CASY^{VIVO} Cell Counter & Analyzer - Powering Breakthroughs in Cell Research

Enhanced Osteoblast Proliferation by Hypoxia Preconditioned Serum

Jiang et al. (2022). Hypoxia Preconditioned Serum (HPS) Promotes Osteoblast Proliferation, Migration and Matrix Deposition; **Biomedicines**, 10(7), 1631. DOI: 10.3390/biomedicines10071631.

Cell Culture; Osteoblasts, hOBs; cytotox	
Index	CC9
Standardization	X
Counting	X
Viability	
Volume	

The Challenge:

Accurately quantifying the proliferation of human osteoblasts (hOBs) over 120 hours to determine if Hypoxia Preconditioned Serum (HPS) treatment enhances their growth compared to controls.

CASY's Contribution:

CASY was used to standardize the initial seeding density (1 x 10^4 cells/well) and to measure the total cell count at 24, 48, 72, and 120 hours[2]. The CASY data demonstrated that HPS significantly increased hOB proliferation (cell number) at 72h and 120h compared to standard serum[3].

Key Benefits to Researchers:

- **Accuracy:** Provided precise, objective cell counts, which were the primary endpoint for the proliferation assay, enabling statistically significant comparison of HPS effects.
- **Standardization:** Enabled rapid, label-free standardization of the initial cell seeding density (1 x 10^4 cells) for all functional assays (proliferation, migration, staining).
- **Validation:** The quantitative cell count data provided the direct, primary evidence validating the hypothesis that HPS promotes osteoblast proliferation, a key aspect of bone regeneration

CASY-Quantified Proliferation: Tracking the Dose-Dependent Impact of HPS on Human Osteoblast

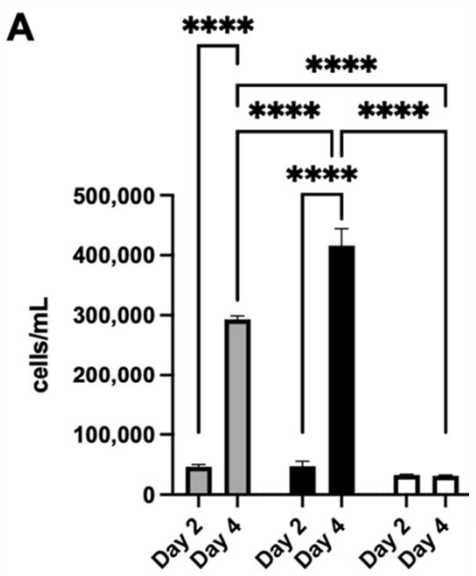

Figure 1. Cell proliferation and cytotoxic effect of hypoxia preconditioned serum (HPS) on human osteoblasts. (A) Cell counts of human osteoblasts with HPS-10% and HPS-40% stimulation compared to controls. Both HPS concentrations promote cell proliferation of human osteoblasts in a time- and dose-dependent manner.