

Protein illuminates gene expression, may explain how tumors form

Scientists at York University in Toronto report that they discovered how living beings can keep gene expression in check. They believe their findings might help explain the uncontrolled gene expression found in many cancers.

“Using yeast as a model organism, we studied the Tup1 protein, a negative regulator of gene expression,” notes Emanuel Rosonina, Ph.D., a biology professor in the faculty of science, adding that “This protein binds to some genes and blocks their expression, helping to ensure genes that shouldn’t be turned on remain inactive.”

The current study, jointly conducted by York University and Columbia University researchers, suggests that small ubiquitin-like modifier (SUMO) modifies proteins bound to active genes, in order to prevent unfettered gene over-expression that can be harmful to the organism. “One of the ways SUMO does this is by promoting the binding of Tup1 to active genes, which then acts to reduce their expression to appropriate levels,” explains Rosonina.

Considering that many tumors have abnormal levels of SUMO, it will be important to examine whether inappropriate SUMO modifications in these tumors are related to the uncontrolled gene expression that is observed in most cancers, the researchers concluded.

Read full, original article: [Researchers Shed Light on How Organisms Control Gene Expression](#)