

**STEM CELL REPAIR OF THE PRETERM LUNG: A BREAKTHROUGH IN THE MAKING?****B. Thebaud***Pediatrics, University of Alberta, Edmonton, AB, Canada*

Continuous improvements in perinatal care have allowed the survival of ever more premature infants, making the task of protecting the more premature lung from injury increasingly challenging. Premature infants at risk of developing chronic lung disease of prematurity or bronchopulmonary dysplasia (BPD) are now born at the late canalicular stage of lung development, just when the airways become juxtaposed to the lung vasculature and when gas-exchange becomes possible. Readily available strategies including improved antenatal management (education, regionalization, steroids, antibiotics) together with prophylactic surfactant and early non-invasive ventilatory support targeting lower oxygen saturations will likely decrease the incidence/severity of BPD over the next few years. Nonetheless, the long-term consequences of early interference with lung development may reach into adulthood. Consequently, much more needs to be learned about the mechanisms of lung development, injury and repair. Recent insight into stem cell biology has sparked interest for stem cells to repair damaged organs. This lecture will summarize the exciting potential of stem cell-based therapies for the prevention or treatment of BPD.