

SOP: Propagation of small airway epithelial cells (SAEC, Lonza Biosciences)
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Ordering Information

Small airway epithelial cells (SAEC) may be ordered either as frozen ampoules or as starter cultures. The former contain $\sim 0.5-1 \times 10^5$ cells; the latter are initiated at Lonza and sent in a T225 flask containing $\sim 6-7 \times 10^6$ cells.

To order frozen ampoules + media:

Name: SAEC – Small Airway Epithelial Cell
Item #: CC-2547 (SAEC - Cryopreserved ampule)
CC-4175 (SAGM® BulletKit = CC-3119 + CC-4124)

To order starter cultures:

Name: SAEC – Small Airway Epithelial Cell
Item #: CC2547T225 (SAEC in SAGM® T225 Flask)
CC-4175 (SAGM® BulletKit = CC-3119 + CC-4124)

Notes:

The number of BulletKits purchased depends on the target number of cells to be generated. A rule of thumb is 10 BulletKits for every initial T225 flask of cells. It is strongly recommended to purchase all of the media that will be required for a complete expansion series, since media supply may be erratic.

Materials List

1. Cell-type specific medium (BulletKits – Lonza Biosciences)
2. T225 culture flasks
3. Graduated pipets (1, 5, 25mL)
4. Pen-strep solution (if required; Lonza typically supplies antibiotics)
5. Hemocytometer
6. Micropipet w/ P20 tips
7. Microscope

Procedure

A. Receipt of proliferating cells

- 1) Swab down flask with 70% ethanol.
- 2) Equilibrate for 3-4 hours in 37°C, 5% CO₂ humidified incubator.
- 3) Remove shipping medium. Replace with fresh medium and return to incubator.

B. Sub-culture

- 1) Propagate cells until density reaches 60-80% confluence.
- 2) Decant medium.
- 3) Wash cells with warm 1X PBS.
- 4) Add 10mLs of Trypsin and return to incubator for 10-15 minutes.
- 5) Immediately remove cells and pellet at 500 xg for 5 minutes (4°C)
- 6) Wash cells 2X with 1X PBS.
- 7) Gently re-suspend cell pellet in warm medium.
- 8) Count cells with hemocytometer.
- 9) Add warmed medium to flasks.
- 10) Seed flasks at **2,500 cells/cm²**
- 11) Record each subculture event as a passage

C. Maintenance

- 1) Change media the day after seeding and every OTHER day thereafter.
- 2) Increase media volume as confluency increases (volumes assume the use of
- 3) T225 flasks):
 - a. 25 % = 1mL/5 cm²
 - b. 25-45% = 1.5mL/ 5 cm²
 - c. 45%+ = 2mL/ 5 cm².
- 4) Per the above an exemplary schedule might be:
 - a. day 1, plate into T225: use 50 mls of media.
 - b. day 2, change media, use 50 mls of media
 - c. day 4, change media, use 100 mls of media (if confluency is >50%)
 - d. day 6, change media, use 100 mls of media (or harvest if ready)
 - e. day 7 or 8 (harvest when cells reach 6×10^6 cells/flask)

D. Harvest

- 1) Pass cells 3-4 times until the desired cell number is achieved (primary cells will senesce after 4-5 passages).
- 2) Remove cells from flasks according to protocol described above under 'subculturing'
- 3) Examine viability using trypan blue staining (SOP TP-7)