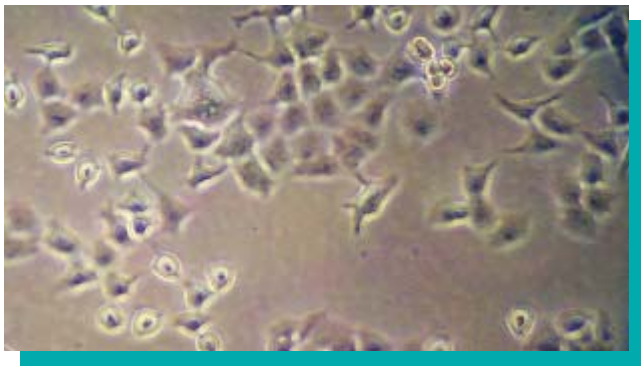
Advanced Media – D-MEM and MEM

- Reduce FBS supplementation 50–90% with no loss of performance
- Save time and money
- Extend the life of your serum lot
- Decrease variability caused by lot-to-lot changes of serum
- Suitable for a wide variety of cell lines

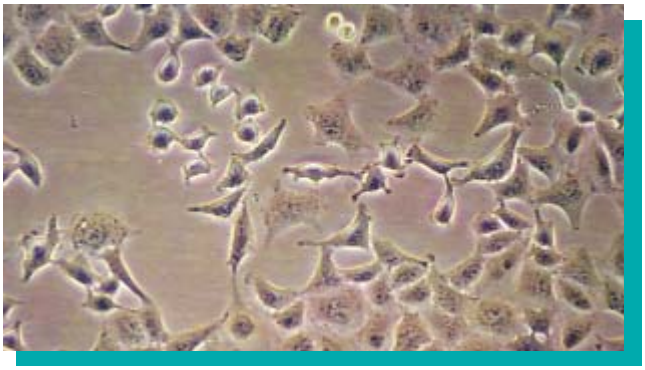
GIBCO™ Advanced D-MEM and MEM are standard basal formulations enriched with ingredients that are normal constituents of serum. These new media enable those involved in mammalian cell culture to reduce FBS supplementation by 50-90% with no change in cell growth, promotion, morphology, or function.

Advanced formulations are suitable for growth and maintenance of a variety of common cell lines including MDBK, HEp-2, COS-7, A549, MDCK, WI-38, VERO, and others.

Advanced D-MEM + 1% FBS



Classical D-MEM + 10% FBS



Figures 1 and 2. Advanced D-MEM supplemented with 4 mM L-Glutamine and 1% Foetal Bovine Serum (FBS) was compared to Dulbecco's Modified Eagle Medium (D-MEM) supplemented with 4 mM L-Glutamine and 10% FBS. *A549 (human lung carcinoma) cells were plated, without pre-adaptation to Advanced D-MEM, at 2.5 × 10^5 cells per 25 cm^2. The flasks were incubated at 37°C with 5% CO_2 and 95% air over a 4-day passage cycle. Cell growth and morphology were comparable in both conditions.*

GIBCO™ Invitrogen Corporation

Each medium is the standard published basal formulation further supplemented with NEAA and sodium pyruvate. The following ingredients have been added to allow for serum reduction: Ethanolamine, Glutathione (reduced), ascorbic acid phosphate, insulin, human (holo) transferrin, AlbuMAX® (a lipid-rich bovine serum albumin), and the trace element salts sodium selenite, ammonium matavanadate, cupric sulphate, and maganous chloride.

The serum concentration reductions achieved will vary with the cell line and basal medium used. While the recommended concentration of serum is 1–5%, the concentration must be adjusted for each individual cell line to obtain optimal results. For most applications, no weaning procedures are necessary to reduce serum supplementation by at least 50%. The conversion can be made by simply centrifuging the cells, decanting the supernatant, and resuspending them in the reduced-serum supplemented medium. Additional serum supplementation may be realized with minimal weaning.

Provided in a 1X liquid format, Advanced D-MEM and MEM need only the addition of L-Glutamine or GlutaMAX™-I Supplement. Cell lines do not require adaptation to these media.

Advanced D-MEM Applications

Cell Types	Recommended Seed Density (viable cells/25cm^2)	% FBS in Advanced D-MEM
A549	2.5×10^5	1–2
COS-7	2.0×10^5	1–2
MDBK	1.0×10^5	1–2
MRC-5	5.0×10^5	2
VERO	1.0×10^5	1–2

Growth Comparison of Multiple Cell Lines in Classical D-MEM Supplemented with 5% FBS to Advanced D-MEM Supplemented with 1 or 2% FBS

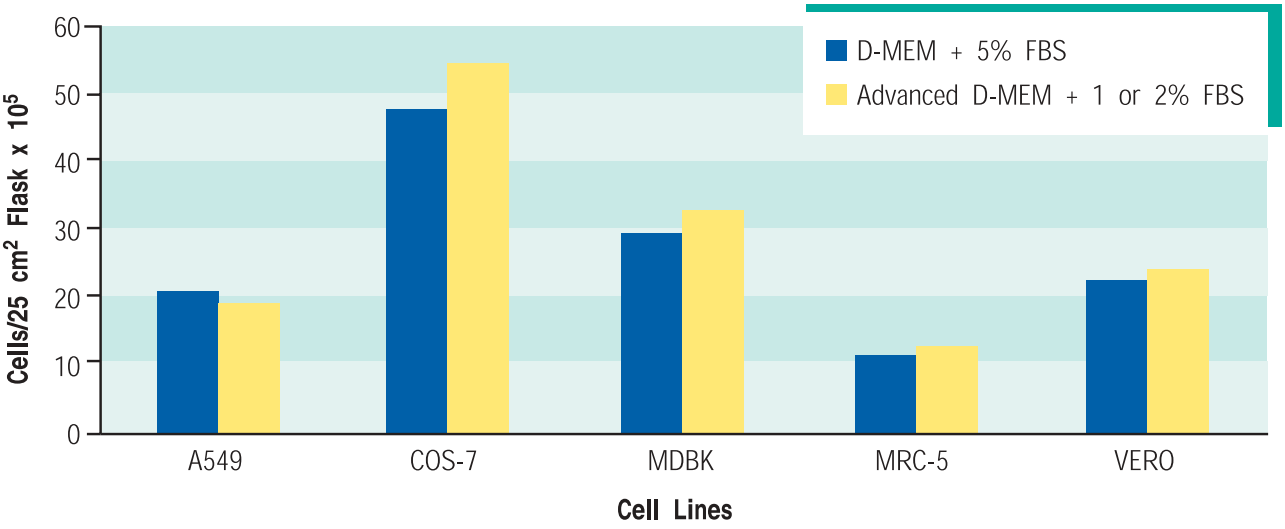


Figure 3. Dulbecco's Modified Eagle's Medium (D-MEM) supplemented with 4 mM L-Glutamine and 5% Foetal Bovine Serum (FBS) was compared to Advanced D-MEM supplemented with 1 or 2% FBS (cell line dependent). *Various cell lines were plated at densities ranging from 1.0 to 5.0 × 10^5 cells per 25 cm^2 flask in duplicate (seed density cell line dependent). The flasks were incubated at 37˚C with 5% CO_2 and 95% air for four days over a minimum of 3 passages on a 3-day:4-day passage cycle. The data represents an average of consecutive day 4 passage cultures.*

Better research begins with better cell culture.

And better cell culture begins with GIBCO™ products and services.

From the world's largest manufacturer of products for cell culture, GIBCO™ media, sera, reagents, and technical support have set the global standard for over 40 years.

Scientists worldwide trust our quality, rely on our service, and welcome our innovations, now even more powerful through integration with Invitrogen tools for molecular biology.

Look to Invitrogen for solutions that will help you save time and money, meet regulatory requirements, and improve experimental results.

You get more with GIBCO™ products and services.

You get what you need for better cell culture.

Advanced MEM Applications

Cell Types	Recommended Seed Density (viable cells/25cm^2)	% FBS in Advanced MEM
HEp-2	3.0×10^5	2
MDCK	1.0×10^5	2
PK-15	2.0×10^5	1–2
VERO	1.0×10^5	1–2
WI-38	4.0×10^5	2

Growth Comparison of Multiple Cell Lines in Classical MEM Supplemented with 5% FBS to Advanced MEM Supplemented with 1 or 2% FBS

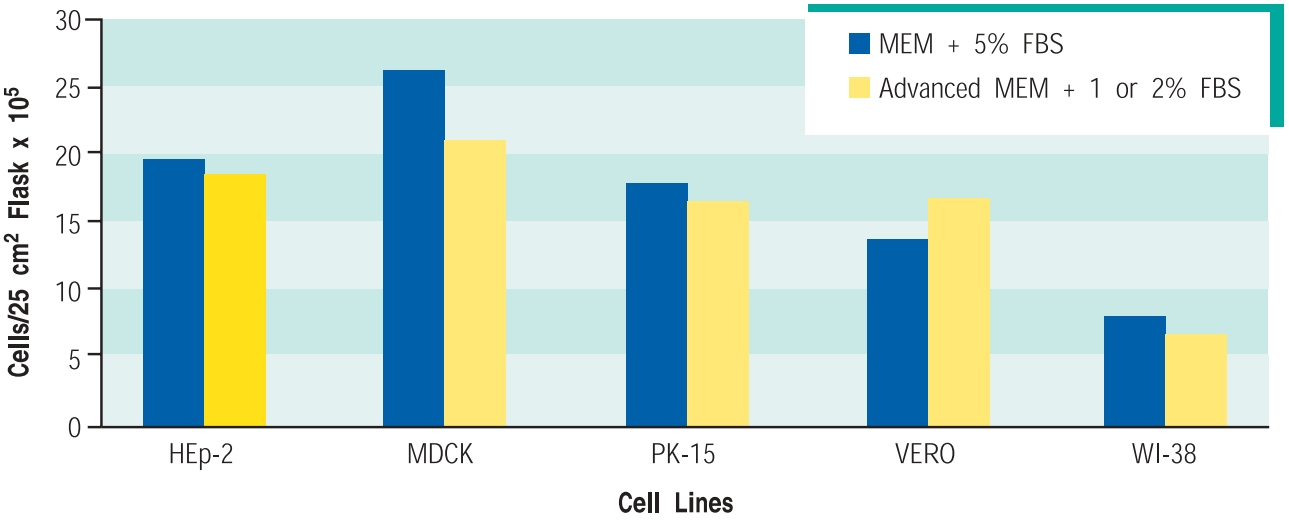


Figure 4. Minimum Essential Medium (MEM) supplemented with 4 mM L-Glutamine and 5% Foetal Bovine Serum (FBS) was compared to Advanced MEM supplemented with 1 or 2% FBS (cell line dependent). *Various cell lines were plated at densities ranging from 1.0 to 4.0 × 10^5 cells per 25 cm^2 flask in duplicate (seed density cell line dependent). The flasks were incubated at 37°C with 5% CO_2 and 95% air for four days over a minimum of 3 passages on a 3-day:4-day passage cycle. The data represents an average of consecutive day 4 passage cultures.*

Ordering Information

Description	Size	Cat. No.
Advanced D-MEM, (1X), liquid (with 4,500 mg/L D-glucose, 110 mg/L sodium pyruvate and non-essential amino acids, without L-Glutamine)	500 ml	12491-015
Advanced MEM, (1X), liquid (with 110 mg/L sodium pyruvate and non-essential amino acids, without L-Glutamine)	500 ml	12492-013
Related Products		
Nutritional Supplements		
Foetal Bovine Sera		
Newborn Bovine Calf Sera		
Bovine Sera	(See Chapter 4 of the 2003 GIBCO™ Catalogue)	
Horse Sera		
Other Sera		
GlutaMAX™-I Supplement (with the dipeptide L-Alanyl-L-Glutamine, can be directly substituted for L-Glutamine)	100 ml	35050-038
L-Glutamine-200mM (100X), liquid	100 ml	25030-024
Antibiotics to Prevent Contamination		
Gentamicin (10 mg/ml)	100 ml	15710-049
Gentamicin (50 mg/ml)	20 ml	15750-037
Penicillin-Streptomycin (contains 10,000 units of penicillin [base] and 10,000 µg of streptomycin [base]/ml utilizing penicillin G [sodium salt] and streptomycin sulphate in 0.85% saline)	20 ml 100 ml	15140-148 15140-122
Penicillin-Streptomycin-Glutamine (100X) (contains 10,000 units of penicillin [base], 10,000 µg of streptomycin [base], and 29.2 mg of L-glutamine/ml in 0.85% saline in a 10 mM citrate buffer to maintain penicillin potency)	100 ml	10378-016
Wash Buffers		
Balanced Salt Solutions	(See Chapter 2 of the 2003 GIBCO™ Catalogue)	
Cell Dissociation		
Trypsin-EDTA (0.05% Trypsin, 0.53 mM EDTA•4Na)	100 ml	25300-054
Trypsin-EDTA (0.25% Trypsin, 1 mM EDTA•4Na)	100 ml	25200-056
Additional Trypsin options	(See Chapter 5 of the 2003 GIBCO™ Catalogue)	
rProtease (Non-animal, recombinant trypsin substitute used for the dissociation) of attachment-dependent cell lines)	100 ml 500 ml	002-0106DG 002-0106DJ
Cryopreservation		
Cell Culture Freezing Medium (contains D-MEM, Foetal Bovine Serum, Calf Serum, and 10% Dimethylsulfoxide [DMSO])	50 ml	11101-011

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For specific country contact information, please see our website: www.invitrogen.com

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