



RESEARCHER PROFILE:  
DR. MICHELLE SILASI

## Making life safer for expectant moms and the babies they carry.

When people casually talk about “the miracle of birth,” rarely do they have any idea of precisely how miraculous that process truly is.

“I’m still in awe of what has to happen at the cellular level to get pregnant,” says Dr. Michelle Silasi, an OB/GYN at Mercy and Mercy researcher. “It’s so much more complicated than what most people realize.”

She’d known since middle school that she wanted to be a doctor, but at that point she wanted to be a pediatrician. As a high school senior, she got interested in pregnancy and its effects on women’s health.

“I didn’t stop wanting to be a doctor,” she says, “but it was more the science part than the clinical part that was interesting to me.”

She majored in biochemistry at Texas Tech and spent over five years on the faculty at Yale Medical School as an attending physician.

“I have a heart for women facing complicated pregnancies,” she says, and the complication she’s got her sights set on is preeclampsia.

Preeclampsia is a serious, potentially lethal, blood pressure condition affecting 5-8% of all pregnancies in any given year. It’s also a leading cause of maternal morbidity, killing 70,000 expectant mothers and 500,000 unborn infants annually. Left undetected and untreated, preeclampsia can cause complications like cardiac issues, liver and kidney compromise, seizures and death.

Adding to its danger is the fact that it can be difficult to detect.

“Preeclampsia is known as ‘the great masquerader,’ because it can present in so many different ways,” says Dr. Silasi. “There are a lot of false alarms. Changes in blood pressure, for example, could indicate preeclampsia — but it might also be gestational hypertension, which generally goes away after birth.”

Other symptoms can include swollen hands and feet, high levels of uric protein, headache or nausea – all of which are common during pregnancy and may not indicate preeclampsia.

The recipient of an NIH grant to study preeclampsia, **Dr. Silasi is currently conducting a research study in collaboration with Roche Diagnostics to develop a test designed to rule out preeclampsia when expectant mothers receive prenatal care.** It involves almost 400 women at 13 sites across the country.

“The test we’re working on now is an early detection one that rules out preeclampsia,” Dr. Silasi says. “Preeclampsia is the result of a shallow implantation into the uterine wall, and this releases tell-tale molecules into the bloodstream.”

The test screens and compares two of those molecular compounds: the S-FLT-1 molecule and the PLGF (or placental growth factor) peptide, a protein. It can be done with a single blood draw and detect compounds in less than an hour in a hospital lab. By comparing the ratio of those molecules, doctors hope to determine whether a mother is preeclamptic.

“This test makes things a lot easier for expectant moms,” says Dr. Silasi. **“Prior to this test, if an expectant mom had elevated blood pressure, she went to the hospital and would probably have to stay for two days or more, and be subjected to an entire battery of tests.** This one says, *you’re beneath the threshold, you can go home.*”

“It’s new and exciting and it’s something that hasn’t been done before. Improving care and outcomes for sick moms and their babies – this is something that brings me joy.”

Extrapolated across thousands of women annually, the cost savings to society could be astronomical.

“This is an issue that affects 10,000 women every year just at Mercy Hospital St. Louis,” Dr. Silasi says. “Think of how much could be saved not only by eliminating the need for hospitalization for observation and all the attendant costs—there would also be savings in childcare, time off from work and so many other areas. It saves money for hospitals, insurers and most importantly patients.”

Dr. Silasi is already laying the groundwork for her next investigation: the causes of preeclampsia.

“If we could figure out what causes preeclampsia and solve it, that would be a game changer.”

“Ultimately, I’d like to figure out what the complete picture of risk factors looks like,” she says. “A lot of the data we’re looking at indicates that these risk factors are present well before pregnancy. The data indicates that preexisting conditions, like hypertension, lupus, diabetes or other kidney conditions, could raise the risk of preeclampsia, so when the egg implants, it’s doing so in a landscape that’s already disrupted.”

Effective preventive measures and treatments for preeclampsia could have yet more far-reaching results.

“If a woman is severely preeclamptic, she’s hospitalized until we can induce delivery at 34 weeks,” she says. “Not only would an effective therapeutic help the mothers, it could also eliminate all the risks associated with premature delivery.”

The moral dimension is one that’s never far from her mind.

**“Preeclampsia affects African-American women at a much higher percentage than the general population,”** she says. “It’s present at a much higher rate in that population and it’s part of the reason for much higher morbidity rates among African-American mothers. This is unacceptable, and it’s something we’re working to change.”

