

## URI scientists discover estrogen interaction prevents some pregnant women from expelling bile acids

*Problem can lead to serious health issues for fetus, infant*

KINGSTON – A University of Rhode Island pharmacy professor has discovered an interaction involving the hormone estrogen that occurs in some pregnant women preventing them from expelling bile acid, leading to disease in their fetuses.

**RUITANG DENG**, an associate professor of biomedical sciences in the College of Pharmacy, and his research team, recently completed a study funded by a \$1.4 million National Institutes of Health grant. They examined the effects of molecular interactions involving estrogen in the late stages of pregnancy that shut down the bile salt export pump, preventing the woman from expelling bile acids and leading to a condition called intrahepatic cholestasis of pregnancy. The bile salt export pump is an active transport protein in humans located on a plasma membrane.

The findings were published in the December 2014 issue of *Hepatology*,

the official journal of the American Association for the Study of Liver Diseases. The journal also ran an editorial article featuring the work of Deng and his research team.

“Typically, the condition is not dangerous for pregnant women, but it can have severe consequences for the fetus, including stillbirth,” Deng said. “If it is diagnosed before birth, the only solution is pre-term birth by induced labor or Cesarean section. And even then, the baby can develop diseases later on in childhood because of the condition.”

The incidence of disease varies widely among ethnic groups, ranging from 1 to 5 percent in the United States and European countries, and 15 to 27 percent in some South American countries such as Chile and Argentina. The condition and symptoms usually develop in the third trimester.

The most common symptom of the disease in pregnant women is skin itching (pruritis), particularly in the

palms of the hands and soles of the feet, Deng said.

Deng and his research team members, all of whom are URI faculty, graduate students and post-doctoral fellows, examined the interactions among estrogen, estrogen alpha, a nuclear receptor to which the estrogen binds, and the bile acid receptor called farnesoid X receptor (FXR). Those interactions led to suppression of the bile salt export pump.

“We examined the estrogen and bile acid signaling pathways and uncovered a crosstalk between the two pathways controlling the bile export pump,” Deng said. “Something in that crosstalk causes the bile salt export pump to shut down.”

“The next step would be to examine that crosstalk to see how to keep the pump activated,” Deng said. “Maybe we can provide a strategy for developing therapeutic treatments for the disease by targeting the crosstalk.” ❖

## Lifespan Opens Urgent Care Center for Mental Health Issues in East Greenwich

EAST GREENWICH – The Lifespan Outpatient Psychiatry and Urgent Care recently opened in East Greenwich. The new center integrates Lifespan’s behavioral services with those of Gateway Healthcare, for the area’s first walk-in urgent care for mental health issues.

“Rhode Island is ranked among the nation’s highest for people with serious mental health issues,” said **DANIELA BOERESCU, MD**, director of Lifespan Outpatient Psychiatry

and Urgent Care. “Our goal in opening this location is to provide urgent care and outpatient services to make mental health services more accessible, especially to those people who need attention right away. We want to be able to help patients and their family members quickly in those times.”

Urgent care, which is available for those 18 years or older, offers onsite mental health assessment, access to crisis psychiatry as necessary, crisis stabilization services, and family education and support. And both urgent care and outpatient services support a broad range of medical and psychotherapy treatments, including medication management, individual psychotherapy, group therapy, couples and marital therapy, and family therapy. The on-site team is multidisciplinary and is made up of psychiatrists, psychologists, social workers and community treatment specialists.

“We are able to treat patients with a variety of behavioral health conditions,” explained Dr. Boerescu. “Those include mood disorders, anxiety disorders, somatoform disorders and other behavioral health issues such as eating disorders, attention deficit disorder, job pressures and stress management.” ❖

