Treatement: Can Bees Sting Away HIV?

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Tiny particles, or nanoparticles, embedded with a toxin called melittin that's found in bee venom can destroy HIV while leaving surrounding cells unharmed, according to a proof-of-concept study conducted by scientists from Washington University School of Medicine in St. Louis. The researchers added "protective bumpers" to the surface of the melittin-embedded nanoparticles. The bumpers prevented normal cells, which are typically much larger than HIV, from coming into contact with the toxin-coated surface. HIV, on the other hand, can fit in between these bumpers, causing the melittin to kill the virus. This line of attack is different from that of antiretrovirals (ARVs), which impede different phases of the virus's life cycle inside a cell instead of killing it entirely. Such a new approach could keep HIV from infecting a cell in the first place. Researchers hope the bee toxin may become a component of a vaginal microbicide or a salvage therapy for people who have failed numerous ARV regimens.

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