

Molecular determinant favoring head and neck cancer development identified

May 1 2023



Mitochondria. Credit: Wikipedia commons

In addition to their role in energy metabolism, mitochondria play important roles in other cellular processes, such as apoptosis, calcium signaling and the synthesis of certain biomolecules. Mitochondria have also been implicated in the development and progression of cancer. In some cases, cancer cells may overproduce certain mitochondrial

proteins, known as oncoproteins, that contribute to the uncontrolled growth and survival of cancer cells.

Targeting these oncoproteins could offer a novel approach to developing effective cancer therapeutics. However, non-specific targeting of mitochondrial functions has significant unwarranted effects on normal cell growth, and it could lead to unwanted side effects. In this new research perspective, researcher Yong Teng from Emory University and Georgia Institute of Technology discusses the importance of developing refined strategies that can specifically target oncoproteins that are physically localized to mitochondria in cancer cells.

The research is published in *Oncoscience*, titled "Mitochondrial regulator ATAD3A: a molecular determinant favoring head and neck cancer development."

The mitochondrial ATPase family AAA domain containing protein 3 (ATAD3) belongs to the AAA+ superfamily of ATPases and is involved in various cellular processes. In a previous study, it was demonstrated that ATAD3A overexpression in breast cancer cells promoted metastasis to the lung and liver in a mouse model, while its knockdown suppressed metastasis. ATAD3A has also been linked to [epithelial-mesenchymal transition](#) (EMT), a process by which [cancer cells](#) lose their epithelial characteristics and acquire mesenchymal properties, enabling them to invade and migrate.

"Continued research on ATAD3A and its regulation will provide valuable insights into the molecular mechanisms underlying cancer progression and the development of effective anti-cancer therapeutics," state the researchers.

More information: Yong Teng, Mitochondrial regulator ATAD3A: a molecular determinant favoring head and neck cancer development,

Oncoscience (2023). [DOI: 10.18632/oncoscience.574](https://doi.org/10.18632/oncoscience.574)

Provided by Impact Journals LLC

Citation: Molecular determinant favoring head and neck cancer development identified (2023, May 1) retrieved 11 July 2024 from

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