



Study finds how the body handles histones

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A Florida State University medical scientist says his discovery about how the body manages proteins called histones might lead to new cancer therapies.

Assistant Professor Akash Gunjan in the university's college of medicine said up to now the best scientific evidence supported a belief that histones -- responsible for packaging DNA inside the nucleus of cells -- are highly stable proteins that are not rapidly degraded by the body. Yet, researchers have been unable to explain why free histones, if they are not degraded as other proteins are, do not accumulate in large amounts within human cells.

In the study Gunjan said he found evidence supporting his hypothesis that there actually are two pools of histones: one used in packaging DNA that is very stable and remains in the cell for more than a year in some cases and the other made in excess by the cells to ensure that enough histones are available for packaging the DNA. Not having enough histones results in cell death.

"This has major ramifications for all the different things the DNA does," Gunjan said. "Because if DNA contains genes and DNA is packaged around histones, then histones are at the most fundamental level regulating whether those genes are turned on or off."

The study that included Rakesh Kumar Singh, Marie-Helene Miquel Kabbaj and Johanna Paik appears in the journal *Nature Cell Biology*.

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