

OPM-MDBK SFM1

Serum-free Cell Culture Medium

— For Vaccine Production

OPM-MDBK SFM1 is a serum-free cell culture medium designed for suspension culture of MDBK cells and contains L-Glutamine. This medium supports the production of vaccines such as bovine viral diarrhea virus and infectious bovine rhinotracheitis virus, etc.

Application

OPM-MDBK SFM1 is intended for large scale manufacturing of therapeutic biomolecules, as well as for research purposes, but not for human or any therapeutic use.

Storage & Transportation

Store at 2~8°C, dark and dry

Ship at Room temperature (Liquid), Blue ice (Dry powder)

Shelf Life

OPM-MDBK SFM1 Medium Liquid: 12 months

OPM-MDBK SFM1 Dry Powder: 24 months

Reconstitution Method for Dry Powder

1. Measure out 90% of final required volume of purified water intended for cell culture use, e.g. WFI. Recommended water temperature is 25~35°C (minimum final volume \geq 1L).
2. Slowly add dry powder medium at 19.09 g/L and stir for 20 minutes.
3. Add 2.3 g/L NaHCO₃ to the solution and continue to stir for 10 minutes.
4. Adjust pH to 7.2 with 1N NaOH or 1N HCl.
5. Add cell culture grade purified water to 100% final volume.
6. Continue to stir for 10 minutes. Sterile filter using a membrane filter with a pore size of 0.22 micron.

Quality Specifications

Specifications	OPM-MDBK SFM1 DPM
Appearance	Off -white or light yellow powder
pH	7.0~7.5
Osmolality (mOsm/kg)	280~310
Solubility	Good by following the reconstitution instructions
Endotoxin (EU/mL)	<1.0

Cell Culture Conditions

37°C, 5%CO₂

Cell Recovery

1. Rapidly thaw (<2 min) a vial of frozen cells in a 37 °C water bath.
2. Transfer the entire contents aseptically into a 125 mL shake flask containing 30 mL prewarmed OPM-MDBK SFM1 cell culture medium.
3. Incubate at 37 °C in a humidified atmosphere of 5%~8% CO₂ in air on a shaker (rotating at 110~130 rpm (amplitude: 50mm).
4. Passage the cells for at least twice until fully recovery. Proceed according normal procedure after the Population Doubling Time stays stable.

Cell Culture Passaging

1. Prewarm OPM-MDBK SFM1 cell culture medium at 37 °C for 20~30min.
2. Proceed if VCD $\geq 1 \times 10^6$ /mL & viability $\geq 90\%$. Cultures should be passaged during the mid-log phase.
3. Determine the correct volume of cell culture to inoculate a new flask at a starting cell density of 0.5×10^6 cells/mL in prewarmed OPM-MDBK SFM1 cell culture medium
4. Incubate flasks in a humidified 37 °C incubator with 5%-8% CO₂ on an orbital shaker at 110~150rpm (amplitude: 50mm).
5. Passage cells by repeating the above steps every 2~3 days.

Medium Adaptation

Direct Medium Adaptation

1. Cell lines may be adapted directly from serum-free media into OPM-MDBK SFM1 cell culture medium. The seeding cell density can be referred to the passaging instructions or should be determined individually.
2. Cells should be passaged for a few times.
3. Adaptation is completed when the cultures attain stable VCD of 2×10^6 /mL and viability $\geq 90\%$ within 3~4 days over at least 2~3 passages.

Sequential Medium Adaptation

1. For certain cell lines cultured in serum-free media, or in presence of 5~10% serum, sequential adaptation method is recommended.
2. Monitor the cell growth until the cell density has reached $\geq 2 \times 10^6$ cells/mL.
3. Dilute the cells with a ratio of 25:75 (OPM-MDBK SFM1 vs current medium), and then further dilute the culture until the cells grow well under this condition. Increase the proportion of OPM-MDBK SFM1 in each subsequent operation, as is shown in the table.
4. Adaptation is completed when the cultures in 100% OPM-MDBK SFM1 Cell culture medium attain stable VCD of 2×10^6 /mL and viability $\geq 85\%$ within 3~4 days over at least 2~3 passages.

OPM-MDBK SFM1: current medium (%)	Seeding density ($\times 10^5$ cells/mL)	Evaluation of cell growth	Acceptance criteria for next step
25 : 75	3 ~ 4	VCD & Viability	VCD $\geq 2 \times 10^6$ /mL, Viability $\geq 90\%$ over 2 passages
50 : 50	3 ~ 4	VCD & Viability	VCD $\geq 2 \times 10^6$ /mL, Viability $\geq 90\%$ over 2 passages
75 : 25	3 ~ 4	VCD & Viability	VCD $\geq 2 \times 10^6$ /mL, Viability $\geq 90\%$ over 2 passages
90 : 10	3 ~ 4	VCD & Viability	VCD $\geq 2 \times 10^6$ /mL, Viability $\geq 90\%$ over 2 passages
100 : 0	3 ~ 4	VCD & Viability	VCD $\geq 2 \times 10^6$ /mL, Viability $\geq 90\%$ over 2 passages

Cryopreservation

1. Harvest the desired quantity of cells in mid-log phase of growth with viability over 90%.
2. Determine VCD to ensure that the final cell density is $> 1 \times 10^7$ /ml.
3. Prepare the freezing medium consisting of 90% OPM-MDBK SFM1 Cell culture medium and 10% dimethyl sulfoxide (DMSO). Let the freezing medium cool down to 4°C.
4. Harvest cells by centrifugation at 400xg for 5 minutes. Remove the supernatant and resuspend the cell pellet with the cold freezing medium at $> 1 \times 10^7$ /ml.
5. Transfer the suspension to sterile cryo-vials.
6. Place the vials in a cryo-box or a controlled rate freezing apparatus following standard procedures (1°C decrease per minute).
7. For long-term storage, transfer the vials to liquid nitrogen.

Order Information

Cell Culture Media

Name	Cat No.	Type	Volume
OPM-MDBK SFM1 Medium	V002101-001	Liquid	1000ml
OPM-MDBK SFM1 DPM	V002201-050	Dry powder	50L
	V002201-100	Dry powder	100L

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