

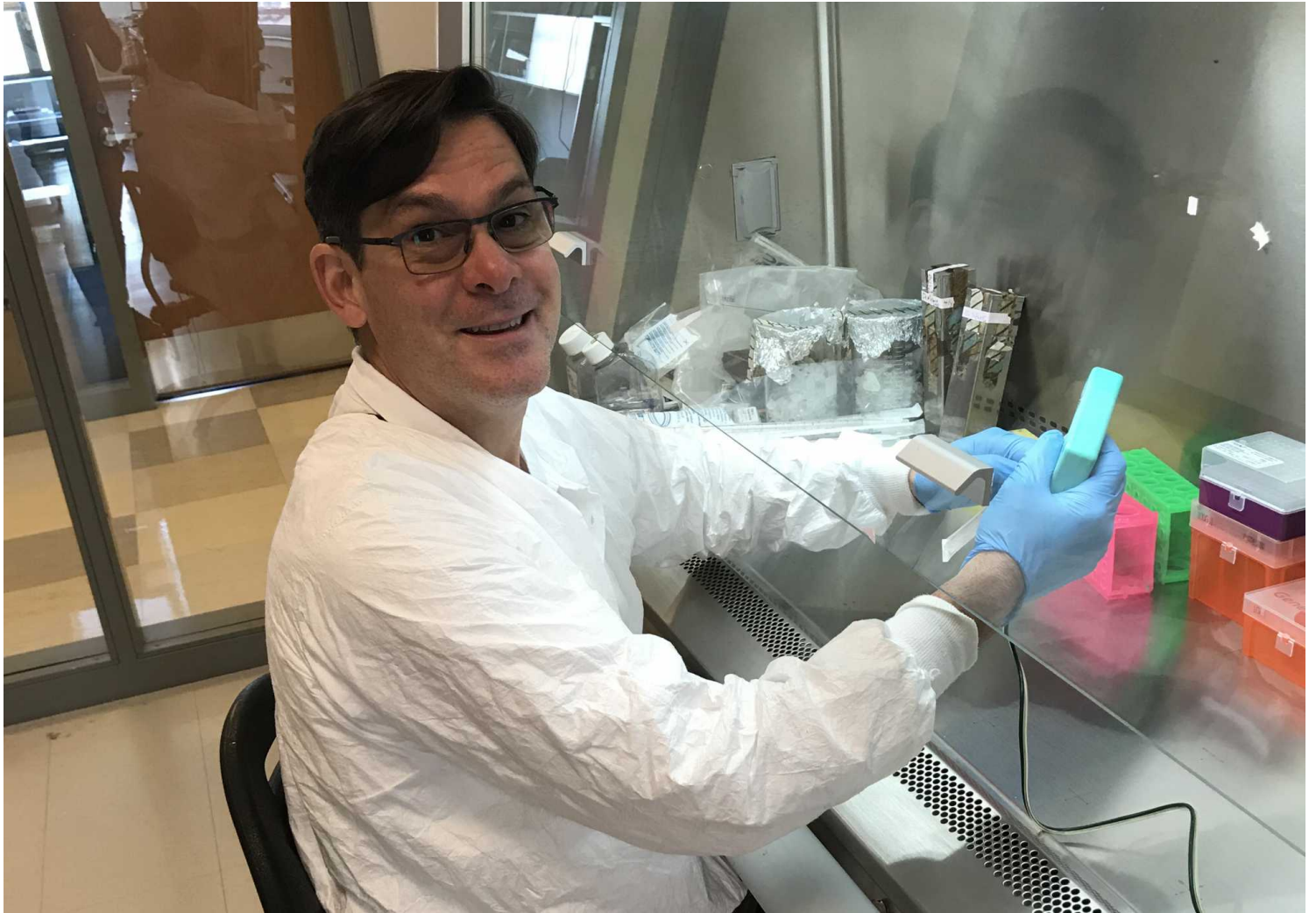
University News

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Biology Professor Awarded \$1.3 Million NIH Research Advancement Grant

Funding supports cancer treatment research

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With the help of a nearly \$1.3 million research advancement award from the National Institutes of Health, Biology Professor Carlos Molina will be able to further develop his career as a cancer researcher and enhance his research productivity in order to eventually transition to NIH Research Project Grant support.

He will receive \$324,488 for the first year of a four-year Support of Competitive Research (SCORE) award for his project "Post-translational Regulation of Inducible cAMP Early Repressor and its Implications in Cancer." "This funding will allow me to dedicate four years to collecting, analyzing and reporting data for this project," Molina says.

"I'm studying how an unusual protein with tumor suppression activities in normal cells is eliminated or misplaced in cancer cells," explains Molina, whose students will be involved in his research. "The outcomes of this research will set the stage for testing pharmacological agents that will block the destruction and abnormal cellular localization of this protein as a potential – and novel – cancer treatment."

According to Molina, even though Inducible cAMP Early Repressor, or ICER, functions like a tumor suppressor, there is no genetic evidence to show that it is a bona fide tumor suppressor gene product. He thus surmises that altered post-translational events could be responsible for observed abnormalities of ICER protein expression in cancer cells.

Studying Zebrafish

Using zebrafish as a model organism, Molina has previously focused his research efforts on cancer research and the female reproductive system. "The zebrafish animal model is playing a key role in today's biomedical, environmental and toxicological research," Molina explains.

By studying how ovulation is regulated in zebrafish, he has gained insights that could eventually lead to the development of new reproductive technologies that could help people struggling with infertility.


His earlier cancer research, which has set the stage for his NIH-funded project, explored the mechanism involved in eliminating and misplacing a protein with tumor suppression activity in skin cancer, or melanoma, cells. This data provides a foundation for testing drugs that could combat melanoma.


"Now that I have a state-of-the-art laboratory and zebrafish facility at Montclair State, I am positioned to use my preliminary research results to fully explore the role of the transcriptional repressor ICER in cancer," he explains. "I will continue to use the zebrafish model to characterize the molecular mechanisms of ICER protein modifications during melanoma genesis."


The grant affords Molina more time to devote to research – and work within the intersection of research and teaching. "I understand the importance of mentoring promising research students – especially those from underrepresented groups – and I'm committed to involving students in all aspects of my research," he says.

Ultimately, Molina hopes that the new project will serve both as the basis for more extensive analyses of multi-component complexes associated with the regulation of ICER in cancer cells – and also spur the development of effective new therapeutic cancer treatments.

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