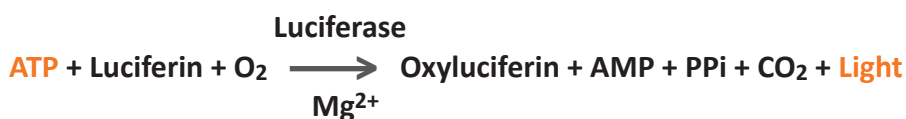
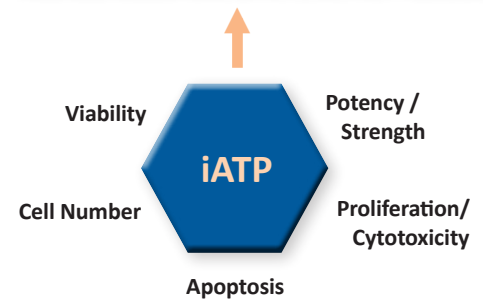




# HALO® Assays – Cell Proliferation & Viability via ATP Bioluminescence

Proliferation occurs prior to differentiation. HALO® is a non-methylcellulose assay that is based on the stimulation of primitive hematopoietic cells to proliferate (in contrast to a CFU/CFC assay which is a 'clonal' differentiation assay). Cell proliferation requires the chemical energy in the form of adenosine triphosphate (ATP) produced in the mitochondria. If ATP cannot be produced, the cell is metabolically dead. Increase in proliferation correlates directly with an increase in intracellular ATP (iATP). Cells are incubated for 5-7 days after which the iATP is measured using a luciferin/luciferase reaction. This produces bioluminescence as light, which is measured in a luminescence plate reader. The potential and ability of cells to proliferate is used as an upstream biochemical marker to predict engraftment and reconstitution. The assays are developed to be performed in a 96-well plate with an instrument-based, **ATP bioluminescence readout**:

## Standardized Bioluminescence Readout



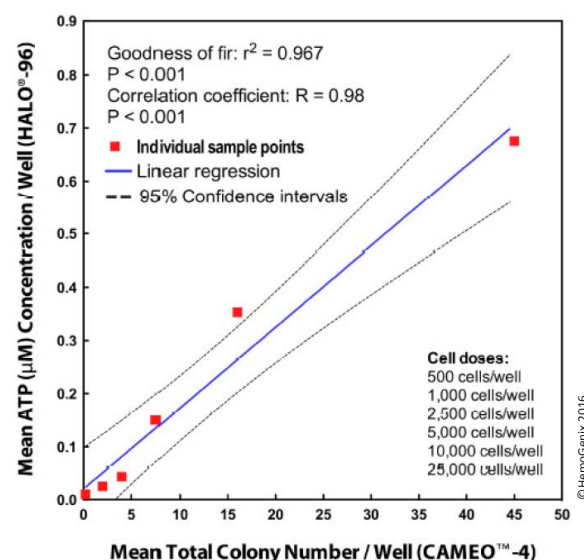
## Determination of Proliferation of Hematopoietic Stem Cells



- Complements and correlates with methyl-cellulose colony-forming unit (CFU) differentiation assays, but can also replace the CFU assay
- Automated and validated assay - incl. standards and controls
- Rapid results  $\varnothing$  5-7 days

**Better Assays - Better Science**

### Correlation of HALO® Assay & CFU-Assay (CAMEO™-4)



## HALO® Assays are Available for Following Hematopoietic Populations

CELL TYPE	POPULATION	GROWTH FACTORS
Stem cells	SC-HPP1 / HPP-SP1	IL-3, IL-6, SCF, TPO, Flt3-L
	SC-HPP2 / HPP-SP2	EPO, GM-CSF, IL-2, IL-3, IL-6, IL-7, SCF, TPO, Flt3-L
	SC-GEMM1 / CFC-GEMM1	EPO, GM-CSF, IL-3, IL-6, SCF, TPO, Flt3-L
	SC-GEMM2 / CFC-GEMM2	EPO, GM-CSF, IL-3, IL-6, SCF, TPO
	SC-GEM1 / CFC-GEM1	EPO, GM-CSF, IL-3, IL-6, SCF
	SC-GEM2 / CFC-GEM2	EPO, GM-CSF, IL-3, SCF
	SC-GEM3 / CFC-GEM3	EPO, GM-CSF, G-CSF, IL-3, SCF
Progenitor cells	P-BFU1 / BFU-E1	EPO, IL-3, SCF
	P-BFU2 / BFU-E2	EPO (high dose)
	P-GM1 / CFC-GM1 / GM-CFC1	GM-CSF, IL-3, SCF
	P-GM2 / CFC-GM2 / GM-CFC2	GM-CSF, G-CSF, IL-3, SCF
	P-GM3 / CFC-GM3 / GM-CFC3	GM-CSF
	P-Mk1 / Mk-CFC1	TPO, IL-3, SCF
	P-Mk2 / Mk-CFC2	TPO alone
Lymph. cells	P-Tcell / T-CFC	IL-2 (needs addition of mitogen or co-stimulators)
	P-Bcell / B-CFC	IL-7 alone

### HALO® Assays

ATP bioluminescence proliferation and viability assays

### HALO® TE, HALO® PMT

ATP bioluminescence proliferation and viability assays for Monitoring after Transplantation

### HALO® SC-IPS/Potency, HALO® QC

ATP bioluminescence proliferation and viability assays for Potency (Identity, Purity, Strength) and Quality Control

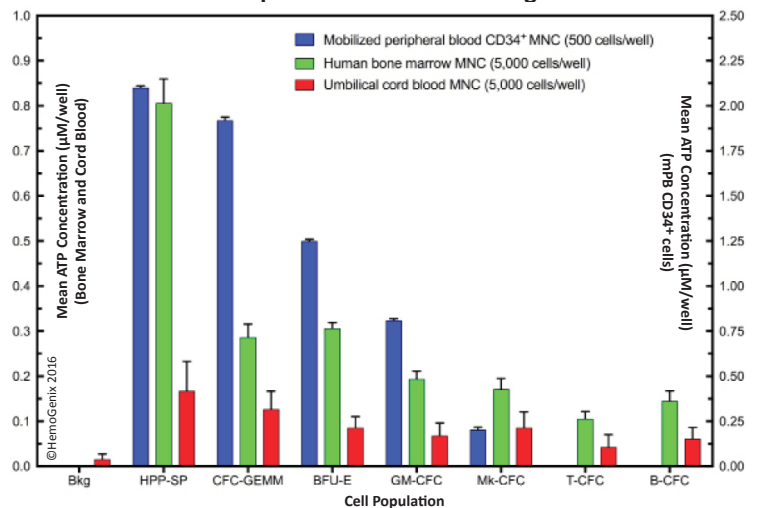
### HALO® Tox HT, HALO® PRT

ATP bioluminescence proliferation and viability assays for Toxicity Testing

### HALO® Real Time

ATP bioluminescence assay to Monitor Cell Proliferation

Comparison between Human Tissues in the Response of 7 Cell Populations Detected Using HALO®



### HALO® Kit Contents

- HALO® Master Mix growth medium
- ATP standard, ATP controls
- ATP monitoring reagent
- Sterile, 96-well plates
- Sterile, adhesive foil covers
- Assay manual

### About Us

TRINOVA BIOCHEM is the European distributor of Preferred Cell Systems™ (PCS™) - the exclusive manufacturer of all products originally produced by HemoGenix®. Preferred Cell Systems™ develops innovative, high-quality in vitro Assays and cell culture Media for Stem Cell Research, Cellular Therapy, In Vitro Toxicology and Regenerative Medicine.

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