



Before and after surfactant therapy.

“It was so difficult to see Melissa [a twin who was 7 weeks premature] struggle to breathe, then so uplifting when she received the surfactant developed by the LRI scientists. She’s now three years old and has been a normal healthy child. We owe so much to the nurses, doctors and scientists.”

Deborah Reid, mother of Melissa and Jennifer, born in SMC, December 1992.

EXPERIMENTAL AND CLINICAL RESEARCH

The LRI has led the way in important clinical studies that shed light on premature births, growth restriction, and the effects of environment and maternal lifestyle on the health of the unborn child. **Dr. Alan Bocking** and **Dr. Bryan Richardson** are investigating the biochemical and fetal behavioural predictors of preterm births. LRI researchers including **Dr. Robert Gagnon** are also looking at how unborn babies respond to reduced blood flow from the mother and shortage of oxygen, and the implications of abnormal development of the fetus and placenta. The effects of “lifestyle factors” such as alcohol and tobacco are further crucial areas of research at the LRI. Various other clinical initiatives are aimed at improving the safety of new drugs used during caesarean section, management of second stage labour, improved devices used in the induction of labour, and the ongoing Perinatal Outreach Program.

gained from the genetic make-up of fruit flies and frogs. One gene active in these species, known as the “Tin Man Gene”, offers some intriguing possibilities that humans may have similar heart-making gene processes.

CELL BIOLOGY

It is crucial that scientists understand more about how hormones and growth factors control the growth of a fetus’ organs and tissues. When we know why a baby’s growth is restricted or does not develop normally in other ways, we will be able to develop preventive and treatment measures for low birth weight infants. Drs. Han and Hill are looking at the role of insulin-like growth factors (IGFs), binding proteins, and fibroblast growth factors in causing growth restriction. Dr. Hill’s research on insulin release by beta cells in the pancreas is yielding answers both about diabetes and fetal growth.

Dr. Kaiping Yang conducts molecular analysis that enables researchers to understand the role of cortisol in fetal organ development. Cortisol is also believed to play a role in determining when labour begins. Surfactant research continues at the LRI under the direction of **Dr. Fred Possmayer** who is looking at how fetal lungs mature and ways to enhance the role of surfactant as a treatment for lung disease in premature babies.