Secrets on how the DNA is repaired in bacteria and animals were recently revealed by researchers from UC Davis led by Stephen Kowalczykowski. The paper just published in the online journal *Nature* presented findings that DNA repair in bacteria through the RecA complex is more efficiently conducted when the DNA is in a coiled form.

"The most efficient homology search is when the local DNA density is higher and the RecA-DNA filament can contact more areas of duplex DNA at the same time," Kowalczykowski said. "RecA doesn't slide along the DNA looking for a partner."

Research activities in their lab also include a study to purify the protein made by the BRCA2 gene, a gene strongly associated with breast cancer. BRCA2 loads Rad51, the human equivalent of RecA in bacteria, onto DNA to search the human DNA for the correct region to use for repair. These findings could lead to strategies to cure and prevent human cancer.

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