Scapova™

PVA Microcarriers

for large-scale cell culture

For Research Use Only

kuraray

Development Concept of SCAPOVA™

Microcarriers for regenerative medicine research

SCAPOVA™ series are microcarriers produced by Kuraray. They are made from PVA (Polyvinyl Alcohol). SCAPOVA™ can solve the following issues in the manufacturing of cells for regenerative medicine research.

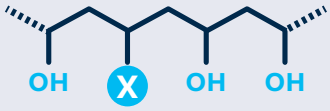
1 Obtain enough number of cells

2 Assure medical-grade safety

SCAPOVA™ Manufacturing Method

1

Polyvinyl Alcohol (PVA)
Resin with high elasticity, solubility and high biocompatibility.



Partially modify the hydroxyl groups

2

3

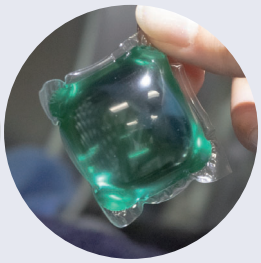
Ink
Solution of new modified PVA.

4

PVA Microcarriers(non-coated)
Micron-sized hydrogel beads are made by cross-linking PVA.

Kuraray's other PVA products

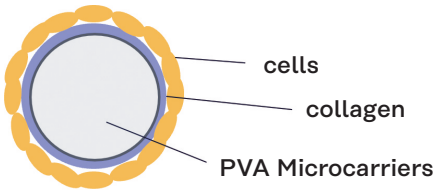
- Polarizing film in LCD
- Water-soluble films for detergent



SCAPOVA™ CL

SCAPOVA™ CL

Clinical grade collagen is coated on the particle surface.
Endotoxin and virus in the collagen have been reduced or inactivated.

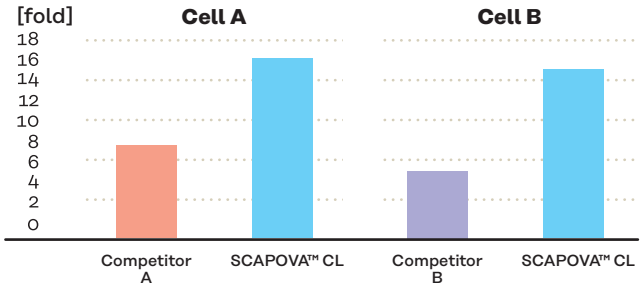


Characteristics of SCAPOVA™ CL

1 High cell proliferation rate

Therapeutic cells, such as MSCs, can easily expand on SCAPOVA™ CL.

Human cells cultured on various microcarriers for 7days.
Each bar shows the fold of the initial cell number.

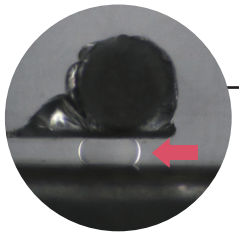


2 Quality management in accordance with medical standards

SCAPOVA™ CL is made from Kuraray's PVA※.
We conduct strict quality management to assure extremely low risk of contamination.

※Polyvinyl Alcohol

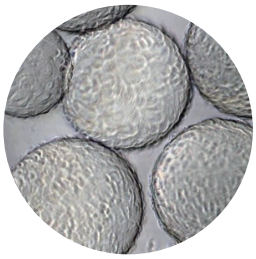
Safety test	Result
Cytotoxicity Genotoxicity Systemic acute toxicity Implantation test	Negative (Tested in accordance with ISO 10993.)
Leachable Extractable	Tested in accordance with BPOG guideline.



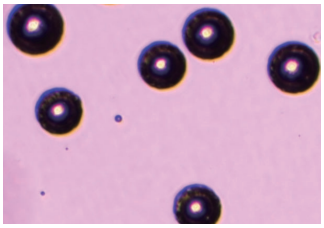
This image shows compression test of SCAPOVA™

3 Ease of handling

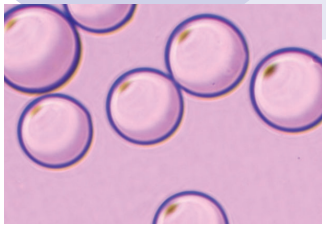
SCAPOVA™ CL is provided "ready to use."
No sterilization or cleaning is required before use.
The beads swell quickly in PBS or culture medium and become highly transparent.
This allows clear cells observation under a phase-contrast microscope.



High transparency makes it easy to observe cells by microscopy



Immediately after SCAPOVA™ CL is added to the culture medium

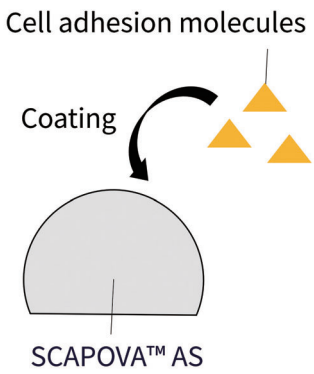


10 seconds after adding culture medium

SCAPOVA™ AS

SCAPOVA™ AS

The particle surface is specially treated and activated.
By activation, any cell adhesion molecules can be coated.



Characteristic of SCAOVA™ AS

1 Suitable for various cell culture

A wide variety of cells can be cultured by coating with optimal cell-adhesion molecules.

Coating materials tested
Vitronectin / Fibronectin / Laminin / iMatrix-511 / Synthemax®II / Poly-L-lysine / Collagen

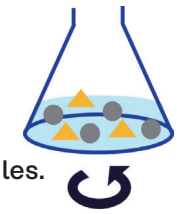
2 Animal Origin Free

SCAPOVA™ AS does not contain any animal-derived materials.
Using recombinant proteins or synthetic peptides, animal-free cell culture can be achieved.

Protocol of coating

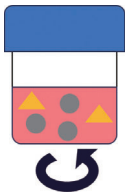
SCAPOVA™ AS needs coating of cell-adhesion molecules before use.
There are two coating methods.

Method A



1. Prepare coating solution including cell adhesion molecules.
2. Add coating solution directly to SCAPOVA™ AS in dry condition.
3. Gently mix the dispersion of SCAPOVA™ AS and then wash with PBS.

Method B



1. Add culture medium and coating material solution into bioreactor.
2. Add SCAPOVA™ AS into the medium with coating material and mix them.

After coating, the culture procedure is the same as usual. Please contact us for detailed protocols.

Product information of SCAPOVA™

Product outline

	SCAPOVA™ CL	SCAPOVA™ AS
Particle size (D50)	220 μm	160 μm
Surface	Collagen coated	Activated treatment
Swelling factor (in PBS)	10	5
The surface area [/g dry weight]	2,600 ㎠	1,900 ㎠
Sterilization	Gamma irradiation	Gamma irradiation

Approximately 10 uses per 1g for 30 mL culture.

※The actual Particle size and Surface area will be documented in the Result of Analysis.

※SCAPOVA™ is available for research use only. Please contact us for clinical use.

Various cells cultured with SCAPOVA

SCAPOVA™ CL

- hMSC
- human fibroblasts
- VERO cells
- Bovine myoblasts

SCAPOVA™ AS

- hMSC
- hiPS cells

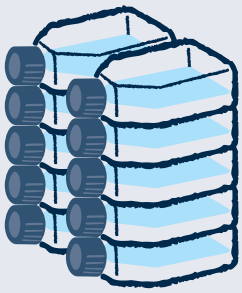
Please contact us for detailed protocols and application notes.

About Microcarriers

Microcarriers are micron-sized beads used as scaffolds for cell culture. Cells attach to the bead surface and proliferate on it.

Cell culture using flasks

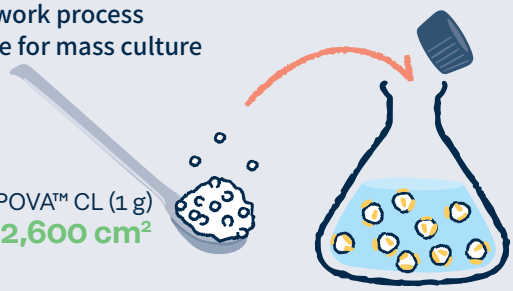
- Large space requirements
- High labor demand
- Unsuitable for mass culture



e.g. T175 flasks (10 flasks)
about 1,750 cm²

Cell culture using microcarriers

- Space-saving
- Fewer work process
- Suitable for mass culture



e.g. SCAPOVA™ CL (1 g)
about 2,600 cm²

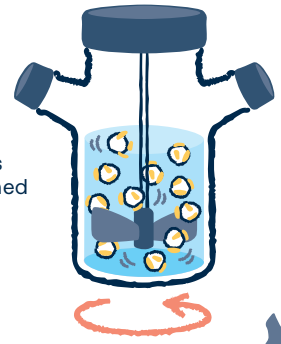
How to use SCAPOVA™

1 Input

Weigh SCAPOVA™ and put them into culture medium. Any containers, such as flasks and bioreactors, can be used.

2 Cell seeding

Seed cells and leave it for 24 hours (agitate at determined speed). After that, Agitate at optimal speed.

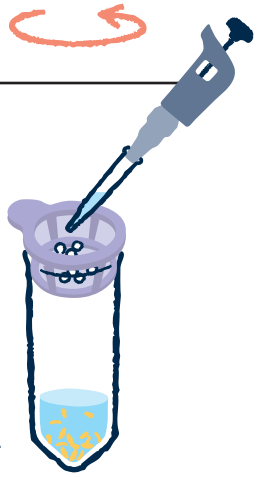


3 Medium exchange

After stopping agitation, SCAPOVA™ settle down within a few minutes. Change half of the medium every 3 or 4 days.

4 Cell harvesting

Detach cells from SCAPOVA™ with Trypsin/EDTA solution. Separate cells and SCAPOVA™ by cell strainer.



Application notes are available. Please contact below.

Contact us

KURARAY CO., LTD. Life Innovation Business Promotion Division, Functional Materials Company

Contact.LIPG@kuraray.com https://www.kuraray.co.jp/microcarriers/

kuraray