

Skin microbes help fight off bacterial infections

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To understand whether the [human skin microbiome](#) can affect the ability of a bacterial pathogen to cause an infection, researchers have had to rely on observational studies. Now, taking advantage of a unique human skin infection model, [Stanley Spinola](#) of Indiana University and his colleagues, have found evidence to suggest that the makeup of the skin microbiome plays a role in whether an individual can clear a certain bacterial infection without intervention. The results, published September 15 in [mBio](#), provide another example of how the [ecology of human skin](#) can influence health and disease.

Spinola's laboratory had previously developed an infection model in humans of *Haemophilus ducreyi*, a bacterial species that causes chancroid, a relatively common form of sexually transmitted genital ulcers that's endemic in certain parts of Africa and Asia.

H. ducreyi initially forms a red bump called a papule that is cleared without any intervention in about 30 percent of tested volunteers, while the remaining people go on to develop pustules that, if not treated, can form skin ulcers. For the present study, the researchers inoculated volunteers with a set dose of the bacteria on their upper arms, and allowed the infection to progress — up to several days — to the pustule stage.

A predictive signature emerged when the researchers analyzed the volunteers' skin microbiome samples prior to inoculation. The microbiome community structure — the species and their relative distribution — was similar among people who spontaneously resolved their infections, the researchers found.

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