

Scientists uncover novel mechanism of glioblastoma development

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Most research on glioblastoma development, a complicated tumor of the brain with a poor prognosis, has focused on the gene transcription level, but scientists suggest that post-transcriptional regulation could be equally or even more important.

In a recent report in *Molecular Cancer Research*, a journal of the American Association for Cancer Research, scientists led by Luiz O. F. Penalva, Ph.D., an assistant professor in the department of cellular and [structural biology](#) at the University of Texas Health Science Center at San Antonio, illustrated that the connection between two RNA-binding proteins, Musashi1 and HuR, can have important consequences to glioblastoma.

"This is a novel finding in terms of what we know about glioblastoma development," said Penalva. "Most of what we know about glioblastoma is limited to gene transcription-level research, but there are other regulatory processes beyond transcription that when disrupted could contribute to tumor formation."

RNA-binding proteins are key regulators in all cellular processes from splicing to translation. Changes that affect either their function or [expression levels](#) can have dramatic consequences to [protein production](#) and can lead to disease states including cancer.

In the lab, Penalva and his colleagues showed that increased levels of HuR up-regulate the expression of another RNA-binding protein,

Musashi1. Both proteins control the expression of cancer-related genes; their interaction brings together two important gene networks with major consequences to glioblastoma development.

The results are still early, but Penalva stressed that little is known about glioblastoma development and the findings represent a move toward greater understanding.

"To treat cancer, you have to understand what triggers [tumor formation](#)," said Penalva. "If we continue to think that all the activity is at the transcription level, we are just fooling ourselves. Clearly, something is going on beyond that level."

Provided by American Association for Cancer Research

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