

# Opti-MEM<sup>®</sup> I Reduced Serum Medium

## Description

Opti-MEM<sup>®</sup> I Reduced-Serum Medium is a chemically defined, low protein, Minimal Essential Medium (MEM) containing insulin, transferrin, hypoxanthine, thymidine, and trace elements that allows for a reduction of Fetal Bovine Serum supplementation by at least 50% with no change to growth rate or morphology. Opti-MEM<sup>®</sup> I Reduced-Serum Medium can be used with a variety of suspension and adherent mammalian cells, including Sp2, AE-1, CHO, BHK-21, HEK, and primary fibroblasts. Life Technologies offers a variety of Opti-MEM<sup>®</sup> I Medium modifications for a range of cell culture applications. Opti-MEM<sup>®</sup> I Reduced-Serum Medium is also recommended for use with cationic lipid transfection reagents, such as Lipofectamine<sup>™</sup> reagent.

Product	Catalog no.	Amount	Storage	Shelf Life*
Opti-MEM <sup>®</sup> I Reduced Serum Medium	31985-062 31985-070 31985-088	100 mL 500 mL 10 × 500 mL	2°C to 8°C; Protect from light	18 months
Opti-MEM <sup>®</sup> I (1X) + GlutaMAX <sup>™</sup> Reduced Serum Medium	51985-034 51985-091	500 mL 10 × 500 mL	2°C to 8°C; Protect from light	18 months
Opti-MEM <sup>®</sup> I Reduced Serum Medium, powder	22600-134 22600-050	10 L 10 × 1 L	2°C to 8°C; Store in the Dark	30 months
Opti-MEM <sup>®</sup> I Reduced Serum Medium, without Phenol Red	11058-021	500 mL	2°C to 8°C; Protect from light	12 months

\* Shelf Life duration is determined from Date of Manufacture.

## Intended use

For *in vitro* diagnostic use.

## Important information

- We recommend Opti-MEM<sup>®</sup> I Reduced-Serum Medium for use with Lipofectamine<sup>™</sup> Transfection Reagents. For more information and protocols using Lipofectamine<sup>™</sup> Transfection Reagents go to [www.lifetechnologies.com/lipofectamine](http://www.lifetechnologies.com/lipofectamine).
- Opti-MEM<sup>®</sup> I Reduced-Serum Medium uses a sodium bicarbonate buffer system (2.4 g/L) and therefore requires a 5–10% CO<sub>2</sub> environment to maintain physiological pH.

## Safety information

Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Human origin materials are non-reactive (donor level) for anti-HIV 1 & 2, anti-HCV, and HB<sub>s</sub>Ag. Handle in accordance with established bio-safety practices.

## Prepare media

### Reconstitution

1. Add Opti-MEM<sup>®</sup> I powder to 950 mL room temperature cell culture grade distilled water. Rinse the inside of package to remove all traces of powder.  
**Note:** Very high quality distilled water is required to achieve optimal cell growth in reduced serum systems.
2. Mix with gentle stirring until medium dissolves completely. **Do not heat.**
3. Add 2.4 g Sodium Bicarbonate (NaHCO<sub>3</sub>, reagent grade) per liter of medium.
4. Adjust pH of medium with 1 N NaOH or 1 N HCl to 0.2–0.3 units below desired final pH. Add dropwise with stirring and constant pH monitoring. The recommended final pH of Opti-MEM<sup>®</sup> I after filtration is 7.3 ± 0.1. The pH will generally rise 0.1–0.3 units upon filtration.

5. Add cell culture grade distilled water to final volume of 1 L, stir gently to ensure complete dissolution and homogeneity.
6. Filter sterilize by 0.2 µm pore size membrane filtration.  
**Note:** Use low protein binding filter.

**Note:** Store reconstituted Opti-MEM<sup>®</sup> I at 2°C to 8°C protected from light.

### Supplementation

- Opti-MEM<sup>®</sup> I Reduced-Serum Medium may be aseptically supplemented with 2-mercaptoethanol (55 µM) prior to use if desired. It is recommended to evaluate the utility of 2-mercaptoethanol supplementation for each application.  
**Note:** Opti-MEM<sup>®</sup> I Reduced-Serum Medium supplemented with 2-mercaptoethanol is stable for 2 months, when stored at 2°C to 8°C in the dark, provided that this period does not exceed the expiration date of either the Opti-MEM<sup>®</sup> I Media or 2-mercaptoethanol.
- It is recommended to supplement Opti-MEM<sup>®</sup> I Reduced-Serum Medium with 100 mg/L CaCl<sub>2</sub> for culture of adherent cells in an agitated system, such as roller bottles, or when the medium is supplemented with <2% FBS.

### Adapt cells to Opti-MEM<sup>®</sup> I

For most applications, no adaptation is necessary to attain 50% reduction in serum supplementation when converting to Opti-MEM<sup>®</sup> I Reduced-Serum Medium. Most cells routinely cultured in serum-supplemented medium may be directly transferred into Opti-MEM<sup>®</sup> I Reduced-Serum Medium with a minimum of 50% reduction in serum. Additional serum reduction may be realized with minimal adaptation.

1. Centrifuge cells at 200 × g for 5–10 minutes.
2. Decant and discard supernatant.
3. Resuspend the cell pellet in Opti-MEM<sup>®</sup> I Medium with reduced serum supplementation.

## Recommended serum levels

The optimal serum supplementation for each specific application should be determined based on the performance characteristics expected (growth promotion, secondary metabolite production, etc.). Extended use of Opti-MEM® I Reduced-Serum Medium in the maintenance of cell lines has shown no loss of viability or growth rate.

See the following table for typical serum supplementation reduction.

Cell Types	% FBS in Opti-MEM® I
Hybridoma Technology - Mouse and Human	
Fusion	4
Cloning	2-4
Growth and Ab production Myelomas and Established Hybridomas	0.5-2
Diploid Fibroblast Cell Lines	2-4
Primary Fibroblasts	2-4
Rat and Hamster Embryo Cell Lines	2
Lymphoblastoid Cell Lines	0.5-2
Monkey Kidney Cells	4
Human and Bovine Embryonic Kidney Cells	2-4

Research at Life Technologies has demonstrated that Opti-MEM® I Reduced-Serum Medium supplemented with 4% alternative sera performed comparable to, and in some cases superior to, basal media supplemented with 10% FBS in the following applications:












Application	Cell Line	Serum Alternative at 4%
Growth Promotion	Sp2/0-Ag14 (Sp2)	Calf, Horse
	AE-1 (Sp2 derived Hybridoma)	Calf, Horse
	CHO	Horse
	BHK-21	Calf, Horse
Cloning	Sp2	Calf, Newborn Calf, Horse
	P3x63-Ag8.653 (653)	Calf, Newborn Calf, Horse
Plating	653	Calf, Horse
	BHK-21	Calf, Horse
	CHO	Calf, Newborn Calf
MAb Production	AE-1	Calf, Newborn Calf, Horse

## Related products

Product	Catalog no.
2-Mercaptoethanol (1000X), liquid	21985
Water, Distilled	15230
Fetal Bovine Serum, Dialyzed (US)	26400
Lipofectamine™ 2000 Transfection Reagent	11668
Antibiotic-Antimycotic (100X), liquid	15240
Penicillin-Streptomycin, liquid	15140
Geneticin® (G-418 Sulfate)	11811

## Explanation of symbols and warnings

The symbols present on the product label are explained below:

			
Caution, consult accompanying documents	In vitro diagnostic medical device	Sterilized using aseptic processing techniques	Keep away from light
			
Use By:	Catalog number	Manufacturer	Batch Code
			
European Community	Consult instructions for use	Temperature Limitation	

## Limited Use Label License: *in vitro* Diagnostic Use

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