



## **Overview**

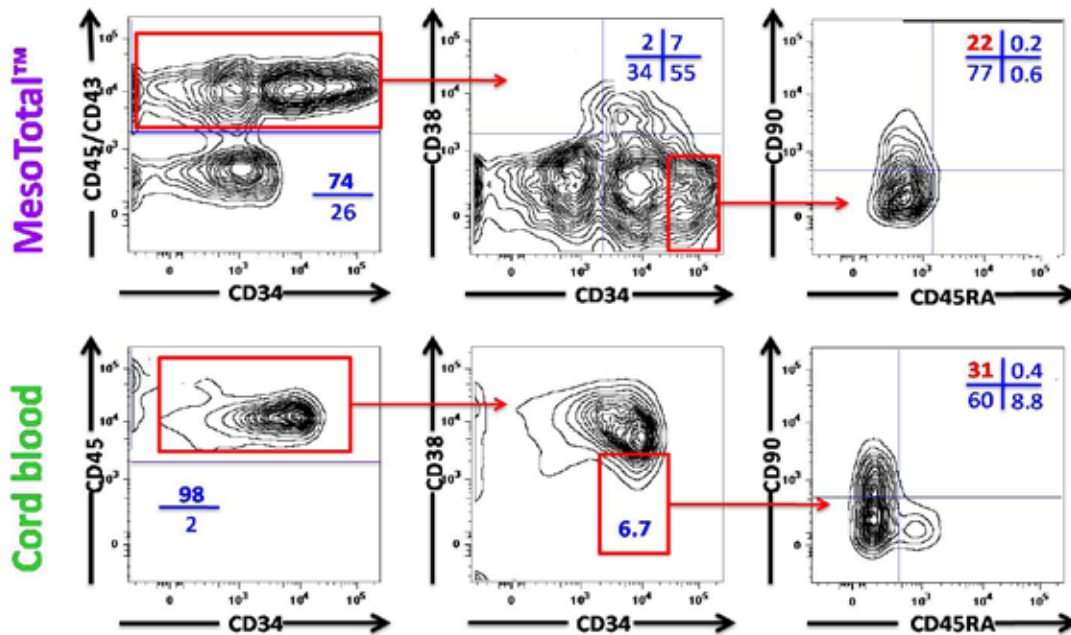
Primorigen Biosciences' MesoTotal™ Differentiation System combines a patent-pending medium formulation and novel protocol for robust differentiation of human pluripotent stem cells (hPSCs) into hematopoietic progenitor cells (CD45/43+, and CD34+) and hematopoietic stem cells (CD45/43+, CD34+, CD38-, CD45RA-, CD90+). Yields are typically 100-fold and 40-fold higher than the publication record, respectively. The MesoTotal™ Differentiation System uses a simple two-step incubation procedure, does not require feeder cell co-culturing, and will improve yields from your best blood producing cell lines.

## **Advantages**

- On average, 50-80% of viable cells exhibit progenitor (CD45/43+, CD34+) phenotype
- Yields 100k's Progenitors and 10k's phenotypic stem cells per 10 cm<sup>2</sup> dish
- Emerging cells have strong lymphoid-myeloid differentiation ability
- CFU assay numbers approach those obtained from cord blood
- Pre-qualified, ready to use
- Validated across numerous human iPS and ES lines
- Compatible with Primorigen's Vitronectin XF™ substrate

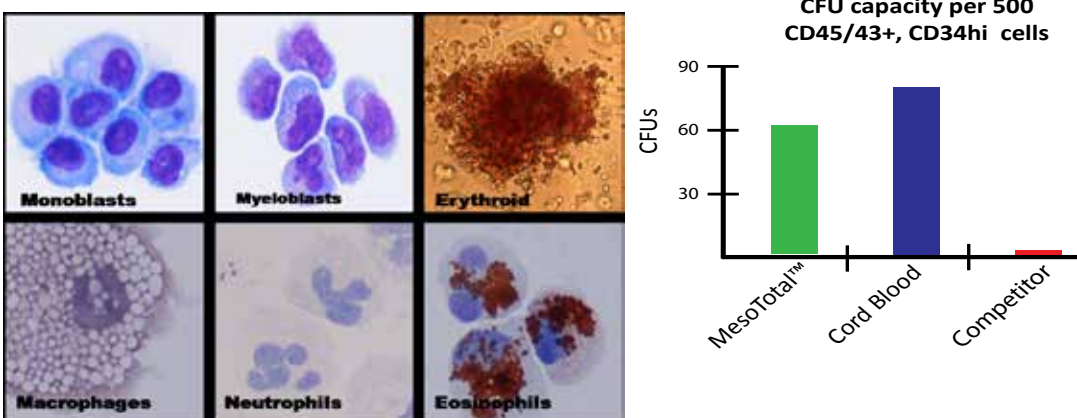
<b>MesoTotal™ Performance Comparison</b>			
<b>Component</b>	<b>MesoTotal™</b>	<b>Competitor</b>	<b>Publication<sup>1</sup></b>
<b>Phenotypic HPC Yield</b>	<b>67±2.5%</b>	<b>5%</b>	<b>16.1± 13.7%</b>
<b>Phenotypic HSC Yield</b>	<b>15%</b>	<b>Not Reported</b>	<b>Not Reported</b>

## Hematopoietic Progenitor & Stem Cells



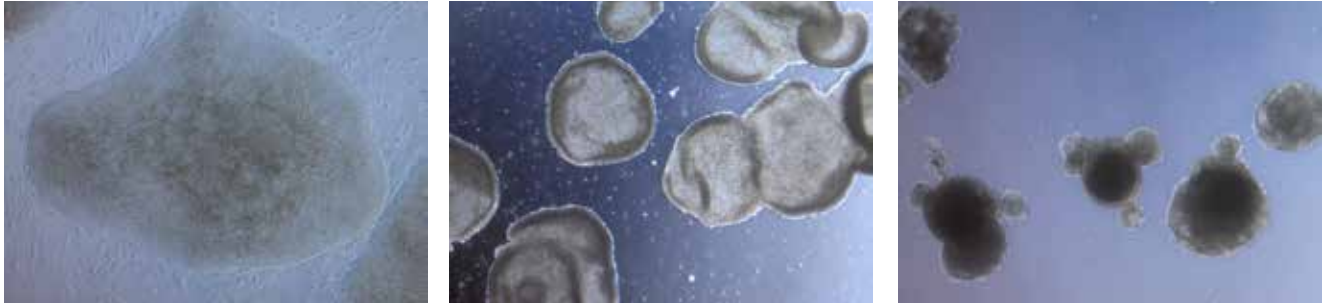
**Figure 1.** FACS comparison of HPC and HSC phenotypic markers between MesoTotal™ generated blood cells (top row) and cord blood (bottom row). MesoTotal™ generated greater than 70% CD45/43+, CD34+ progenitors (top, left). MesoTotal™ also generated a comparable number of phenotypic HSCs (CD45/43+, CD34+, CD38-, CD45RA-, CD90+) as were present in the cord blood isolated control (top and bottom, right, respectively). Note the profile similarities between phenotypic HPCs (top and bottom, left) and phenotypic HSCs (top and bottom, right).

## Differentiation & CFUs



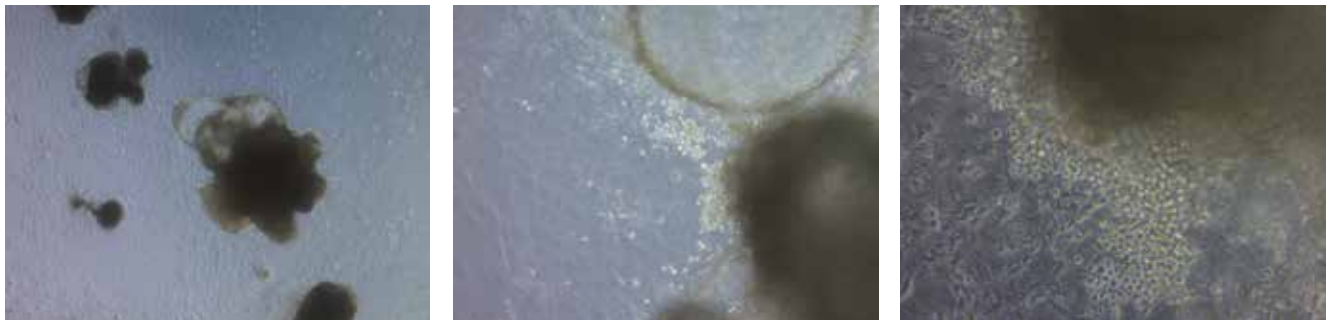
**Figure 2.** Progenitors (CD45/43+, CD34+) were differentiated into mature myeloid and erythroid cells (left images). The graph (right) shows MesoTotal™ produced HPCs return numbers of CFU's that approach those obtained from cord blood control HPCs.

## HSC Differentiation: Days 0-7



**Figure 3.** Day 0 (left) dense human iPSC colonies on MEFs before lifting. Day 0 (middle) Lifted colonies suspended in standard EB medium. Day 7 (right) developing EBs in 100% MesoTotal™

## HSC Differentiation: Days 8-16



**Figure 4.** Day 12 (left) Plated, cystic EBs showing early endothelial-like spread. Day 16 (middle and right), clusters of emerging hematopoietic cells characteristic of high hematopoietic cell yield.

## Ordering Information

Product	Prod. No.	Size	Price (USD)
MesoTotal™ Differentiation System	S2162	80 ml	\$499

## References

1. Daley et al Ann NY Acad Sci. 2009 September; 1176:219-227
2. Unpublished internal data (n = 4). RB9-CB1 iPS line..