Datasheet

PowerStem HE2

Pure grade chemically defined medium for the serum-free cultivation of human embryonic stem cells (hESC)

Product	Description	Catalogue-No.	Size
PowerStem HE2	**Serum-free and chemically defined medium for the cultivation of human embryonic stem cells Kit (Basal Medium + 1 Supplement) for 500 ml**	**ST04-77120K**	**500 ml**

Product description
PowerStem HE2 is a specialized serum-free, chemically defined medium for cultivation and expansion of human embryonic stem cells (hES cells). Pluripotent human embryonic stem cells have the capacity to differentiate into all of the somatic cell types and therefore hold great promise for regenerative medicine. Even after long-term culture, cells maintained on Vitronectin or Matrigel™ retain a normal karyotype and a stable proliferating rate.

Content
PowerStem HE2 medium consists of:
- PowerStem HE2 basal medium (500 ml, Cat. No. ST04-77120B)
- PowerStem HE2 growth supplement (5x 1ml, Cat. No. ST04-77120S), which is added at the time of use.

Storage conditions and stability:
- PowerStem HE2 basal medium: store in the dark at 2-8° C
- PowerStem HE2 growth supplement: store in the dark at -20° C

PowerStem HE2 basal medium and PowerStem HE2 growth supplement are guaranteed stable for 12 months when properly stored. PowerStem HE2 complete medium (basal + supplement) is stable for 1 month when stored in the dark at 2-8° C. We do not recommend using the complete medium beyond 1 month.

Composition
PowerStem HE2 contains purified and recombinant proteins, lipids, salts, amino acids, trace elements, attachment factors, hormones and growth factors in an optimized formulation. PowerStem HE2 is chemically defined and contains no animal-derived components.

Please note: PowerStem HE2 growth supplement contains a high amount of growth factors. To avoid freeze-thaw cycles, the growth supplement is provided as 5x 1ml aliquots.

Suitability
Serum-free cultivation of hES cells, while maintaining an undifferentiated state.

Special Advantages
PowerStem HE2 allows the cultivation and expansion of hES cells under serum-free conditions. It is fully defined in its composition and thus enables constant and comparable experimental conditions resulting in highly reproducible data. The hES cells can be cultivated without primary fibroblast feeder layers, they show a high proliferation rate and largely retain their undifferentiated state. By adding

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specific differentiation factors, hES cells can be differentiated in vitro to the desired cell types (e.g. neurons, muscle cells, endothelial cells, etc.).

Preparation of PowerStem HE2 medium:

PowerStem HE2 basal medium requires supplementation with PowerStem HE2 growth supplement. Thaw PowerStem HE2 growth supplement before use. The thawed material should be used immediately. To obtain 500 ml PowerStem HE2 complete medium please add 5 ml of thawed PowerStem HE2 growth supplement to 500 ml of PowerStem HE2 basal medium. PowerStem HE2 complete medium (basal medium with growth supplement) is stable for 1 month when stored in the dark at 2-8°C. It is recommended to prepare only the amount of medium needed, e.g. 100 ml PowerStem basal medium + 1 ml PowerStem growth supplement.

Instructions for Use

- Prepare Vitronectin-coated plates by covering them with a Vitronectin solution for 2 h at room temperature. Recommended final concentration of Vitronectin: 1-2 µg/cm^2. For single cell cloning, Matrigel™ matrix can be used. The recommended dilution is 1:40. The matrix should be prepared according to the manufacturer's instructions.
- The starter culture must be a high quality culture and there must be a high density of undifferentiated cells.
- The time of subculture is critical. Do not passage the cells too early, they will plate poorly and differentiate. The cultures need to grow to near-confluence.
- Individual colonies should not touch each other.
- Too dense growth promotes the differentiation of cells and thus the loss of pluripotency.
- Use Collagenase for passaging the cells.
- Warm appropriate amount of Collagenase IV solution (10 mg/ml), wash medium (DPBS) and complete medium to 37°C in a water bath.
- Aspirate the medium, wash cells, and add 1 to 2 ml Collagenase to cover the cells.
- Leave for 3 minutes to dislodge cell colonies from substrate. Do not expose longer than 3 minutes. This will cause poor plating and may induce differentiation.
- Add 3 ml of culture medium and gently collect cells with a 5 ml pipette.
- Put into conical tube and centrifuge for 5 min at 300x g at room temperature.
- Re-suspend cells in PowerStem HE2 and plate directly on Vitronectin- or Matrigel™-covered plate.
- The cultures should be fed every day.

Please note:

hES cells grown in culture are exposed to a constant selection pressure of proliferation vs. differentiation.

Technical support

For technical support, questions or remarks please contact your local PAN-Seratech partner or the technical department of PAN-Seratech via email (info@pan-seratech.com) or phone +49-8543-601630.

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