CellScrew® 10k

Product Description

The CellScrew® 10k is a novel single-use cell culture device with a growth area of 10,000 cm², which Can easily be used in any standard bottle or tube roller. The CellScrew®s surface is suitable for the cultivation of -adherent cell lines, including demanding cell lines such as. HEK-293 or MSCs. The CellScrew® is manufactured in an additive manufacturing process and is made from plant-derived PLA plastic. Using this renewable polymer reduces its carbon footprint ~90 % when compared to standard single-use cell culture dishes, especially multi-stack systems. Key data is provided below.

Dimensions

Dimensions	Unit	Value
Height	mm	283.88
Diameter	mm	228.43
Cylinder Height	mm	120
Konus Height	mm	32
Konus Angle	°	34.78
Cap Diameter	mm	39
Cap Height	mm	24

Specifications

Product Code:	LSGCS10K
Description:	Green Elephant Biotech GmbH CellScrew® 10k GEB-CS-10k: TC treated surface, with filter cap
Packaging dimensions:	130 mm x 130 mm x 300 mm
Weight:	600 g
Theoretical total volume:	2193 mL
Working volume:	800 – 1,000 mL
Growth area:	10,313 cm²
Material:	Polylactic acid
Colour:	Translucent
Sterilization method:	Gamma irradiation
Operating temperature:	2 °C to 45 °C
Storage:	Room temperature

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Centrifugability:	No
Autoclavability:	No
Recommended rotating speed:	0.5 – 2 rpm
Mixing time:	< 27 min (@0.5 rpm)
kLa - value:	1.95 h-1 (@0.5 rpm)
Shelf life:	12 months
Packing unit:	1 CellScrew®, 1 bag of 1 piece

Instructions for use

Prepare a sufficient seed train several days prior to starting the CellScrew® depending on the desired cell line and its growth rate. We recommend not to use the minimal inoculation density but a slightly higher concentration of cells to achieve a good growth rate and a viable culture. After reaching a confluency of 80 – 95 %, the cells can be processed and used to inoculate the CellScrew®.

Cell Line	Inoculation Density	Expected Max Cell Density	Doubling Time
293	80,000 – 120,000 cells* cm^{-2}	~ 250,000 cells*cm^{-2}	24 – 30h
HeLa	12,500 – 25,000 cells* cm^{-2}	55,000 – 85,000 cells*cm^{-2}	40 – 48h
L-929	25,000 – 37,500 cells* cm^{-2}	~187,500 cells*cm^{-2}	20 – 24h
Vero-B4	6,250 – 12,500 cells* cm^{-2}	~ 250,000 cells*cm^{-2}	25h

Table 1: Characteristics of popular cell lines according to DSMZ (Leibniz Institut: Deutsche Sammlung von Mikroorganismen und Zellkulturen).

- Prepare 800 - 1,000 mL of growth medium and prewarm it, until it reaches the desired temperature.
- Take the seed train bottles out of the incubator and check for contaminations, the right morphology and the confluence using a microscope.
  Detach the confluent and exponential growing cells from the seed train bottles, wash them, and suspend them in fresh medium.
- Add the concentrated cell suspension to the prepared volume of growth medium to adjust the correct cell density of the inoculum.
- Transfer the inoculum into the CellScrew® by pouring the cell suspension from the bottle.
- Hold the CellScrew® at an angle and rotate it clockwise to distribute the cell suspension equally inside the inner structure.
- Remove the CellScrew® from the aseptic working bench.
- Hold the angle during transport to prevent the liquid to flow back to the bottom of the CellScrew®. Place the CellScrew® into a roller device located in an incubator with the desired temperature, humidity, and atmosphere.

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- Set the roller device to a rotation speed between 0.5 – 2 rpm. Close the incubator and start cell expansion.
- Depending on the cell line and inoculation density, the CellScrew® is ready for harvest after 3-7 days.
- Take the CellScrew® out of the incubator and place it upright in an aseptic working bench.
- Discard the spent medium using an aspiration pipette and/or a 50 mL serological pipette.
- Pour phosphate buffered saline (PBS) into the CellScrew®, hold it at an angle and turn the CellScrew®
  clockwise to wash the surface area and the cells attached to it.
- Discard the PBS using an aspiration pipette and/or a 50 mL serological pipette. Add Trypsine or a detachment agent of your choice to the CellScrew®.
- Hold it at an angle and turn the CellScrew® clockwise to distribute the detachment agent.
- Hold the angle during transport to prevent the liquid to flow back to the bottom of the CellScrew®. Place the CellScrew® into a roller device located in an incubator with the desired temperature, humidity, and atmosphere.
- Set the roller device to a rotation speed between 0.5 – 2 rpm. Close the incubator and incubate for the desired detachment time depending on the detachment agent and the cell line.
- Take the CellScrew® out of the incubator and place it upright in an aseptic working bench.
- Add FBS containing growth medium or a similar inhibitor to the detachment agent. Hold the CellScrew® at an angle and rotate it clockwise 10 – 15 times to rinse off still lightly attached cells. Bring the CellScrew® to an upright position and let the cell suspension flow to the bottom of the CellScrew®.
- Harvest the cell suspension with a 50 mL serological pipette and transfer it into a harvest bottle for further use.

Support

Life Science Production is a division of Life Science Group Ltd.
Life Science Production is ISIA Traceability Certified
Life Science Group Ltd is an ISO 9001:2015 Certified company

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