

PowerStem HE1

Special medium for the serum-free cultivation of human embryonic stem cells (hESC)

Product	Description	Catalogue-No.	Size
PowerStem HE1	Serum-free medium for the cultivation of human embryonic stem cells Kit (Basal Medium + 2 Supplements) for 500 ml	ST04-77115K	500 ml

Product description

PowerStem HE1 is a specialized serum-free medium for the cultivation and expansion of human embryonic stem cells (hES cells). It is manufactured under the highest standards and quality is checked continuously and strictly. PowerStem HE1 is made from selected raw materials of the highest quality. The medium contains salts, amino acids, trace elements, hormones, growth factors and enriched human proteins derived from human blood in an optimized formulation. Because of this human blood components precipitates may occur in rare cases despite the addition of heparin after prolonged storage. These precipitates consist in most cases of fibrin. Fibrin appears in medium as larger material (up to 1-2mm) that is visible to the naked eye. The precipitate is often mistaken for microbial contamination. The quality and suitability of the medium in cell culture is thereby in no way limited.

Content

PowerStem HE1 medium consists of:

- PowerStem HE1 basal medium (470 ml, Cat. No. ST04-77150C)
- PowerStem HE1 growth supplement 1 (5 ml, Cat. No. ST04-7715S1), which is added at the time of use.
- PowerStem HE1 growth supplement 2 (25 ml, Cat.No. ST04-7715S2), which is added at the time of use.

Storage conditions and stability:

- PowerStem HE1 basal medium: store in the dark at 2-8° C
- PowerStem HE1 growth supplement 1: store in the dark at -20° C
- PowerStem HE1 growth supplement 2: store in the dark at -20°C

PowerStem HE1 basal medium and PowerStem HE1 growth supplements are guaranteed stable for 1 year when properly stored. PowerStem HE1 complete medium (basal + supplements) 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 HE1 contains purified proteins, lipids, salts, amino acids, trace elements, attachment factors, hormones and growth factors in an optimized formulation. PowerStem HE1 is free of animal-derived components.

Suitability

Serum-free cultivation of human embryonic stem cells (hES cells), while maintaining an undifferentiated state.

Special Advantages

PowerStem HE1 allows the cultivation and expansion of hES cells under serum-free conditions. It provides constant and comparable experimental conditions resulting in highly reproducible data. The hES cells can be cultivated without feeder layers (primary fibroblasts), they show a high proliferation rate and largely retain their undifferentiated state. By adding 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 HE1 medium:

PowerStem HE1 basal medium requires supplementation with PowerStem HE1 growth supplement 1 and PowerStem HE1 growth supplement 2. Thaw PowerStem HE1 growth supplements before use. The thawed material should be used immediately or aliquoted and stored at -20° C. To obtain 500 ml PowerStem HE1 complete medium please add 5 ml of thawed PowerStem HE1 growth supplement 1 and 25 ml PowerStem growth supplement 2 to 470 ml of PowerStem HE1 basal medium.

PowerStem HE1 complete medium (basal medium with growth supplements) is stable for 1 month when stored in the dark at 2-8° C.

Instructions for Use

- Matrigel™ is used with PowerStem HE1. The recommended dilution is 1:40. The matrix should be prepared according to the manufacturer's instructions. Alternatively, Fibronectin-coated plates may be used. Incubate plates with 5 µg/10cm² for at least 30 min in the incubator.
- 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 HE1 and plate directly on Matrigel™- or fibronectin-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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