Advanced DMEM/F12

Cat. No.: PM153312

Size: 500mL

General Information

Product Form	Liquid
Concentration	1×
pH	7.0-7.4
D-Glucose	3151 mg/L
L-Glutamine	365 mg/L
Sodium pyruvate	110 mg/L
Phenol red	8.1 mg/L
Non-Essential Amino Acids	Positive
HEPES	Negative
Osmotic pressure	300-340 mOsm/kg
Solvent	Purified water
Storage	2-8°C, Shading Light
Shipping	Ice bag
Expiration date	12 months

Background

Advanced DMEM/F12 is a widely used basal medium that allows the culture of mammalian cells with reduced Fetal Bovine Serum (FBS) supplementation. Compared to classic DMEM/F12, serum supplementation can be reduced by 50–90% with no change in cellular prolife ratio or morphology. Many cell lines do not need to be domesticated to use this medium. Cells successfully cultured in Advanced DMEM/F12, with no adaptation, include MRC-5, SP2/0, Vero, Jurkat, LX-2, KGN, C8-D1A, Hela, KLE, ARPE-19, NIH-3T3, 4T1, JHH-7, NCI-H2009, etc.

Advanced DMEM/F12 medium can achieve the serum-reduced effect due to the addition of the following ingredients: ethanolamine, glutathione, ascorbic acid, insulin, transferrin, bovine serum albumin and various trace elements (sodium selenite, ammonium metavanadate, copper sulfate and manganese chloride).

Prepare Complete Media

Advanced DMEM/F12 medium require supplementation with 1-5% fetal bovine serum(FBS) and 1% L-alanyl-L-glutamine solution (GlutaMAX) (Cat. No.: PB180419) to maintain normal cell growth.

To prepare 1 L Advanced Reduced Serum Complete Media:

1. Aseptically add 20 mL GlutaMAX (200 mM).

2. Aseptically add 10-50 mL 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 serumsupplementation is reduced.

Culture Use Conditions

Temperature: 37°C

Incubator atmosphere: Humidified atmosphere of 5-10% CO_2 in air. Ensure proper gas exchange andminimize exposure of cultures to light.

Adapt cell lines to reduced serum media

For most cell lines, 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 on 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 toadaptation.

Direct adaptation

1. Subculture cells grown in conventional medium with 5-10% FBS into the appropriate (**see Table1**) prewarmed complete Advanced Media.
2. Monitor cell growth and subculture following your normal protocol using the appropriate (see Table1)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, usethesequential adaptation method.

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.
2. Monitor cell growth and subculture following your normal protocol into stepwise increasing ratios of newmedia to the original media (50:50, followed by 75:25, then 90:10). Multiple passages at each stepmaybe needed.
3. Subculture cells into 100% prewarmed complete Advanced Reduced Serum Media, and continuetomonitor and passage cells until consistent growth is achieved. After several passages of consistent growthand viability in 100% complete Advanced Reduced Serum Media the culture is considered to be adapted.

Table 1 Recommended Serum Levels. For use in Advanced Serum Reduced Media:

Cell line	% FBS
MRC-5	2-5%
SP2/0	2-5%
Vero	5%
Jurkat	2-5%
LX-2	5%
KGN	5%
UMNSAH/DF-1	5%
C8-D1A	5%
Hela	5%
EA.hy926	5%
CRFK	2-5%
U-2 OS	2-5%
MDA-MB-468	2-5%
JEG-3	5%
SiHa	2-5%
KLE	5%
ARPE-19	2-5%
4T1	2-5%
NIH-3T3	2-5%
BRL	2-5%
JHH-7	5%
NCI-H2009	5%

(For cells outside the list, please refer to the above method for testing and optimization)

Notes

1. This product is only used for scientific research or further research, not for diagnosis and treatment.
2. Not all cells are suitable for reduced serum culture. Be sure to test the effect in a small amount beforereplacing it. If necessary, the FBS concentration should be optimized for each cell line to obtainmaximum serum reduction.
3. This product has been filtered and sterilized. Pay attention to aseptic operation to avoid contamination.
4. For research use or further manufacturing. Not for diagnostic use or direct administration into humansoranimals.