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Technical Note:

Key Factors to Consider When Scaling Up Your Cell Culture

The scale up of adherent cells can be a difficult but critical process in mass cell culture applications. With the advent of multiple layer cell culture formats, many of the problems of the past have been remedied. However, there are still 4 main factors to consider when choosing the format for your cell culture scale up.

Surface Treatment – Are the cells that you are utilizing able to adhere to standard tissue culture treated products, or will they require a special surface? Primary cells, stem cells, and other difficult to culture cell types may require an advanced surface treatment in order to adhere and grow in multiple layer formats. The ideal growth conditions are necessary, especially when culturing cells on a large scale.

Gas Exchange – Before culturing your cells you will want to consider whether you will be using an active or a passive gas exchange system. When performing passive gas exchange it is especially important to consider whether the multi-layer system you are using provides centralized gas support to ensure equalized gas exchange for all cells. For example, if the gas exchange port is located on one side of the plastic ware, it may be difficult to ensure equal gas exchange without utilizing active gassing.

Space – Products that make the best use of your bench top and incubator space are important for increasing your overall cell yield. To capitalize on space and reagent efficiency you will want to ensure that your multi-layer system has a high surface to volume ratio. Additionally, it should be considered whether individual products can be placed next to each other in an incubator without impacting the heat distribution on your cells.

Ease of handling – Most multi-layer devices have options for manual handling or automation. It is important to consider whether the device can manually be picked up and manipulated when the system is full of media and cells. Furthermore, if the system is difficult to manipulate when removing cells, adding cells, trypsinizing, or even doing simple media changes it can monopolize valuable time. Once the cells are added can you be sure that the same amount of media and cells are in each layer?

The new CELLdisc™ from Greiner Bio-One ensures the ideal culture conditions for your cells in an easy to use format.

Scan to see all of the Bioscience products from Greiner Bio-One.

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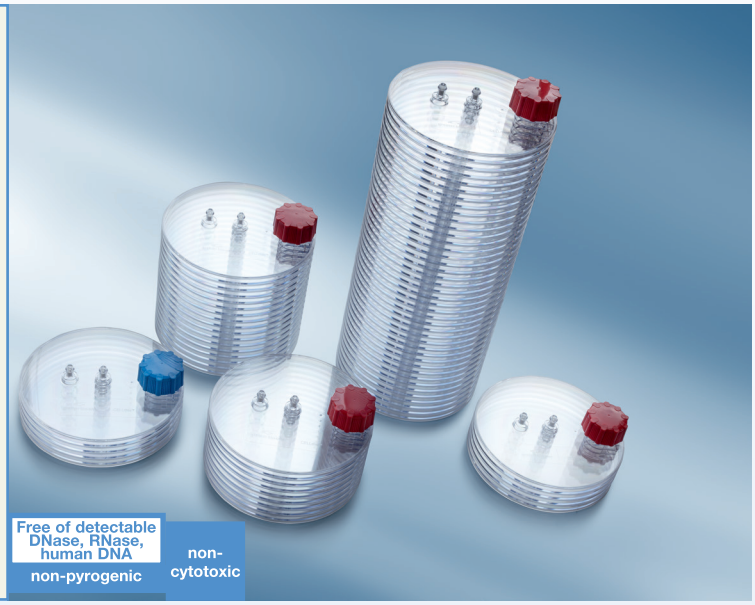
CELLdisc™

Simplify your scale up and mass cell culture

CELLdisc™ is a new multilayer device covering a range of cell culture surfaces from 1,000 cm^2 up to 10,000 cm^2. The innovative ergonomic design provides a versatile system from research scale to industrial batches. In addition, a centrally located channel allows uniform distribution of gas throughout the device. A socle-rim guaranties that the bottom layer of the CELLdisc™ does not touch the surface of the incubator. The compact and robust cylindrical device is ideally suited for automation and upscaling of mass cell culture. For the connection of the individual layers a proprietary, particle free assembly technique is used and the complete end product is USP Class VI certified. Additionally CELLdisc™ is guaranteed to be sterile (SAL 10^{-6}), non-pyrogenic, non-cytotoxic and free of detectable DNase, RNase and human DNA.

Key Facts

- Minimum space required for handling of device
- 40 % higher surface/volume ratio than conventional multilayer systems
- Surface treatment for optimal cell attachment
- Optimal ventilation through central gas support channel
- Gas inlet and outlet equipped with filters
- Easy accessibility due to wide opening port
- Predictable scale up within one format (1,000 cm^2 - 10,000 cm^2)
- Suitable for basic research as well as industrial applications



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