Seplife® LX-MC-Dex1

1. Description

Seplife® LX-MC-Dex1 is a microbead carrier independently developed by Sunresin suitable for adherent cell culture. It uses Seplife® G50 (Seplife® DX50) a highly hydrophilic dextran matrix and the surface is covered with positively charged diethylaminoethyl (DEAE) groups.

Seplife® LX-MC-Dex1 has the following properties:

- Density close to water making it easily suspended in cell culture media
- Diethylaminoethyl surface groups for easy cell anchorage and proliferation
- Mechanically stable in the harvest conditions
- Easy cell dissociation from resin beads by enzymatic means
- Controlled chemical and microbiological impurities
- Can be sterilized by autoclave.

Seplife® LX-MC-Dex1 is currently the most widely used type of microcarrier (used for growing more than 60 cell types); the main applications are in the production of vaccines and proteins.

2. Properties

Product	Seplife® LX-MC-Dex1
Appearance	White spherical beads
Type	Microcarrier for cell culture
Matrix	Dextran
Ligand	Diethylaminoethyl
Ion exchange capacity (mmol/g dry)	1.40-1.60
Buoyancy density* (g/ml)	<1.045
Particle size (μm)	
Dry beads: 60-87μm	>70%
Wet beads*: 145-240μm	>95%
Swelling in saline solution (ml/g dry)	17-22
Weight loss on drying (%)	<10
Microbial contamination (CFU/g)	<100
Effective culture area* (cm^2/g)	4400
Shipped as	Dry powder

* in saline solution (0.9% NaCl in water)

3. Instructions

Guidelines of the instructions for use are presented below. The user should perform process optimization at all stages in the Seplife® LX-MC-Dex1 usage.

3.1 Microcarrier pretreatment

Rehydrate the dried microcarriers (3-5g microcarrier/L culture volume is recommended) with Ca^{2+} and Mg^{2+} free phosphate saline buffer, pH=7.4 (at least 80ml/g microcarriers) at room temperature for at least 3 hours.

Discard the supernatant and rinse the microcarriers with freshly prepared Ca^{2+} and Mg^{2+} free phosphate buffer, pH=7.4 for 2-3 times.

Sterilize the microcarrier solution by autoclaving (121°C, 30min, 15psi).

The microcarrier Seplife® LX-MC-Dex1 is very stable and can be autoclaved repeatedly (at least 5 times) or for a long time (130°C, 12h, 27psi) without impact on its performance.

After sterilization, discard the supernatant and rinse the beads with culture medium for 2-3 times. Pretreatment with complete culture medium can be done if needed.

3.2 Microcarrier culture

Add the digested cells into prepared microcarrier culture system and start culturing under controlled conditions.

Observe the cell attachment after 3-8 hours. If the cells are well attached, continue culturing and monitor the growth of the cells.

3.3 Key points of microcarrier culture operation

- Attach period: ensure that the culture medium and microcarrier are at a stable pH and temperature level. Small initial culture volume such as 1/3 of the final volume should be applied to improve the attachment of the cells on the surface of microcarriers. Higher microcarrier concentrations could be used as well, which requires highly-controlled culture system or more frequent culture medium exchange. Lower stirring speed or interval stirring is preferred during this period for better attachment.

After attachment (3-8h), slowly add the culture medium to the final culture volume, and increase the stirring speed to ensure proper and homogeneous mixing.

- Culture period: Cell counts and morphology microscopy are usually used to evaluate the culture

performance. As the cells proliferate, the beads become heavier and the stirring speed might need to be increased. During the culture process, parameters such as pH, temperature, dissolved oxygen, should be monitored to keep the culture under optimized condition. Usually, phenol red is used as an indicator for lab scale culture for medium exchange, pH adjustment or/and nutrients supplement.

- Cell harvest: Discard the culture medium and rinse with Ca^{2+} and Mg^{2+} free phosphate saline buffer, pH=7.4 sterile at least once. Add dissociation enzyme such as trypsin to detach the cells from the surface of microcarriers, then use serum or other reagent to terminate digestion. Use suitable cell strainer to separate cells from microcarrier beads. If the molecule of interest is secreted by cells in the medium or the virus of interest is released from cells, a proper filtration should be applied to separate microcarriers with cells from culture medium.

- Scale-up of microcarrier cell culture: large scale microcarrier cell culture can be achieved from small scale culture step by step through increasing of the culture volume with the same microcarrier concentration.

4. Storage

Store in closed containers at 4-30℃, in a dry, ventilated and clean place, away from direct sunlight.

5. Transportation

Avoid sunlight, rain, and heavy pressure during transportation. It is strictly forbidden to transport with toxic and hazardous materials.

6. Precautions

This product should avoid contact with oxidants.

7. Ordering information

Product Name	References	Pack Size
Seplife® LX-MC-Dex1	D6007310	25g
	D6007311	100g
	D6007312	500g
	D6007313	1kg
	D6007314	2.5kg
	D6007315	5kg

Production date: See label

Service life: 5 years, under proper storage conditions

Manufacturer: Sunresin New Materials Co. Ltd.
Add: No. 135, Jinye Rd, Xi'an Hi-Tech Industrial Development Zone, Shaanxi, 710076, China
www.sunresinlifesciences.com
email: info.lifesciences@sunresin.com

All information set forth herein is for informational purposes only. This information is general descriptive(introductory) information of SUNRESIN and its related products, technologies and services. Neither shall constitute the guarantee of SUNRESIN and its affiliates to products, technologies and services in specific fields and specific application conditions results, unless otherwise expressly noted. SUNRESIN and its affiliates assumes no obligation or liability for the information in this document. Customer is responsible for judging whether the information is appropriate for Customer's concrete demand and are obliged to understand whether the use of these products, technologies and services is permitted by the laws and regulations of their countries and relevant regions. Unless expressly stated, no freedom from infringement of use any patent or trademark or intellectual property rights owned by SUNRESIN or its affiliated companies under this document is to be inferred.