DMEM (Dulbecco's Modified Eagle Medium)

For various human clinical samples

Pub. No. MAN0018898 Rev. 3.0

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from **thermofisher.com/support**.

Intended use

For *in vitro* diagnostic use

The isolation of human viruses from clinical samples using cell culture remains necessary because it is the only technique capable of providing a viable isolate that can be used for antiviral susceptibility testing. An additional advantage is that in contrast to most antigen and nucleic acid detection methods, viral culture allows detection of multiple viruses, not all of which may have been suspected at the time diagnostic culture was requested.

DMEM cell culture media products are for professional use. They are used in medical laboratories by personnel who have received specialized education and training with regard to procedures utilizing In Vitro Diagnostic products. IVDs of these types are not intended as sole determinant in a diagnostic situation. Test results are interpreted by a healthcare professional as part of the clinical management of a patient.

Principle and explanation of procedure

DMEM is one of the most commonly used of all cell culture media for diagnostic virology (1, 2). DMEM can be used with a variety of suspension and adherent mammalian cells, including primary fibroblasts, neurons, glial cells, HUVECs, and smooth muscle cells, as well as cell lines such as HeLa, 293, Cos-7, and PC-12.

DMEM is unique from other media as it contains 4 times the concentration of amino acids and vitamins than the original Eagle's Minimal Essential Medium. DMEM was originally formulated with low glucose (1 g/L) and sodium pyruvate, but is often used with higher glucose levels, with or without sodium pyruvate. DMEM contains no proteins, lipids, or growth factors. Therefore, DMEM requires supplementation, commonly with 10% Fetal Bovine Serum (FBS). DMEM uses a sodium bicarbonate buffer system (3.7 g/L), and therefore requires a 5–10% CO_2 environment to maintain physiological pH.

Contents and storage

All quality control testing results are reported on lot-specific Certificate of Analysis available on our website: **thermofisher.com**.

Product	Cat. No.	Storage	Shelf life[1]
DMEM F12	10565018 [2]	2°C to 8°C Protect from light	12 months
DMEM F12	10565042[2]		
DMEM (HIGH GLUCOSE) W/O L-GLUT	10938025[3]		
DMEM NUTRIENT MIX F12	11320033[4]		
D-MEM/F:12(1:1)(CE)	11320074[3]		
DMEM NUTRIENT MIX F12	11320082[4]		
DMEM NUTRIENT MIX F12	11330032[2]		
DMEM NUTRIENT MIX F12	11330057[2]		
DMEM NUTRIENT MIX F12	11330099[4]		
DMEM NUTRIENT MIX F12	11330107[4]		
DMEM W/O PR W/O L-GLUT	11880028[3]		

CE IVD

For In Vitro Diagnostic Use.

ThermoFisher SCIENTIFIC

Product	Cat. No.	Storage	Shelf life[1]
DMEM	21063029[2]	2°C to 8°C Protect from light	12 months
DMEM/F12 (1:1) W/O L-GLUT (CE)	21331020[3]		
DMEM W/GLUTAMAX-I PYR,IG/L,GLU	21885025[3]		
D-MEM(LG)W/NA PYR & HEPES (CE)	22320022[3]		
DMEM:F12(1:1) W/HEPES (CE)	31330038[3]		
DMEM/NUT.MIX F-12 W/GLUT-I	31331028[3]		
D-MEM (LG)W/NA PYR.(CE)	31885023[3]		
DMEM W/GLUTAMAX-I,PYR,4.5G GLU	31966021[3]		
DMEM W/GLUT-I,HEPES,W/O PYR	32430027[3]		
D-MEM (HG) W/O NA PYR (CE)	41965039[3]		
D-MEM (HG) W/O NA PYR (1X) (CE)	41965047[3]		
D-MEM (HG) W/NA PYR (CE)	41966029[3]		
D-MEM (HG) W/NA PYR (CE)	41966161[3]		
D-MEM (HG)W/O PYR W/HEPES (CE)	42430025[3]		
DMEM HIGH W/GLUTAMAX - I	61965026[3]		
DMEM HIGH W/GLUTAMAX - I	61965240[3]		
DMEM, 0.11 G/L PYR w/o L-Glut	21969035[4]		
DMEM, high glucose, GlutaMAX™ Supplement, HEPES	10564011[4]		
DMEM, high glucose, GlutaMAX™ Supplement, HEPES	10564029[4]		
DMEM, high glucose, GlutaMAX™ Supplement, HEPES	10564037[4]		
DMEM, high glucose, GlutaMAX™ Supplement, HEPES	10564045[4]		
DMEM, high glucose, GlutaMAX™ Supplement	10566016[4]		
DMEM, high glucose, GlutaMAX™ Supplement	10566024[4]		
DMEM, high glucose, GlutaMAX™ Supplement	10566032[4]		
DMEM, high glucose, no glutamine	11960044[4]		
DMEM, high glucose, no glutamine	11960051[4]		
DMEM, high glucose, no glutamine	11960069[4]		
DMEM, high glucose, no glutamine	11960077[4]		
DMEM (1X) - Manufactured in Inchinnan only	11960085[4]		
DMEM, high glucose, pyruvate	11995040[4]		
DMEM, high glucose, pyruvate	11995065[4]		
DMEM, high glucose, pyruvate	11995073[4]		
DMEM, high glucose, pyruvate	11995081[4]		
DMEM, high glucose, pyruvate	11995115[4]		
DMEM, high glucose, pyruvate	11995123[4]		
DMEM, high glucose, GlutaMAX™ Supplement, pyruvate	10569010[4]		
DMEM, high glucose, GlutaMAX™ Supplement, pyruvate	10569044[4]		
DMEM, high glucose, GlutaMAX™ Supplement, pyruvate	10569069[4]		
DMEM, high glucose, GlutaMAX™ Supplement, pyruvate	10569077[4]		

Product	Cat. No.	Storage	Shelf life[1]
DMEM, high glucose	11965084[4]	2°C to 8°C Protect from light	12 months
DMEM, high glucose	11965126[4]		
DMEM, low glucose, GlutaMAX™ Supplement, pyruvate	10567014[4]		
DMEM, low glucose, GlutaMAX™ Supplement, pyruvate	10567022[4]		
DMEM, low glucose, pyruvate	11885076[4]		
DMEM, low glucose, pyruvate	11885084[4]		
DMEM, low glucose, pyruvate	11885092[4]		
DMEM	11885099[4]		
DMEM, high glucose	11965092[4]		
DMEM, high glucose	11965118[4]		
DMEM, high glucose	11965167[4]		
DMEM, high glucose	11965175[4]		
DMEM, low glucose, pyruvate, HEPES	12320032[4]		
DMEM	12320098[4]		
DMEM, high glucose, pyruvate, no glutamine	10313021[4]		
DMEM, high glucose, pyruvate, no glutamine	10313039[4]		
DMEM, high glucose, HEPES	12430047[4]		
DMEM, high glucose, HEPES	12430054[4]		
DMEM, high glucose, HEPES	12430062[4]		
DMEM, high glucose, HEPES	12430104[4]		

[1] Shelf life is determined from Date of Manufacture. Do not use beyond the labeled expiration date.
[2] Dual manufactured.
[3] Manufacturer: Life Technologies™ Ltd. | 3 Fountain Drive, Inchinnan Business Park | Paisley PA49RF, Scotland, United Kingdom |Tel: +44 (0)141 81416305
[4] Manufacturer: Life Technologies Corporation | 3175 Staley Road | Grand Island, NY 14072

Precautions

Do not use the product if packaging, including bottles and vials, have been compromised and/or show evidence of microbial contamination, cloudy appearance, discoloration, drying, cracking, or other signs of deterioration.

CAUTION! Human samples are potentially biohazardous. Follow standard precautions for handling, storage and disposal.

WARNING! Do not use for injection or infusion! Please report any serious incidents in relation to the device to the manufacturer and the Competent Authority of the EU Member State in which the user and/or patient is established.

- Once opened, use DMEM within 14 days for maximal growth performance.
- Avoid repeated warming/cooling and prolonged exposure to light.
- Do not use beyond labeled expiration date.
- All solutions that come into contact with clinical samples must be sterile. Always use proper aseptic techniques and work inside a laminar flow hood. Consult our **Gibco Cell Culture Basics** for aseptic handling.

Test protocol

There is no single type of cell culture that can support the growth of all medically relevant viruses. As such, virology laboratories must maintain several different cell culture types. The choice of cell line used for a specific specimen is determined by the information communicated from the ordering physician to the laboratory and by knowledge of the specimens usually isolated from a given specimen type.

Ready to-use commercial cell culture media undergoes strict quality control to ensure sterility, but may become contaminated while handling. Follow the below guidelines for sterile handling to avoid contamination.

- Always wipe your hand and work area with 70% ethanol.
- Wipe the outside of the containers, flasks, plates, and dishes with 70% ethanol before placing them in the cell culture hood.
- Avoid pouring media and reagents directly from bottles or flasks.
- Use sterile pipette tips and pipettes to work with liquids, and use each pipette tip only once to avoid cross-contamination. Do not unwrap sterile pipettes until they are ready to be used. Keep pipettes and tips within the clean work area.
- Do not talk while performing sterile procedures and perform your cell culture as rapidly as possible to minimize contamination.

Quality control

Standard evaluations for cell culture media are pH, osmolality, endotoxins and sterility testing for liquid products. All quality control testing results are reported on lot specific Certificate of Analysis available on our website: **thermofisher.com**.

Related products

Unless otherwise indicated, all materials are available through **thermofisher.com**.

Item	Source
Gentamicin (50 mg/mL)	15750078
Amphoteracin B	15290018
Penicillin-Streptomycin (10,000 U/mL)	15140122
PBS, pH 7.4	10010031
Fetal Bovine Serum (FBS)	16000044

References

1. Winn, W. C., & Koneman, E. W. (2006). Koneman's color atlas and textbook of diagnostic microbiology (6th ed.). Philadelphia: Lippincott Williams & Wilkins.
2. WHO Guidelines on the Establishment of Virology Laboratories in Developing Countries, 2008.
3. CDC Rubella Virus Isolation protocol. Accessed online 9th Dec 2018: **https://www.cdc.gov/rubella/lab/inoculate_protocol.html**.

Labeling symbols

The symbols present on the product label are explained in the following table.

	MANUFACTURER		USE BY
IVD	IN VITRO DIAGNOSTIC MEDICAL DEVICE		CONSULT INSTRUCTIONS FOR USE
REF	CATALOG NUMBER		CAUTION, CONSULT ACCOMPANYING DOCUMENTS
LOT	BATCH CODE		UPPER AND LOWER LIMITS OF TEMPERATURE
STERILE A	Sterilized using aseptic processing technique		PROTECT FROM LIGHT
CE	European Mark of Conformity	EC REP	AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY

Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have any questions, please contact Life Technologies at **www.thermofisher.com/support**.

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Manufacturer:
Life Technologies™ Ltd. |
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Manufacturer:
Dual manufactured products

EC REP
European Regulatory Affairs
Life Technologies Europe B.V.
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The information in this guide is subject to change without notice.

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Revision	Date	Description
3.0	02 October 2020	Addition of DMEM skus to contents and storage table.
2.0	01 September 2020	Addition of DMEM skus to contents and storage table.
1.0	12 November 2019	New document