DMEM Low Glucose Medium Instructions

1. Product overview

Catalog number	Name	Size
L1010001	DMEM Low Glucose Medium	500 mL

Dulbecco's Modified Eagle's Medium—Low Glucose is derived from Eagle's minimal essential medium (EMEM) and enriched four-fold in amino acids and vitamins. It contains 1.0 g L^{-1} glucose (5.5 mM), a concentration that closely approximates physiological blood glucose, thereby providing a metabolically quiescent environment ideal for glucose-sensitive cells and studies requiring normoglycaemic conditions. The formulation is devoid of proteins, lipids, and growth factors; supplementation with 10% (v/v) fetal bovine serum is required to establish a complete culture environment. The bicarbonate buffering system (3.7 g L^{-1} $NaHCO_3$) necessitates a 5%–10% CO_2 atmosphere to maintain a physiological pH (7.2–7.4) at 37°C. DMEM- Low Glucose represents the basal medium of choice for in vitro propagation of pancreatic β-cells, stem cells, primary cells, and for mechanistic investigations of cellular metabolism.

- **Name:** DMEM - Low Glucose
- **Glucose concentration:** 1.0 g L^{-1}
- **pH range:** 7.0–7.4 (under appropriate CO_2 conditions)
- **Osmolality:** ~ 305 mOsm kg^{-1}

2. Application

- **Applicable cells:** Glucose-sensitive cells such as pancreatic β-cells, osteoblasts, and murine embryonic stem cells; primary cells or cells sensitive to high osmolality; cells in a normal metabolic state.
- **Research Directions:** Diabetes model, glucose metabolism, insulin signaling pathway, hypoglycemic stress experiment, etc.
- **Industrial Applications:** Vaccine manufacture, bioprocess development for biologics, and optimization of stem-cell culture platforms

3. Product components

Key Components:	Concentration
Glucose	1.0 g/L (5.5 mM)
L-Glutamine	4 mM
Sodium pyruvate	1 mM
Phenol red	15 mg/L
Sodium bicarbonate	3.7 g/L
HEPES	Not included
Antibiotic	Not included

4. Usage Guidelines

- **Storage:** Store at 2–8°C, protected from light; avoid repeated freeze–thaw cycles. Shelf life is 12 months from date of manufacture.
- **Preparation:** Supplement with 10% (v/v) fetal bovine serum and 1% (v/v) penicillin–streptomycin, or other additives as required by the experimental protocol
- **Operate:** This product is sterile-filtered. Swirl gently before use, open only under aseptic conditions, and aliquot any remaining medium to prevent contamination.
- **Culture conditions:**

  Temperature: 37°C ± 1°C

  CO_2: 5% (recommended range 4%–7%)

  Humidity: 95% relative humidity

5. Precautions

- **Not applicable scenarios:** High-glucose-dependent cell lines (e.g., HeLa, A549); for these, use DMEM–High Glucose (Cat. No. D1010001).
- **Incompatibility:** Avoid mix directly with solutions containing Ca^{2+}/Mg^{2+} to prevent precipitation.
- **If cell growth is suboptimal,** titrate the glucose concentration or supplement with sodium pyruvate according to experimental requirements.