Researchers have fingered a common critter—the armadillo—as the likely source of leprosy among some Americans who contracted the rare disease in the U.S.

Using genetic sequencing, the researchers found that infected armadillos captured in five southern states had the same strain of Mycobacterium leprae, the agent that causes leprosy, as that found in some patients from southern states diagnosed with the disease.

"The strains are genetically identical," said Richard Truman, a researcher in the National Hansen's Disease Program, a federally funded treatment program for leprosy, and the lead author of the study. "That provides a clear biological link between the infection that occurs in human beings and those that occur in animals."

Dr. Truman headed an international team of researchers who determined the strain was different from any others associated with leprosy infections elsewhere in the world, adding validity to the armadillo link.

Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases, said the finding was the result of "a very neat, ingenious type of molecular fingerprinting," and that it "is essentially proof" that contact with armadillos caused the infection in people with the same strain.

Dr. Fauci wasn't involved with the study, but NIAID was a sponsor of the research. The study is being published Thursday in the New England Journal of Medicine.

Leprosy is rare in the U.S., with fewer than 250 new cases reported each year, most of them acquired overseas. But in one-third of cases, patients weren't out of the country or couldn't recall contact with another infected person, leaving researchers uncertain of the source of the bacterium.

Armadillos are the only non-human animals known to harbor the infection, and in some cases in recent years doctors have suspected the odd-looking animals, which appear cloaked in a suit of armor. The study is the first to use advanced sequencing technology to investigate the link.

Researchers said that despite the findings, the risk of acquiring the infection from armadillos was exceptionally low. "It's not that we're expecting a real public-health threat with leprosy," Dr. Fauci said.

The value of the study is that it could prompt doctors encountering patients with unexplained skin lesions to ask whether they have handled armadillos.

"Leprosy is an eminently treatable disease if you recognize it early on," Dr. Fauci said.

The most likely way people might acquire the infection would be through contact with blood or uncooked flesh from the armadillo, according to James L. Krahenbuhl, director of the National Hansen's Disease Program. "The bacteria are not highly invasive and require a cut or scratch to cross the skin barrier," he said. Leprosy is also known as Hansen's disease.

Armadillos are commonplace in the south, having adapted much like squirrels to urban and suburban environments. People who hunt the animals or pick up armadillos killed on the road, for instance, could be at risk.

A skin rash is usually the first sign of leprosy, accompanied by a loss of sensation caused by involvement of nerves in and just under the skin, said Dr. Krahenbuhl. Untreated, that loss can progress to severe nerve damage, and paralysis and disfigurement of fingers and toes. Contrary to myth and movie portrayals, leprosy doesn't cause limbs to rot or fall off.

U.S. patients are typically treated with a three-drug antibiotic regimen that kills the bacteria almost immediately. But patients are prescribed the drugs for up to two years to minimize chances a drug-resistant strain could develop. Some 3,600 Americans are currently being treated, said Dr. Krahenbuhl.

In addition to the U.S. researchers, who were also based at Louisiana State University, Baton Rouge, scientists from Ecole Polytechnique Federale de Lausanne, Switzerland, the Institut Pasteur in Paris and the Instituto de Biomedicina, Caracas, Venezuela, participated in the study.