

UMBI
UNIVERSITY OF MARYLAND
BIOTECHNOLOGY INSTITUTE

Contact:
Gene Levinson
(443) 250-9654
levinson@umbi.umd.edu

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UMBI Student Andria Apostolou Wins Award for Presentation on Cellular Protein Processing

Baltimore, MD --

Andria Apostolou has won a session award for her platform presentation on her doctoral research at the University of Maryland Graduate Research Conference, which was held on April 20 in Baltimore. Ms. Apostolou, soon to be Dr. Apostolou, has been working in the laboratory of Dr. Shengyun Fang at the UMBI Medical Biotechnology Center (MBC) on SUPRESIN. Andria's work has uncovered new roles for SUPRESIN that help protect cells against the accumulation of misfolded or unfolded proteins—including an unexpected additional role in the regulation of cellular growth. It is increasingly recognized that many human diseases are associated with misfolded proteins, such as cystic fibrosis, Alzheimer's disease, diabetes, cancer, and alpha-1 anti-trypsin deficiency, just to name a few. Andria's finding may clarify the cellular mechanisms behind these devastating diseases.

Unfolded or misfolded protein accumulation in the cellular compartment known as the endoplasmic reticulum (ER) causes ER stress, and leads to Unfolded Protein Response (UPR), a cascade of cellular events that helps protect the cells, but which is also associated with a variety of disease syndromes.

During the past four years, Ms. Apostolou has been utilizing various biochemical and genetic tools to examine the role of SUPRESIN in the UPR response to ER stress. She found that SUPRESIN does increase in the ER as a consequence of ER stress.



Andria Apostolou

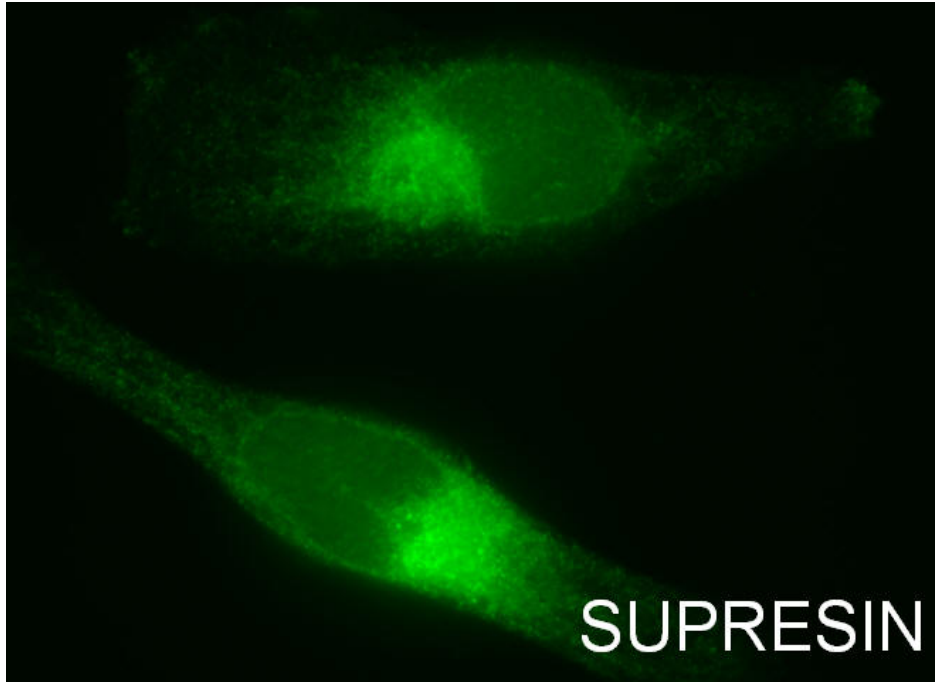
She was then able to test the hypothesis that SUPRESIN regulates the response to ER stress, by using genetic techniques to manipulate SUPRESIN in human cells growing in the laboratory.

Her conclusions showed that SUPRESIN is a secreted protein and that it may indeed play a protective role against ER stress. She also found that SUPRESIN regulates cell growth. Further studies could lead to development of therapies for diseases associated with the cellular responses to protein misfolding.

Ms. Apostolou, who is from Cyprus, is the third MBC student to win an award at this conference, but the first to win for an oral presentation. She expects to finish her doctoral thesis work this coming fall.

"I am very happy to win this award and represent Cyprus and UMBI at the University of Maryland Research Conference", Ms. Apostolou remarked. "I would like to thank my mentor Dr. Fang for his guidance and support."

The title of her presentation was "Silencing the expression of SUPRESIN, an ER stress upregulated protein, increases cell proliferation and sensitizes cells to ER stress-induced cell death."



Green fluorescence indicates localization of SUPRESIN in human cells growing in the laboratory.

"SUPRESIN is a new protein known to be upregulated in response to ER stress, but its function was uncertain", said Dr. Fang, the principal investigator of these studies. "When Andria joined my lab, she wanted to find out what this new protein does in the cells. Now, with new roles discovered for this protein in ER stress response and cell growth regulation, we tentatively named it SUPRESIN. The next phase of research will be geared to verifying the roles and changes of SUPRESIN in animal models and human diseases. We hope SUPRESIN may become a useful target for disease therapy and diagnosis."

Dr. Fang's laboratory is focused on research on several aspects of cellular protein processing that play important roles not only in normal cellular growth but also in the development and spread of cancers and a variety of inherited diseases. Ms. Apostolou will receive her degree from the University of Maryland at Baltimore. UMBI, which is focused on research, sponsors many graduate students from the other University of Maryland campuses.

With research centers in Baltimore, Rockville, and College Park, the University of Maryland Biotechnology Institute is the newest of 13 institutions forming the University System of Maryland. UMBI has 85 ladder-

ranked faculty and a 2006 budget of \$60 million. Celebrating the institution's 20th year of service to Maryland and the world, UMBI is led by microbiologist and former biotechnology executive Dr. Jennie C. Hunter-Cevera. For more information visit www.umbi.umd.edu.

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