

Code:	0157
Cell Line:	MA 104
Species:	Macaca mulatta Vulgar Name: Monkey; Rhesus Monkey
Tissue:	Kidney
Morphology:	Epithelial
Growth Properties:	Adherent
Derivation:	Established from an African Green monkey foetal kidney. The cells are highly susceptible to Simian rotavirus SA11
Virus Susceptibility:	SIMIAN ROTAVIRUS SA11
Biosafety:	1
Additional info:	<p>Please note: The species of origin of the MA104 cell line has been shown to be different from that claimed by the originators. Whitaker & Hayward (1985) found the cell line to originate from an African Green monkey and not a Rhesus macaque as was originally claimed.</p> <p>Whitaker AM & Hayward CJ (1985) The characterization of three monkey kidney cell lines. <i>Develop. Biol. Standard.</i> Vol 60. Pp 125 – 131. PMID: 4043530. Abstract: Three monkey kidney cell lines, Vero, GL-V3 and MA-104 were subjected to karyological analysis to determine their chromosomal stability and to confirm their species of origin. Although the lines were shown to be relatively stable throughout all of the passage levels that were tested, the species of origin of one of them was found to be different from that claimed by the originators. This finding was supported by data from isoenzyme studies.</p>
Culture Medium:	Dulbecco's Modified Eagle's Medium (DMEM) with 1% non-essential amino acids, 2 mM L-glutamine, 1 mM sodium pyruvate, and 1500 mg/L sodium bicarbonate, 1.0 g/L glucose, 90%; fetal bovine serum, 10%.

Subculturing:

Volumes used in this protocol are for 75 cm² flasks; proportionally reduce or increase amount of dissociation medium for culture vessels of other sizes.

Remove and discard culture medium.

Briefly rinse the cell layer with PBS without calcium and magnesium to remove all traces of serum which contains trypsin inhibitor.

Add 2.0 to 3.0 mL of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes).

Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal.

Add 6.0 to 8.0 mL of complete growth medium and aspirate cells by gently pipetting.

Add appropriate aliquots of the cell suspension to new culture vessels.

Incubate cultures at 37°C.

NOTE: For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 12 in Culture of Animal Cells, a manual of Basic Technique by R. Ian Freshney, 6th edition, published by Alan R. Liss, N.Y., 2010.

Medium Renewal: 2 to 3 times per week

Subcultivation ratio: 1:3 to 1:10

Culture Conditions: Atmosphere: air, 95%; carbon dioxide (CO₂), 5% Temperature: 37°C

Cryopreservation: 95% FBS + 5% DMSO (Dimethyl sulfoxide)

Thawing Frozen Cells:

SAFETY PRECAUTION: It is highly recommended that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that

some vials leak when submerged in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vessel exploding or blowing off its cap with dangerous force creating flying debris.

1. Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
3. For cells that are sensitive to DMSO it is recommended that the cryoprotective agent be removed immediately. Transfer the vial contents to a centrifuge tube containing 9.0 mL complete culture medium and spin at approximately 125 x g for 5 to 7 minutes.
4. Discard the supernatant and Resuspend cell pellet with the recommended complete medium (see the specific batch information for the culture recommended dilution ratio).
5. Incubate the culture in an appropriate atmosphere and temperature (see "Culture Conditions" for this cell line).

NOTE: It is important to avoid excessive alkalinity of the medium during recovery of the cells. It is suggested that, prior to the addition of the vial contents, the culture vessel containing the growth medium be placed into the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6).

References:

J Gen Virol 1979;43:513; Arch Virol 1981;70:33; Whitaker AM & Hayward CJ (1985) The characterization of three monkey kidney cell lines. Develop. Biol. Standard. Vol 60. Pp 125 – 131. PMID: 4043530.

Depositors:

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