

# Predicting a Healthy Pregnancy

## Senior Scientist Helping to Develop Test for Pre-eclampsia



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Dr. Clifford Librach

“We’re on the cusp of making an important contribution,” says Dr. Clifford Librach. The senior scientist at Sunnybrook Research Institute and staff physician in Sunnybrook’s Women & Babies Program is helping develop a new genetic test to predict if a woman is likely to develop pre-eclampsia, a pregnancy complication that can threaten both the mother’s and baby’s life.

This innovative test will allow physicians to improve prenatal care by enabling them to monitor the pregnancy more closely and intervene sooner if the complication develops. “If we know that a woman is predisposed to pre-eclampsia, we’re going to be watching her pregnancy like a hawk,” says Dr. Librach.

Dr. Librach has what he calls “intriguing evidence” that a mutation in the human leukocyte antigen-G (HLA-G) gene is associated with the development of pre-eclampsia. He says HLA-G plays a critical role in preventing the mother’s immune system from rejecting the fetus because it contains foreign

genes—from the father. HLA-G “disguises” or “cloaks” the baby’s genetic material from the mother.

In a study published in the *American Journal of Obstetrics and Gynecology* in July 2008, Dr. Librach and colleagues reported that women who develop pre-eclampsia have a lower-than-average level of HLA-G. In a new study, Dr. Librach’s team is testing 350 pregnant women at Sunnybrook and Mount Sinai hospitals for the HLA-G mutation. They are also checking the fathers’ DNA. It may be that Dad’s HLA-G is just as important in predicting pre-eclampsia as Mom’s.

In Canada, about one in 20 pregnancies is affected by pre-eclampsia. The complication affects the arteries carrying blood to the placenta, so the developing baby doesn’t receive sufficient oxygen and nutrients—which can lead to a premature birth. In the mother, pre-eclampsia can permanently damage the brain, liver and kidneys. Conditions that increase the risk of pre-eclampsia include kid-

ney disease and having had pre-eclampsia in a previous pregnancy. Expecting twins, triplets – or even more babies also increases the risk.

But often, the hallmark symptoms of excess protein in the urine and high blood pressure at the 20th week of pregnancy seem to develop out of nowhere. “The majority of women who develop pre-eclampsia don’t have any of the risk factors,” says Dr. Librach, who is also an assistant professor in the Department of Obstetrics and Gynaecology at the University of Toronto. “Regular prenatal exams are extremely important because they allow doctors to pick up on any unexpected changes.”

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