

Primary Rat Osteoblasts (OB)

SKU: CDS11118 | Category: Primary Cells — Rat

Validation & Biomarker Data Guide • Lineage classification: Osteoblast

1. Product Overview

Primary Rat Osteoblasts (OB) is a primary cell product from rat Neonatal rat calvarium bone for physiologically relevant in vitro studies. The product is particularly relevant to Skeletal cell series and Osteoblasts research. It can support research in cell physiology, signaling, metabolism, toxicology, drug response and cell-based assay development where a primary-cell model is preferred. Culture and passage conditions should follow the product-specific protocol. For research use only.

Primary tissue / source: Neonatal rat calvarium bone | Growth type: Adherent Cells | Tumorigenic status: Normal Cells | Pack size: 1 x 0.5 million cells

2. Typical Applications

- Skeletal cell series
- Osteoblasts
- Skeletal, articular and cutaneous systems

3. Identity & Phenotypic Marker Panel

A representative identity panel for osteoblast products is shown below. Actual per-lot Certificates of Analysis should be consulted for verified identity data.

Marker	Expected Result	Range
Alkaline phosphatase (ALP)	Positive	70–95% positive
Osteocalcin	Positive	60–90% positive
RUNX2	Positive	65–92% positive
CD45	Negative / low	≤3% (background)

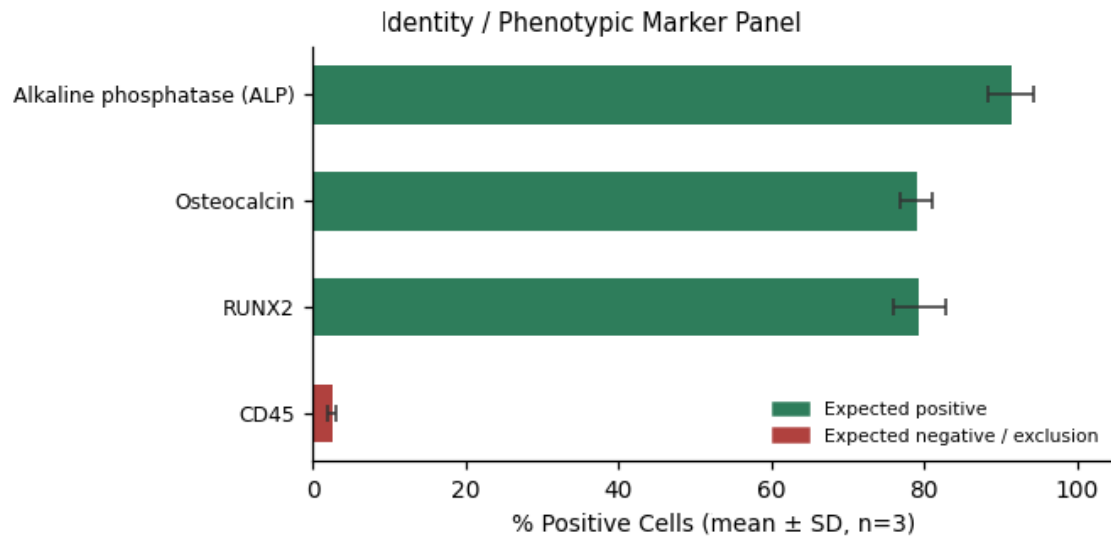


Figure 1. Marker expression profile (mean ± SD, n = 3 replicates).

4. Growth Kinetics & Viability

Growth and viability trends over 120 hours in standard culture conditions.

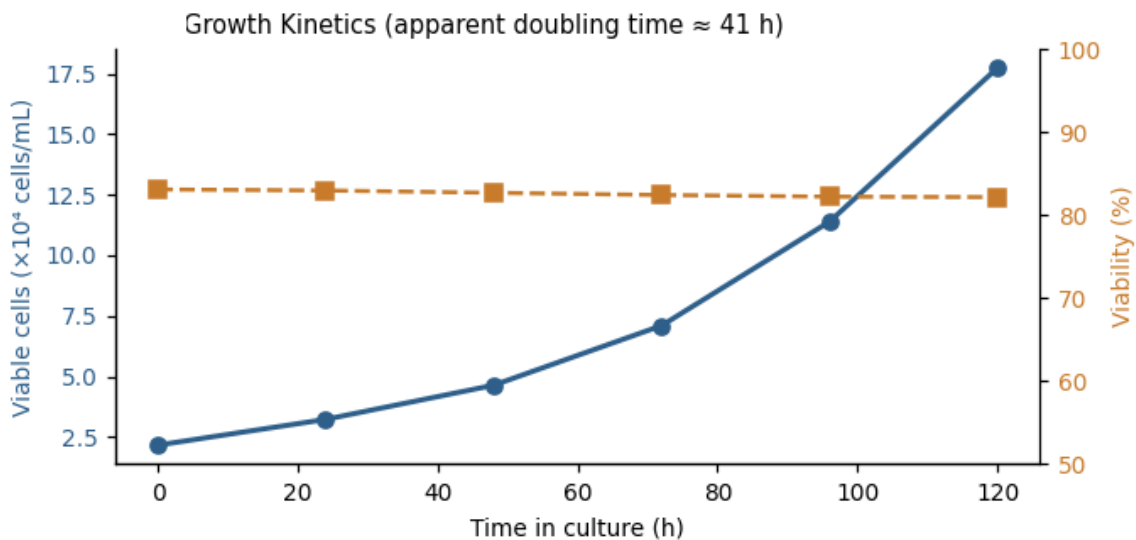


Figure 2. Growth curve (viable cell density, left axis) and viability trend (right axis).

5. Functional Validation Assay

Mineralization assay: Alizarin Red S staining after osteogenic induction (~14-21 days) to confirm calcium deposition; ALP activity assay as early-stage functional marker.

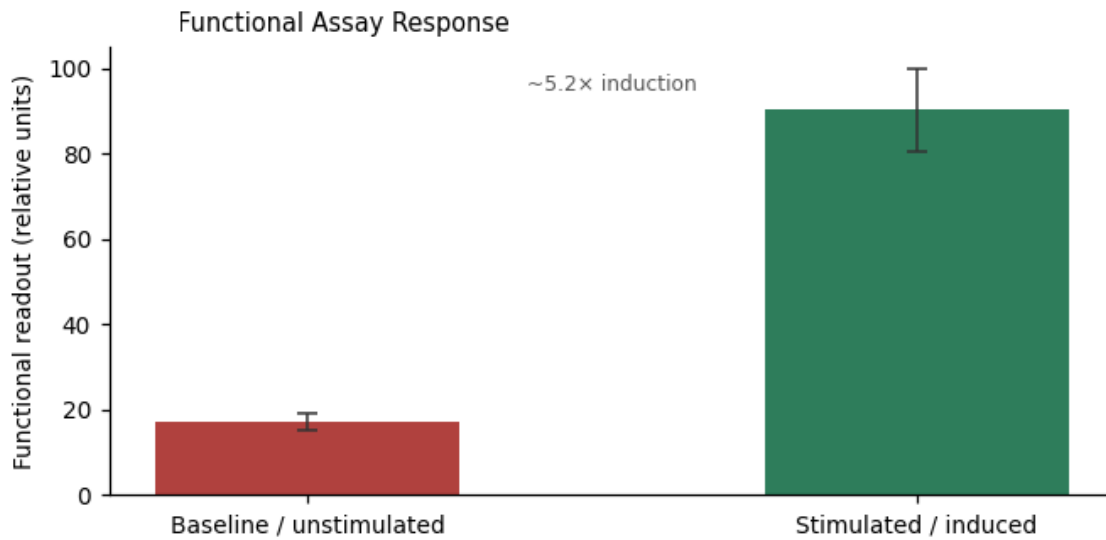


Figure 3. Functional assay readout — ~5.2× induction over baseline.

6. QC Acceptance Criteria

Acceptance Criterion	Result
Positive ALP activity above baseline	PASS
Positive Alizarin Red mineralization after induction	PASS
RUNX2/Osteocalcin expression confirmed by ICC or qPCR	PASS
Apparent population doubling time	≈ 41 hours
Functional assay outcome	~5.2× induction over baseline

7. Handling & Culture Notes

- Refer to the product-specific Certificate of Analysis and datasheet for validated culture medium, seeding density, and passaging recommendations.
- As with any primary cell or cell line, confirm mycoplasma-negative status, expected morphology by phase-contrast microscopy, and viability by trypan blue or equivalent dye-exclusion assay at each passage before use in downstream assays.