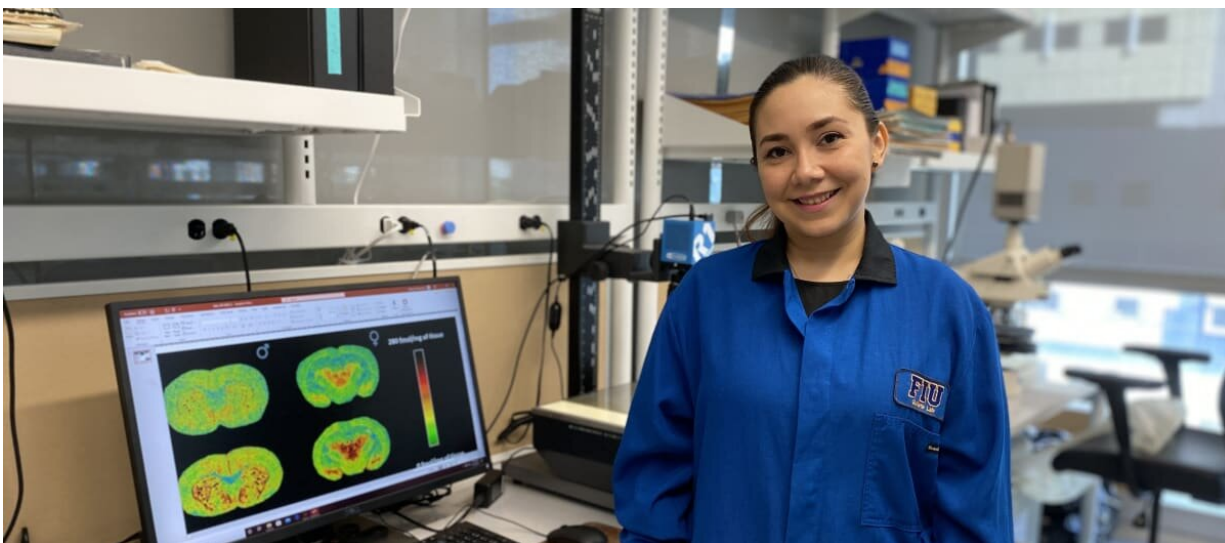


Lead exposure early in life alters brain opioid system, may lead to mental disorders

March 31 2020, by Jessica Drouet



Damaris Albores-Garcia working in Dr. Tomás R. Guilarte's lab. Credit: Florida International University

While the exact cause of schizophrenia is unknown and much research has focused on genetics, researchers at the Robert Stempel College of Public Health & Social Work are one step closer to understanding one pathway that may result in this long-term mental disorder: environmental factors.

"Environmental factors have been associated with [psychiatric disorders](#), and recent studies suggest lead exposure disrupts common pathways in

schizophrenia and [drug addiction](#)," says Damaris Albores-Garcia, a postdoctoral associate in Tomás R. Guilarte's Lab. Guilarte is the dean of the Stempel College.

Albores-Garcia recently received third place in the 2020 Metal Specialty Section Post-Doctoral Research Award presented by the Society of Toxicology (SOT). This is the third consecutive year that Albores-Garcia is honored with the award for her abstract and poster presentations.

The study is examining the effects of chronic early lead exposure on the brain of juvenile, adolescents and young adults in preclinical animal models.

"Using this animal model, we are able to observe how the brain changes at the neurochemical and behavioral level, allowing us to explore treatment options to mitigate the consequences of lead exposure," says Albores-Garcia.

The studies, for which she received this year's award, showed that early life lead exposure alters the brain's opioid system—affecting susceptibility to addictions, pain, mood and fear management.

Her work has also shown that lead exposure changes the brain's dopamine system, the neurotransmitter that plays a role in how humans feel pleasure and is tied to hallucinations and delusions in subjects with schizophrenia.

"Our findings, along with previous studies, suggest the role of [environmental factors](#), such as lead, as a risk factor for mental disorders and indicate that our chronic early [lead exposure](#) model may serve as an environmental animal model of schizophrenia," Albores-Garcia adds.

"This study may also suggest a predisposition to addictions in lead-exposed individuals who we are still researching."

Provided by Florida International University

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