

**Stem (CD34+ cord blood stem and progenitor cell) 98.4 % and 95% viability,  $2.10^6$ . UniFuge. Viable Cell collection. David Richardson, Pneumatic Scale Angelus, Clearwater, 33760, USA [david.richardson@psangelus.com](mailto:david.richardson@psangelus.com),**

Cord Stem cells grown in a corning beehive. Purpose is to concentrate viable and sterile stem cells for RX. Current process is bottle centrifuge. Expectation: reduce process time and 90% or greater recovery.

### Experiment:

**Day 1:** The Centrifuge Equipment is a UniFuge S/N 663 S with 1.7 L Grac Module S/N w2303. Process parameters are: G force 500 x g. Feed flow rate 0.75, 1.0, 1.5 L/min. Prefill bowl with buffer. Separation and 1 re-suspension with no buffer, we used liquid in bowl to re-suspend the cells at 1000 rpm.

**Day 2:** 95% viability. Shallow pool 800 ml module and 1.7 l Grac module. 500x g and 1.0 L/min. Prefill bowl, 1-0.0 ml re-suspension.



Beehive



Cells

### Results:

**Day 1:** Recovery: 98.4 % @ 0.75 L/min, 97.5% @ 1.0 L/min, 95 % @1.5 L/min. 3.5 % viability decrease. Determined thru mass balance and cell counts.

**Day 2:** Recovery: 91% @ 1.0 L/min on both shallow pool and 1.7 Grac modules. 5 % viability decrease. Determined by mass balance and cell counts.

Discussion: Results exceeded expectations. Optimization may include 2 re-suspensions without buffer.

Desirable process 0.75 or 1.0 L/min.