.

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