# Glatte Muskelzellen des menschlichen Urothels (HUSMC)

300707

## ALLGEMEINE INFORMATIONEN

### Beschreibung

Primary Human Bladder Smooth Muscle Cells (HBdSMC) are isolated from the smooth muscle layer of the urinary tract. They are used to study the response of the bladder wall to mechanical stretch and as a building block for engineered bladder tissue.
HBdSMC respond to cyclic stretch and hydrostatic pressure that mimic bladder filling with increased proliferation and altered contractility, involving muscarinic receptor signaling. This makes them a model for detrusor remodeling in bladder outlet obstruction and for conditioning cells in bladder tissue engineering.

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| **Gewebe** | Bladder |
| **Krankheit** | Normal bladder smooth muscle / detrusor (primary cells; non-tumorigenic) |
| **Metastasenherd** | Not applicable (normal, non-tumorigenic primary cell) |

### Anwendungen

Cyclic stretch of the bladder wall, muscarinic receptors and proliferation; Hydrostatic pressure in bladder outlet obstruction: proliferation and contractility; Hypoxia and oxidative stress in bladder ischemia; Rac1 signaling as a target in overactive bladder; Bladder tissue engineering with urothelial and smooth muscle cells

### Synonyme

- HBdSMC
- HUSMC
- Human urothelial smooth muscle cells
- provitro 1210631

## SPENDER

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| **Alter des Spenders** | Lot-specific (see CoA) |
| **Ethnische Zugehörigkeit** | Lot-specific (see CoA) |

## KLASSIFIZIERUNG

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| **Organismus** | Mensch |
| **Sex** | Los-spezifisch |
| **Wachstumseigenschaften** | Anhänger |
| **GVO-Status** | Ohne Gentechnik |

### Angaben zum GVO-Status

No genetic modification; primary human bladder smooth muscle cells. Not transformed or immortalized. Confirmed negative for mycoplasma, bacteria, yeast, HIV-1, HBV, HCV.

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| **Biologische Sicherheitsstufe** | 1 |

## MERKMALE

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| **Morphologie** | Spindle-shaped (smooth muscle) |

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| **Zelltyp** | Primary smooth muscle cells |
| **Tumorauslösend** | No |
| **Verdopplungszeit** | approx. 18 to 36 hours (lot-specific; AcceGen equivalent: ~13 population doublings guaranteed) |

## HANDHABUNG UND KULTUR

### Nährmedium

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

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

### Nahrungsergänzungsmittel

Supplement per AcceGen medium kit instructions. Standard SMC growth medium contains FBS (5–10%), EGF, FGF, and insulin as major components. Refer to product-specific CoA.

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| **Dissoziationsreagenz** | Subculture reagents as recommended on the certificate of analysis |

### Subkultivierung

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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| **Split-Verhältnis** | 1 to 3 |
| **Aussaatdichte** | More than 4,000 cells/cm² |
| **Flüssigkeitswechsel** | 24 hours after seeding, then every 48 to 72 hours |
| **Erholung nach dem Auftauen** | Post-thaw viability ≥ 70 % viable cells. More than 80 % confluence within the expected recovery period. |

### Auftauen und Kultivierung

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.

## QUALITÄTSKONTROLLE UND KRYOKONSERVIERUNG

### Sterilität

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

### Lagerbedingungen

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.

### Versandbedingungen

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

## EXPRESSION UND ANFÄLLIGKEIT

### Oberflächenantigene

α-smooth muscle actin (α-SMA) +; Desmin +; Calponin (CNN1) +; SM-MHC (MYH11) + (differentiated); h-caldesmon + (differentiated); γ-smooth muscle actin + (differentiated); Connexin 43 +

### Exprimierte Rezeptoren

Muscarinic acetylcholine receptor M2 (CHRM2) +; Muscarinic receptor M3 (CHRM3) +; PDGFR-β (CD140b); Adrenergic receptors (β1, β3)

### Viren

Free of HIV-1, HBV, HCV (confirmed negative; AcceGen ABC-TC3862 QC)

## BEZEICHNER

### Quellenangabe

Human urothelial smooth muscle cells (HUSMC) (Cytion catalog number 300707)

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| **NCBI-Steuer-ID** | 9606 |
| **Cellosaurus** | Not assigned |

## RECHTLICHES UND SICHERHEIT

### Sicherheitshinweise

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.

### Garantie

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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| **Materialübertragungsvereinbarung erforderlich** | Yes |

## PRODUKTDETAILS

### Zusammensetzungstabelle