New bacteria discovered in tar pits

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U.S. environmental scientists have discovered the Rancho La Brea tar pits in Los Angeles contain hundreds of new species of unusual bacteria.

The University of California-Riverside researchers found the new species have the ability to survive and grow in heavy oil and natural asphalt.

Trapped in soil that was mixed with heavy oil nearly 28,000 years ago, the bacteria have uniquely adapted to the pits' oil and natural asphalt and contain three previously undiscovered classes of enzymes that can naturally break down petroleum products, the researchers reported.

"We were surprised to find these bacteria because asphalt is an extreme and hostile environment for life to survive," said Jong-shik Kim, a University of California-Riverside postdoctoral researcher who initiated the study. "It's clear, however, that these living organisms can survive in heavy oil mixtures containing many highly toxic chemicals. Moreover, these bacteria survive with no water and little or no oxygen."

The bacteria and their enzymes have potential applications in bioremediation, medical treatments, biofuels, enhanced oil recovery, and in the biochemical and biotechnological areas.

Study results appeared online in the April 6 issue of *Applied and Environmental Microbiology*.