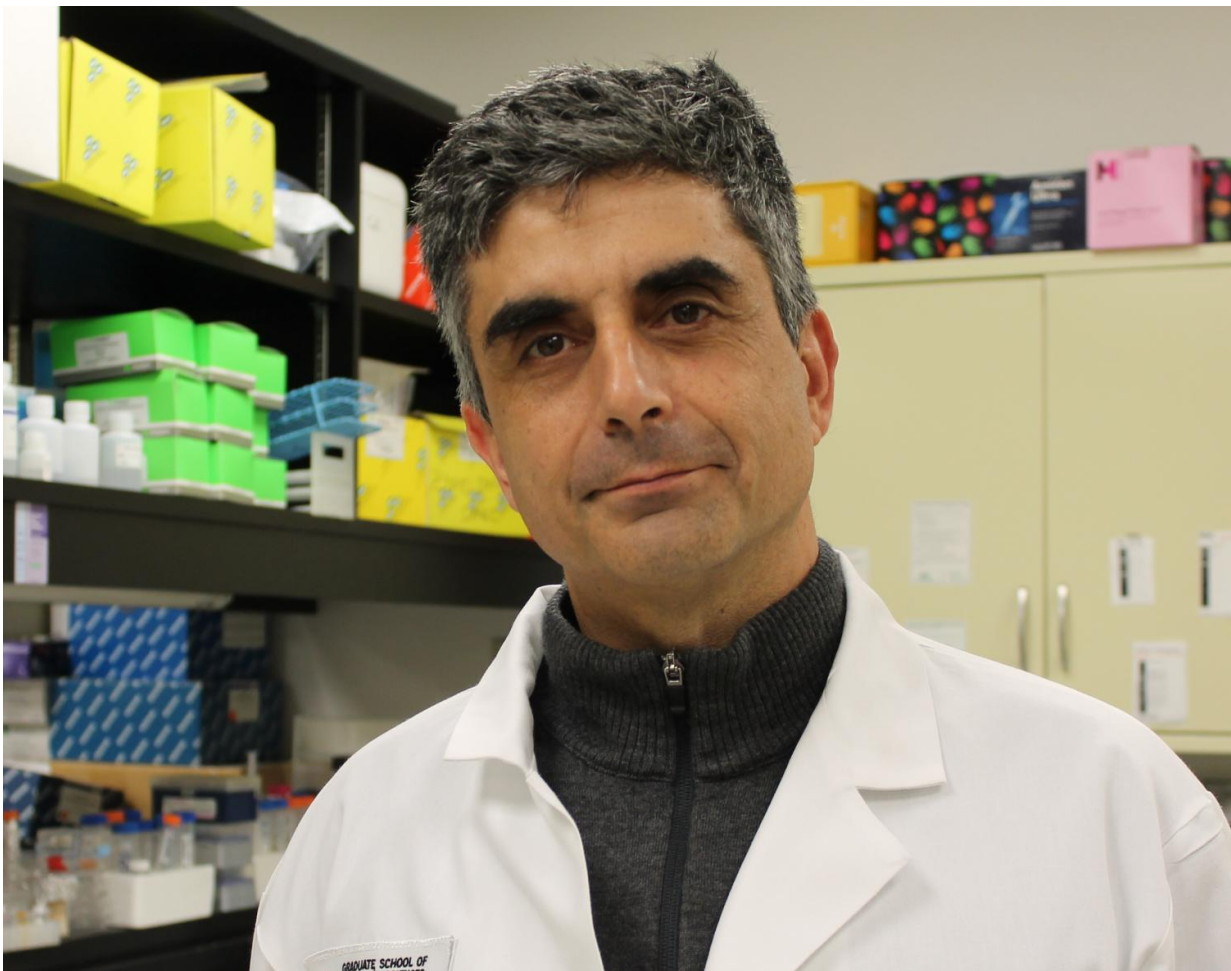


Team finds way to measure key cell regulator's activity

September 6 2017, by Will Sansom



Rui Sousa, Ph.D., of the Long School of Medicine at UT Health San Antonio. Dr. Sousa collaborated on research that discovered a method to study the most common regulator of our bodies' cells, a molecule called guanosine-5'-triphosphate (GTP). The discovery, reported in *Nature Methods*, may prove useful in the screening of candidate anti-cancer compounds, among

other applications. Credit: UT Health San Antonio

UT Health San Antonio researchers and co-authors in New York state on Monday (Sept. 4) reported an innovative approach that will enable scientists to study the most common regulator of our bodies' cells, a molecule called guanosine-5'-triphosphate (GTP).

Nature Methods published the team's findings.

The discovery may prove useful in the screening of candidate anti-cancer compounds, said Rui Sousa, Ph.D., professor of biochemistry and structural biology in the Joe R. & Teresa Lozano Long School of Medicine at UT Health San Antonio.

GTP activates G-proteins, which regulate cell movement, growth, architecture and differentiation, including transformation into cancer [cells](#).

By inserting GFP into a bacterial G-protein called FeoB, the scientists constructed sensors of GTP activity. A next step is to use these sensors in a process called high-throughput screening to find compounds that reduce GTP levels in target cells, Dr. Sousa said. Scientists hypothesize that this could be a way to treat disease.

UT Health San Antonio conducts high-throughput screening of compounds in the Center for Innovative Drug Discovery operated jointly by UT Health and The University of Texas at San Antonio.

On a basic science level, the scientists wanted to reveal how GTP levels vary and affect cellular function, Dr. Sousa said.

"You could say we have built a flashlight that now allows us to explore a big room that was previously dark," he said. "This room is called 'GTP biology.' What will we find when we start exploring with this flashlight? We may find quite a lot, because GTP biology could be involved in so many processes and so many disease states."

More information: Anna Bianchi-Smiraglia et al, Internally ratiometric fluorescent sensors for evaluation of intracellular GTP levels and distribution, *Nature Methods* (2017). [DOI: 10.1038/nmeth.4404](https://doi.org/10.1038/nmeth.4404)

Provided by University of Texas Health Science Center at San Antonio

Citation: Team finds way to measure key cell regulator's activity (2017, September 6) retrieved 26 July 2024 from <https://phys.org/news/2017-09-team-key-cell.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.