

New test may uncover deadly hypertension disease in pregnancy

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This shows from left: Dr. Alex Soffici, Professor Patrick Daugherty, and graduate researcher Serra Elliott. Credit: University of California - Santa Barbara

Collaborators at Cottage Health System and University of California, Santa Barbara (UCSB) have identified biomarkers that may yield a revolutionary diagnostic test for pre-eclampsia, a complex and potentially life-threatening hypertensive condition affecting 5% of pregnancies worldwide.

The most common dangerous [complication of pregnancy](#), pre-eclampsia is potentially fatal and often mimics or is confused with other pregnancy-related conditions—such as swelling, gastric pain, and [high blood pressure](#). Pre-eclampsia can lead to eclampsia, which carries a maternal mortality rate of 1.8 percent worldwide.

Through a partnership funded by the Santa Barbara Cottage Hospital Research Grant Program, the study was led by Dr. Alex Soffici, perinatologist with Santa Barbara Cottage Hospital, and Dr. Patrick Daugherty, professor of chemical engineering at UCSB. [Plasma samples](#) were collected over a period of two years from both normal-outcome and pre-eclampsia pregnancy patients at Santa Barbara Cottage Hospital, and

then analyzed by UCSB graduate researcher Serra Elliott to identify candidate [biomarkers](#).

"We are seeing the early stages of something that could be quite big," said Soffici. "Therapeutics for pre-eclampsia are on the horizon."

The group discovered that certain antibodies are present in the blood of patients with pre-eclampsia, but not in women with healthy pregnancies. Their results suggest that this new diagnostic test could effectively distinguish pre-eclampsia syndrome from conditions with similar symptoms. The collaborators' research continues in an ongoing study that could lead to technology available to [clinical settings](#).

"We developed a separation process to sift through enormous numbers of distinct molecules present in blood to identify those few that are uniquely present in patients with pre-eclampsia," explained Daugherty. "Since our process simultaneously identifies biochemical reagents that can capture the disease biomarkers, there is an opportunity to create an effective [diagnostic test](#) for this prevalent disorder and possibly for other diseases where definitive tests are not yet available."

Elliott, lead scientist on the project, recently presented their findings at a conference for the International Society of the Study of Hypertension in Pregnancy in Geneva, Switzerland. "There are very few groups in the world working on this technology and we have found it to be exactly what the international research community was looking for. This project has great promise," commented Soffici.

Soffici added, "We are grateful to the Cottage Health System administration and to UCSB leaders for recognizing the great value in cooperation between clinicians and researchers, and for breaking down many of the barriers that previously existed for this kind of project."

Provided by University of California - Santa

Barbara

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