

ENGINEERING STEM CELL FATE FOR DRUG DEVELOPMENT AND THERAPY

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We have developed a robust closed-system bioprocess that combines a “fed-batch” (FB) media dilution strategy with a first-in-class hematopoietic stem cell (HSC) stimulating small molecule (called UM171) to expand functional umbilical cord blood (UCB)-derived HSCs and progenitors to clinically relevant levels. The feasibility, safety and efficacy of our FB+UM171-expanded cells for adult allogeneic transplantation are being tested in a funded Phase I/II clinical trial based at the Hôpital Maisonneuve-Rosemont in Montreal. In this presentation we will review our development work to generate robust procedures for clinical blood cell manufacturing and provide insight into the development of our next-generation bioprocesses that will enable personalized, cost-effective and automated blood progenitors cell production in centres across Canada.