

## Advanced Reduced Serum Media

Advanced DMEM (Dulbecco's Modified Eagle Medium)

Advanced DMEM/F-12 (Dulbecco's Modified Eagle Medium/Ham's F-12)

Advanced MEM (Minimum Essential Medium)

Advanced RPMI 1640

### Description

Advanced Reduced Serum Media are widely used basal media, which require 50–90% less Fetal Bovine Serum (FBS) supplementation compared to conventional basal media formulations, for the in vitro cell culture of mammalian cells. Advanced Reduced Serum Media are capable of supporting cellular proliferation and maximum cell densities comparable to, and in some cases superior to, the conventional basal media formulations supplemented with 5–10% FBS. Non-fastidious cell lines may be tolerant of even more substantial serum reduction. The versatility of these media in the propagation of various cell types makes them an optimal choice for many cell culture requirements. Advanced Reduced Serum Media are formulated without L-glutamine for increased stability.

Product	Catalog no.	Amount	Storage	Shelf life*
Advanced DMEM (1X), liquid with 110 mg/L sodium pyruvate and non-essential amino acids (NEAA)	12491-015	500 mL	2°C to 8°C; Protect from light	12 months
	12491-023	10 × 500 mL		
Advanced DMEM/F-12 (1X), liquid with 110 mg/L sodium pyruvate and non-essential amino acids (NEAA)	12634-010	500 mL	2°C to 8°C; Protect from light	12 months
	12634-028	10 × 500 mL		
Advanced MEM (1X), liquid with 110 mg/L sodium pyruvate and non-essential amino acids (NEAA)	12492-013	500 mL	2°C to 8°C; Protect from light	12 months
	12492-021	10 × 500 mL		
Advanced RPMI 1640 (1X), liquid with 110 mg/L sodium pyruvate and non-essential amino acids (NEAA)	12633-012	500 mL	2°C to 8°C; Protect from light	12 months
	12633-020	10 × 500 mL		

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

### Product use

For Research Use Only. Not for use in diagnostic procedures.

### Safety information

Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

Caution: Human origin materials are non-reactive (donor level) for anti-HIV 1 & 2, anti-HCV and HBsAg. Handle in accordance with established bio-safety practices.

### Prepare media

Advanced Reduced Serum Media require supplementation with 4 mM GlutaMAX™-I Supplement or L-glutamine and 1–5% FBS before use.

To 1 L Advanced Reduced Serum Media:

1. Aseptically add 20 mL GlutaMAX™-I Supplement or L-glutamine (200 mM).
2. Aseptically add 10–50 mL/L FBS.

**Note:** Optimize the FBS concentration for each cell line to obtain maximum serum reduction.

3. Add antibiotics, if required. Cellular growth may be impeded by the addition of antibiotics. We recommend reducing the amount of antibiotic by the same percentage that serum supplementation is reduced.

### Culture conditions

**Media:** See Table 1 on reverse.

**Cell line:** See Table 1 on reverse.

**Culture type:** Adherent

**Culture vessels:** T-Flasks

**Temperature range:** 36°C to 38°C.

**Incubator atmosphere:** Humidified atmosphere of 5–10% CO<sub>2</sub> in air. Ensure proper gas exchange and minimize exposure of cultures to light.

### Adapt cell lines to reduced serum media

For most applications, no adaptation is necessary (see **Direct adaptation**) to attain at least a 50% reduction in serum supplementation levels. If suboptimal cell growth characteristics (e.g., growth rate, morphology, or secondary metabolite production levels) are observed or additional serum reduction is desired use the sequential adaptation procedure. Successful adaptation will depend upon the particular cell line and the culture conditions employed. We recommend maintaining backup cultures in the original medium until achieving success with the new medium.

**Note:** For best results cell viability should be ≥90% and growth rate be in mid-logarithmic phase prior to adaptation.

## Direct adaptation

1. Subculture cells grown in conventional medium with 5–10% FBS into the appropriate (see Table 1) prewarmed complete Advanced Media. Recommended seeding densities are indicated in Table 1.
2. Monitor cell growth and subculture following your normal protocol using the appropriate (see Table 1) prewarmed complete Advanced Media.
3. Cell cultures are considered to be adapted after 3–5 passages of consistent growth.

**Note:** If suboptimal performance is observed using the direct adaptation method over 3–5 passages, use the sequential adaptation method.

**Table 1** Recommended Serum Levels and Seeding Density. For use in Advanced Serum Reduced Media.

Advanced DMEM (Catalog no. 12491)		
Cell line	Seeding density (viable cells per 25 cm <sup>2</sup> )	% FBS
A549	2.5 × 10 <sup>5</sup>	1–2
MDBK	1 × 10 <sup>5</sup>	1–2
COS-7	2 × 10 <sup>5</sup>	1–2
VERO	1 × 10 <sup>5</sup>	1–2
MRC-5	5 × 10 <sup>5</sup>	2
Advanced DMEM/F-12 (Catalog no. 12634)		
Cell line	Seeding density (viable cells per 25 cm <sup>2</sup> )	% FBS
VERO	1 × 10 <sup>5</sup>	0.5–2
Jurkat	5 × 10 <sup>5</sup>	1–2
SP2	1.5 × 10 <sup>5</sup>	0.5
MRC-5	5 × 10 <sup>5</sup>	2
WI-38	5 × 10 <sup>5</sup>	2
Advanced MEM (Catalog no. 12492)		
Cell line	Seeding density (viable cells per 25 cm <sup>2</sup> )	% FBS
PK-15	2 × 10 <sup>5</sup>	1–2
VERO	1 × 10 <sup>5</sup>	1–2
WI-38	4 × 10 <sup>5</sup>	2
MDCK	1 × 10 <sup>5</sup>	2
HEp-2	3 × 10 <sup>5</sup>	2
Advanced RPMI 1640 (Catalog no. 12633)		
Cell line	Seeding density (viable cells per 25 cm <sup>2</sup> )	% FBS
VERO	1 × 10 <sup>5</sup>	0.5–2
Jurkat	5 × 10 <sup>5</sup>	0.5–2
SP2	1.5 × 10 <sup>5</sup>	0.5
RAJI	3 × 10 <sup>5</sup>	0.5
DAUDI	2 × 10 <sup>5</sup>	0.5

## Sequential adaptation

1. Subculture cells grown in conventional medium with 5–10% FBS into a 25:75 ratio of the appropriate (see Table 1) prewarmed complete Advanced Media to the original media. Recommended seeding densities are indicated in Table 1.
2. Monitor cell growth and subculture following your normal protocol into stepwise increasing ratios of new media to the original media (50:50, followed by 75:25, then 90:10). Multiple passages at each step may be needed.
3. Subculture cells into 100% prewarmed complete Advanced Reduced Serum Media, and continue to monitor and passage cells until consistent growth is achieved. After several passages of consistent growth and viability in 100% complete Advanced Reduced Serum Media the culture is considered to be adapted.

## Related products

Product	Catalog no.
GlutaMAX™	35050
L-Glutamine-200 mM (100X), Liquid	25030
Certified FBS, Heat Inactivated, US	10082
Dulbecco's Phosphate Buffered Saline, without calcium and magnesium	14190
TrypLE™ Express Enzyme (1X), no phenol red	12604
0.05% Trypsin-EDTA (1X), phenol red	25300
Trypan Blue Solution, 0.4%	15250
Countess® Automated Cell Counter	C10227

## Explanation of symbols and warnings

The symbols present on the product label are explained below:

				
Temperature Limitation	Manufacturer	Batch code	Use By:	Catalog number
				
Caution, consult accompanying documents	Consult instructions for use	Keep away from light	Sterilized using aseptic processing techniques	

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