

# Ants treat infected wounds of nestmates with medicine from their back

Matabele ants (*Megaponera analis*) in sub-Saharan Africa apply an antimicrobial substance to nestmates whose limbs are lost while raiding termite nests

**LIFE** 12 May 2022

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**An ant treating another ant with an injured leg**  
Erik Frank/University of Würzburg

An African ant seems to be the only known species, besides humans, that can diagnose infected wounds and treat them with antimicrobial medicine.

Matabele ants (*Megaponera analis*) are relatively large insects found in sub-Saharan Africa that raid termite nests for food. This is risky because termite nests are defended by soldiers that can bite the ants, tearing off their limbs in up to a fifth of cases.

**Erik Frank** at the University of Würzburg in Germany previously observed that Matabele

ants that are injured during these raids are [carried by their comrades back to their home nests](#), where [“nurses” lick their wounds clean](#).

Now, he and his colleagues have discovered that these nurses may even be able to tell if wounds are infected and treat them with an antimicrobial substance produced in glands in their backs.

The researchers filmed injured ants receiving wound care. Nurse ants licked their wounds clean and, in about 10 per cent of cases, applied a substance they collected from glands in their own backs or the backs of the injured ants themselves.

A chemical analysis of the substance revealed it contains several proteins and organic compounds with structures similar to known antibiotics and antifungals. In a laboratory experiment, the substance inhibited the growth of *Pseudomonas aeruginosa*, bacteria that commonly infect ant wounds, confirming its antimicrobial properties.

Of the infected ants that received wound care, 90 per cent survived, compared with just 5 per cent when the insects were separated from their nestmates by the researchers, causing them to miss out on treatment.

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Because nurse ants only apply the antimicrobial treatment in some cases, Frank and his colleagues believe the insects can detect a wound’s infection status.

In line with this, they discovered that ants with infected wounds produce a different profile of chemicals in their outer shells, called cuticular hydrocarbons. These chemicals are commonly used to communicate with other ants, suggesting injured insects signal their infection status to others so they can receive appropriate treatment.

“I wouldn’t be surprised because insects are full of ingenious tricks,” says [Ken Cheng](#) at Macquarie University in Sydney, Australia. But to prove other ants can detect and respond to these signals, the researchers would need to collect cuticular hydrocarbons from infected ants, apply them to uninfected ants and show that this prompts nurses to treat them with the antimicrobial substance, he says.

If Matabele ants can indeed tell if wounds are infected and selectively apply medicine, they would be the only species other than humans known to do this, the researchers wrote in their paper.

Chimpanzees were recently spotted [applying insects to their peers’ wounds](#), but it is unclear if they can detect whether the wound is infected or if the insects have antimicrobial

properties.

Matabele ants may nurse their nestmates in order to maintain a critical population of workers to raid termite nests and sustain their colony, says Cheng. As many as [22 per cent of these foragers](#) lose one or two legs during each termite hunt, meaning “the workforce would diminish too quickly without this medical treatment”, he says.

This is similar to some other ant species that rescue nestmates trapped [in spiderwebs](#) or [under sand](#), even though this puts individual rescuers at risk, because they benefit from having a large workforce that can maintain food supply for the whole colony, says Cheng.

**Journal reference:** *bioRxiv*, DOI: [10.1101/2022.04.26.489514](https://doi.org/10.1101/2022.04.26.489514)

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