A new regulatory mechanism of response to metabolic stress

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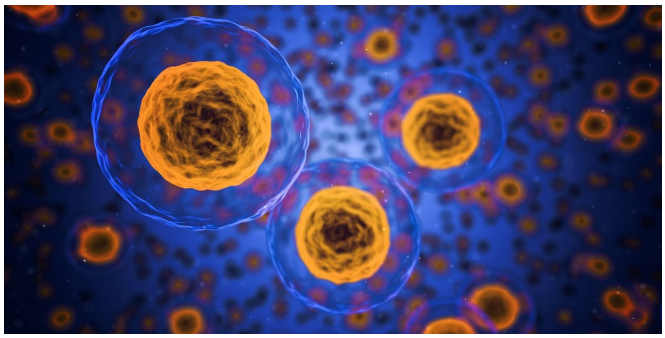

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The Chromatin Biology group aims to define the mechanisms involved in the cellular response to different types of stress such as metabolic, oxidative and genotoxic stress. In particular, they focus on the impact of a family of enzymes, Sirtuins (responsible for the cellular stress response) in the maintenance of genome stability under these conditions and their impact in aging and different types of cancers, with a special focus on hematologic malignancies.

Dr. Vaquero's group has just published an article in *Science Advances* journal in which they have identified and characterized enzymatic activity of Sirtuin SIRT7 that provides new evidence to understanding its regulatory capacity in the cellular response to different types of stress which damages cellular integrity.

The regulation of this response acquires special relevance since these types of stresses can produce alterations in the DNA and instability at the cell's energy flow, and are directly involved in the appearance of pathologies such as cancer, neurodegenerative diseases, or a number of endocrine pathologies.

The regulatory mechanism identified may represent an important advance towards new therapeutic targets in the treatment of cancer, particularly in hematological cancers, since previous studies have shown that both genome instability and metabolic stress contribute significantly to the development of leukemias and lymphomas.

More information: Nicolás G. Simonet et al, SirT7 auto-ADP-ribosylation regulates glucose starvation response through mH2A1, *Science Advances* (2020). DOI: 10.1126/sciadv.aaz2590

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