# Ľudské bunky hladkého svalstva priedušiek (HBSMC)

300708

## VŠEOBECNÉ INFORMÁCIE

### Popis

Primary Human Bronchial Smooth Muscle Cells (HBSMC) are isolated from the bronchi. They are used to study airway remodeling, contractility and inflammatory signaling in asthma.
Airway smooth muscle cells are contractile and also immunomodulatory: in response to IL-13 they proliferate, migrate and produce periostin, and they release IL-6 and IL-8 upon immune stimulation. These responses link inflammation to the structural airway remodeling seen in asthma.

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| **Tkanivo** | Lung (bronchus) |
| **Choroba** | Normal bronchial smooth muscle (non-tumorigenic; primary cells) |
| **Miesto metastáz** | Not applicable (normal primary cells, not a tumor sample) |

### Aplikácie

Asthma: chemokine receptors, wound repair and calcium signaling (asthmatic and healthy donors); IL-13-induced periostin production in Th2-driven airway inflammation; IL-13-driven proliferation and migration, store-operated calcium entry (Orai1); Immunoglobulin A-induced IL-6/IL-8 release and phenotype switching; Airway remodeling and smooth muscle dysfunction as a therapeutic target

### Synonymá

- HBSMC
- Human bronchial smooth muscle cells
- provitro 1210632

## DARCA

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| **Vek darcu** | Lot-specific (see CoA) |
| **Etnická príslušnosť** | Lot-specific (see CoA) |

## KLASIFIKÁCIA

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| **Organizmus** | Človek |
| **Sex** | Špecifické pre danú šaržu |
| **Rastové vlastnosti** | Prívrženec |
| **Stav GMO** | Bez GMO |

### Podrobnosti o štatúte GMO

No genetic modification; primary human cells. Handle as potentially biohazardous material from human origin despite negative viral testing (HIV-1, HBV, HCV).

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| **Úroveň biologickej bezpečnosti** | 1 |

## CHARAKTERISTIKY

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| **Morfológia** | Spindle-shaped (smooth muscle) |
| **Typ bunky** | Primary smooth muscle cells |

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| **Tumorigenický** | No |
| **Doba zdvojnásobenia** | approx. 36 to 48 hours (under standard culture conditions) |

## MANIPULÁCIA A KULTIVÁCIA

### Kultivačné médium

Smooth Muscle Cell Growth Medium kit (Cytion article number 850075); Smooth Muscle Cell Growth Medium mix (Cytion article number 850074)

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| **Inkubačná atmosféra** | 37°C, 5% $CO_2$, saturated humidity. |

### Doplnky stravy

Smooth Muscle Cell Growth Supplement (ScienceCell catalog #1152) and 2% FBS included in SMCM. Alternatively, DMEM supplemented with 10% FBS, 2 mM L-glutamine, and 0.12 IU/mL insulin has been used in published studies.

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| **Disociačné činidlo** | Subculture reagents as recommended on the certificate of analysis |

### Rozmnožovanie kultúr

Subculture the cells at about 75 % confluence. Denser cultures undergo irreversible contact inhibition and stop proliferating. Use the subculture reagents recommended on the certificate of analysis.

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| **Pomer rozdelenia** | 1 to 3 |
| **Hustota výsevu** | More than 4,000 cells/cm² |
| **Obnova kvapaliny** | 24 hours after seeding, then every 48 to 72 hours |
| **Zotavenie po rozmrazení** | Post-thaw viability ≥ 70 % viable cells. More than 80 % confluence within the expected recovery period. |

### Rozmrazovanie a kultivácia

Thaw the cryovial quickly in a 37 °C water bath, swirling gently. Just before the last ice has melted, move the vial to a laminar flow hood and decontaminate its outer surface.
Transfer the cell suspension into a 15 ml centrifuge tube, add 10 ml of Smooth Muscle Cell Growth Medium and centrifuge at 250 × g for 5 minutes.
Remove the supernatant and resuspend the cell pellet in 10 ml of Smooth Muscle Cell Growth Medium. Check cell number and viability.
Divide the suspension between two 25 cm² culture flasks (5 ml each). Using two flasks reduces the risk of losing all cells if a passage fails.
Incubate at 37 °C, 5 % $CO_2$ and saturated humidity, with the screw caps opened by half a turn for gas exchange.
Change the medium after 24 hours to remove unattached cells, then every 48 to 72 hours, using pre-warmed medium only.
Subculture the cells at about 75 % confluence. Denser cultures undergo irreversible contact inhibition and stop proliferating. Use the subculture reagents recommended on the certificate of analysis.
Recommended seeding density: more than 4,000 cells/cm².

## KONTROLA KVALITY A KRYOKONZERVÁCIA

### Sterilita

Mycoplasma contamination is excluded by PCR.
To ensure there is no bacterial, fungal or yeast contamination, cultures are subjected to visual inspection.

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| **Mrazové médium** | As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability. |

### Podmienky skladovania

For long-term preservation, store vials in liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable for up to one week only.

### Dopravné podmienky

Cryopreserved primary cells are shipped on dry ice. On receipt, check the cryovial for damage and transfer it without delay to appropriate storage.

## PREJAV A NÁCHYLNOSŤ

**Povrchové antigény**

α-smooth muscle actin (α-SMA) +; Desmin +

**Expresia proteínov**

Smooth muscle α-actin; Desmin; Smooth muscle myosin heavy chain; Calponin; SM22; h-Caldesmon

**Vírusy**

Confirmed negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi (ScienceCell QC testing)

## IDENTIFIKÁTORY

**Citácia**

Human bronchial smooth muscle cells (HBSMC) (Cytion catalog number 300708)

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| **Daňové identifikačné číslo NCBI** | 9606 |
| **Cellosaurus** | Not assigned (primary cells; individual donor; no Cellosaurus entry for primary HBSMC) |

## PRÁVNE INFORMÁCIE A BEZPEČNOSŤ

**Bezpečnostné opatrenia**

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments. Primary cells are of human origin, and no known test procedure can ensure the complete absence of infectious agents. Handle all products as potentially infectious.

**Záruka**

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

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| **Je potrebná dohoda o prenose materiálu** | Yes |