

It may even include "Staphylococcus aureus"

Friends, your skin is your largest organ, the boundary between you and the world, and a key part of what makes you who you are. But, despite what you may think, you're not the only one who lives in it.

In fact, according to a new study, your skin is a microbial zoo--home to perhaps 250 species of bacteria. Researchers discovered the full extent of this microscopic menagerie in what they described as "essentially the first molecular study of the skin" and its microbial inhabitants. No need to reach for the antibacterial soap, though. Most of your bacterial borders are harmless, and some are downright helpful.

### The Non-Enemy Within

Surprised? Don't be. Bacteria turn up everywhere life does, and some places most life doesn't--from the darkest depths of the ocean to the insides of your intestines. And though the unicellular organisms are best known for causing diseases, that isn't quite fair. A few bad bugs actually give countless benign--and even beneficial--bacteria a bad rap.

"Without good bacteria," says one of the study's authors, "the body could not survive." Says another, "Our microbes are actually, in essence, a part of our body." Hard to believe? Consider this: the bacteria inside your body outnumber your own cells 10 to 1, no matter how much you scrub. Your 10 to 100 trillion cells are, on average, vastly larger than the 100 trillion to 1 quadrillion bacteria that call you home, but still.

Even familiar infection-causing bacteria like *Staphylococcus aureus* (pictured above) don't normally cause trouble. Microbiologists say around 25 percent of the population currently carries staph, but most people don't get sick from it. Bacteria can and do cause nasty infections and dangerous diseases, but that's hardly their defining property.

### Bacterial Basics

So, what is their defining property? Think back to Biology 101. One of the most basic divisions in biology is the one between eukaryotic and prokaryotic cells. Basically, a eukaryotic cell includes a nucleus that holds its DNA. A prokaryotic cell has no nucleus.

Animals, plants, and fungi are built of eukaryotic cells. Most prokaryotes, on the other hand, are unicellular organisms. And bacteria are the signature prokaryotes. In fact, "bacteria" and "prokaryote" were once nearly synonymous, until enterprising biologists identified a different class of prokaryotes called "archaea."

Still, bacteria represent one of the major branches on the tree of life. Microbiologists estimate that there are 5 nonillion different bacteria species. Nonillion? Picture a 5 with 30 zeroes after it. Maybe we're the ones infesting their world.