

## Datasheet

# SERApex NTS Pharma Grade

### Defined Serum Substitute for Suspension Cells

Product	Description	Catalogue-No.	Size
SERApex NTS Pharma Grade	Serum substitute with defined components for non-adherent cells in suspension without animal components	ST04-95080P	50 ml
		ST04-95800P	100 ml
		ST04-95850P	500 ml

#### Product description

SERApex NTS Pharma Grade is a ready-to-use, chemically defined and animal-free serum substitute for the cultivation of suspension cells under serum-free conditions or to significantly reduce the amount of serum in cell culture. It supports the growth of many non-adherent cell types in an optimum manner without any extra handling compared to serum.

#### Storage conditions

Storage: -20°C (in the dark)  
 Stability: 2 years from date of production  
 Size: 50 ml, 100 ml, 500 ml, other sizes on request

#### Composition

SERApex NTS Pharma Grade contains purified proteins, lipids, salts, amino acids, trace elements, and hormones in an optimized formulation and a new 3-dimensional substance release system (3D-SRS). SERApex NTS Pharma Grade contains no growth factors, undefined hydrolysates or peptones and no animal derived components.

#### Suitability

SERApex NTS Pharma Grade is suitable for the cultivation of a variety of non-adherent suspension cells under serum-free culture conditions or to reduce the necessary FBS amount in cell culture.

#### Special advantages

SERApex NTS Pharma Grade is designed to replace or to reduce serum in the cell culture in a very simple manner. In most cases there is no need to change the basal medium. As SERApex Pharma Grade is fully chemically defined and contains no peptones or hydrolysates, lot testing is no more necessary. It also allows high reproducibility and simplified downstream process. SERApex Pharma Grade contains no growth factors and enables defined proliferation and differentiation of stem cells. Characterization studies of growth factors will obtain more reproducible and clearer results. SERApex Pharma Grade is also useful to develop sensitive cell-based *in vitro* tests and coculture procedures. For cell lines which require specific growth factors these should be added in a concentration as previously used.

## Instructions for use

SERApIex NTS Pharma Grade can be stored and used in the same manner as serum.

- Thaw SERApIex at maximum 37 °C. Please avoid repeated freeze-thaw cycles!
- To replace serum: Use the same basal medium and the same concentration of SERApIex as FBS. The performance can be further improved by optimizing the concentration of SERApIex or modifying/changing the basal medium<sup>a</sup> (Table 1)
- To reduce serum concentration: Use the same basal medium and add the same amount of SERApIex as the reduced amount of serum, until the minimal necessary concentration of FBS is found (1 to 2.5 % in most cases). The performance can be further improved by optimizing the the concentration of SERApIex or modifying/changing the basal medium<sup>a</sup> (also see adaptation instruction).
- Recommended inoculation cell density:  $5 \times 10^4 - 10 \times 10^5$  cells/ml<sup>2</sup>.

Depending on the cell type, some differences in morphology or proliferation rate may be observed with varying standard media. Most applications were performed with DMEM and RPMI1640 for suspension cells. Make sure that L-glutamine is present in sufficient quantity. The optimal SERApIex concentration should be determined for each cell line. Tests can be started at a SERApIex concentration of 10%, as with most cells the best results were obtained at this concentration.

Please note that for more demanding cells an adaptation to SERApIex NTS Pharma Grade may be necessary.

## Adaptation instructions for SERApIex NTS Pharma Grade

Precondition for a successful transition are vital cells (trypan blue exclusion staining), which should be harvested in the logarithmic growth phase. If 10% FBS was used in the original protocol,

### Step 1: 7.5 % FBS + 2.5 % SERApIex

- Seed cells at  $5 \times 10^4 - 10 \times 10^5$  cells/ml.
- Observe cells under a microscope, at about 90 % confluence passage the cells for another 2-3 passages.

If normal growth is obtained transfer cells into:

### Step 2: 5 % FBS + 5 % SERApIex

- Seed cells at  $5 \times 10^4 - 10 \times 10^5$  cells/ml.
- Observe cells under a microscope, at about 90 % confluence passage the cells for another 2-3 passages.

If normal growth is obtained transfer cells into:

### Step 3: 2.5 % FBS + 7.5 % SERApIex

- Seed cells at  $5 \times 10^4 - 10 \times 10^5$  cells/ml.
- Observe cells under a microscope, at about 90 % confluence, passage the cells for another 2-3 passages.

If normal growth is obtained transfer cells into:

### Step 4: 1 % FBS + 9 % SERApIex

- Seed cells at  $5 \times 10^4 - 10 \times 10^5$  cells/ml.
- Observe cells under a microscope, at about 90 % confluence, passage the cells for another 2-3 passages.

If normal growth is obtained transfer cells into:

### Step 5: 10 % SERApIex

- Seed cells at  $5 \times 10^4 - 10 \times 10^5$  cells/ml.

Observe cells under a microscope

For some cells an adaptation to serum-free conditions is difficult to reach or even impossible. The following measures may help to facilitate a successful adaptation:

- Reseeding with a higher cell amount (about 2x to 4x of the usual cell density).
- Addition of growth factors (if known, which factors have a positive effect on the relevant cells).
- Change of basal medium. Note: A change of the basal medium to a richer or more complex formulation may be all that is needed to achieve growth in serum-free condition.

### **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](mailto:info@pan-seratech.com)) or phone +49-8543-601630.

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<sup>a</sup> As a basal medium, standard media such as RPMI 1640, DMEM (high or low glucose), DMEM/F12, IMDM etc. can be used. Make sure that L-glutamine is present in sufficient quantity (supplement L-glutamine as needed).