Scapova™

PVA Microcarriers for cell mass culture

kuraray

Development Concept of SCAPOVA™

Microcarriers for regenerative medicine

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

1

Obtain enough number of cells

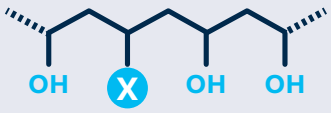
2

Assure medical-grade safety

Manufacturing Method of SCAPOVA™

1

Polyvinyl Alcohol (PVA)
It is resin with high elasticity and solubility.
It also have high biocompatibility.



Partially modify the hydroxyl groups

2

3

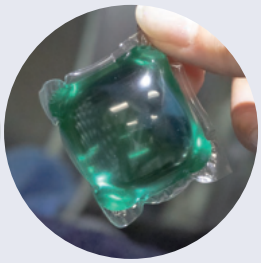
Ink
Solution of new modified PVA.

4

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

Kuraray's other PVA products

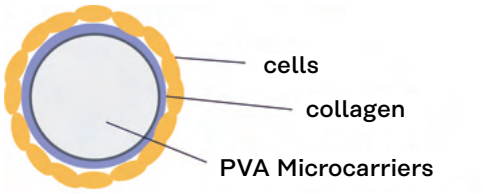
- Polarizing film in LCD
- Water-soluble films for detergent



SCAPOVA™ CL

SCAPOVA™ CL

**Clinically usable collagen is coated on the particle surface.
Endotoxin and virus in the collagen have been reduced or inactivated.**

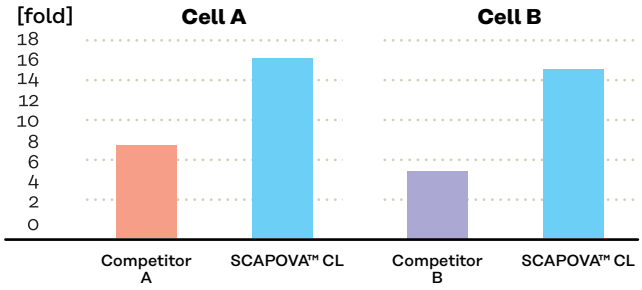


Characteristics of SCAPOVA™ CL

1 High cell proliferation rate

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

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

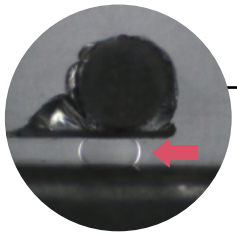


2 Quality management in accordance with medical standards

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

※Polyvinyl Alcohol

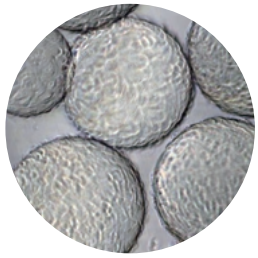
Safety test	Result
Cytotoxicity Genotoxicity Systemic acute toxicity Implantation test	Negative (Tested in accordance with ISO 10993.)
Leachable Extractable	Tested in accordance with BPOG guideline.



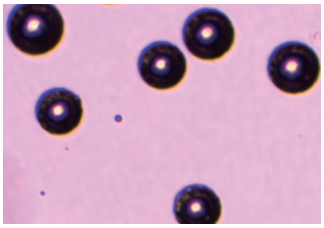
This image shows compression test of SCAPOVA™

3 Ease of handling

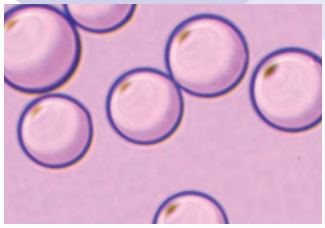
SCAPOVA™ CL is "Ready to use."
No need for sterilization and cleaning before using.
It swells quickly in PBS or culture medium.
Swollen particles are highly transparent.
Therefore, cells can be easily observed
with a phase contrast microscope.



High transparency makes it easy
to observe cells by microscopy



Immediately after SCAPOVA™ CL
is added to the culture medium

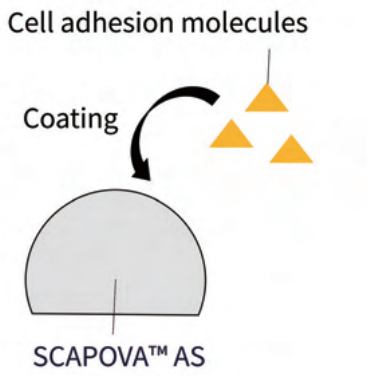


10 seconds after adding culture medium

SCAPOVA™ AS

SCAPOVA™ AS

The particle surface is specially processed 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 optimal cell adhesion molecules for target cells.

Coating experience
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.

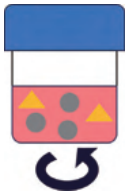
Protocol of coating

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

Method A

1. Prepare the coating material solutions, such as cell adhesive proteins.
2. Add coating material solutions directly to SCAPOVA™ AS in dry condition.
3. Gently mix SCAPOVA™ AS dispersion 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 detail protocol.

Product information of SCAPOVA™

		SCAPOVA™ CL	SCAPOVA™ AS
Outline date	Particle size(D50)	200-250 μm	120-200 μm
	Surface	Collagen coated	Activated treatment
	Swelling factor (in PBS)	10	5
	The surface area [/g dry weight]	2,600 ㎠	1,900 ㎠
	Recommended amount [/ℓ for MSC]	1.54 g	2.11 g
	Sterilization	Gamma irradiation	Gamma irradiation

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

	Product name	Quantity	Price	Product code
Quantity & Price	SCAPOVA™ CL	1 g	Contact us	M11018SAC1-01GB
		5 g		M11018SAC1-05GB
		10 g		M11018SAC1-10GB
	SCAPOVA™ AS	1 g		M11018PF00-01GB
		5 g		M11018PF00-05GB
		10 g		M11018PF00-10GB

Culturing experience

SCAPOVA™ CL
- hMSC
- human fibroblasts
- VERO cells
- Bovine myoblasts

SCAPOVA™ AS
- hMSC
- hiPS cells

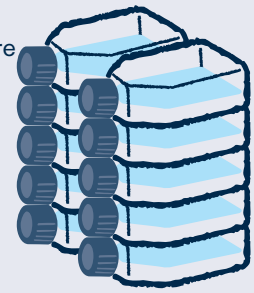
Please contact us for the protocol and application notes.

What is a microcarrier?

Microcarrier is micron-sized bead for cell culture scaffold.
Cells attached to the bead surface and proliferate on the bead.

Cell culture using flasks

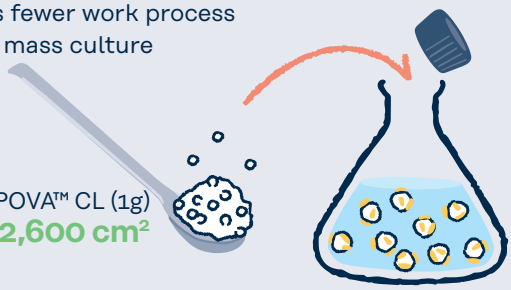
- Many flask take a lot of space.
- It takes lot of labor
- It doesn't suit for mass culture



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

Cell culture using microcarriers

- It saves space
- It takes fewer work process
- It suits mass culture



e.g. SCAPOVA™ CL (1g)
about 2,600 cm²

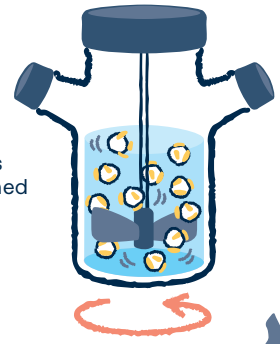
How to use SCAPOVA™

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 suitable speed.

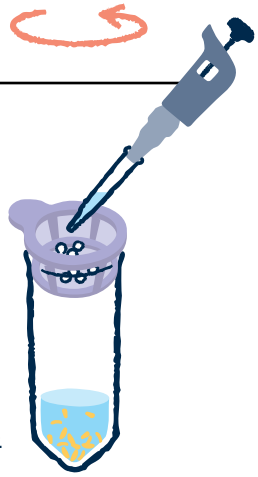


3 Medium exchange

After stopping agitation, SCAPOVA™ settle down within 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.



We heve application notes with details on how to use the microcarriers.

Contact us

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

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