

附件四、技術說明表



預測血漿離心分離最佳傾斜角之模型

Model to predict the optimal centrifugation angle for separation of plasma from blood samples

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市場及需求：

此方法能提供有血液離心分析需求的開發商及研究單位，優化並檢核現有的產品設計，同時節省開發新型血液離心方法的成本和時間。此方法亦可依據業者需求，將此技術導入進入血液離心機之軟體系統，提供使用者輸入基本溶液參數，便可提供不同種類、尺寸之溶液，提供最佳離心效率之試管擺放角度，開發新型態且更具競爭力和特色之血液離心方法及產品。

技術摘要(含成果)：

此方法係一套數值方法，透過給定之實驗條件，計算試管中流場流速，配合穩定性分析，以及流體力學沉澱分離之通量計算，給出試管溶液離心過程之試管最佳傾斜擺放角度，藉以分析離心過程所計算之穩定性分析，提供最佳的分離效率擺放角度，從而得到最佳離心效率。

優勢：

本技術是第一套透過理論背景支持，並提供有效且準確的最佳化離心方法分析軟體，使產品可以在相同實驗設置下，獲得更好的離心效率，更可以為現今已開法之離心方法提供數值比對驗證，藉此改良並所短未來離心機之開發期程及成本。

競爭產品：

傳統已開發之離心方法及工具產品。

專利現況：

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Experience:

Professor, Institute of Applied Mechanics, National Taiwan University, 2020-now.

Associate Professor, Institute of Applied Mechanics, National Taiwan University, 2016-2020.

Associate Professor, Institute of Applied Mechanics, National Taiwan University, 2011-2016.

Market Needs:

This method can provide centrifuge developers to optimize their own product design and save the cost and time of developing new blood centrifugation methods. This method can also be integrated into the blood centrifugation system. By simply inputting the relevant solution parameters, it can provide the best centrifugation efficiency for different solutions and different diameter of tubes. Making the products becomes more competitive and distinctive .

Our Technology:

This method is a set of numerical methods. By calculating the flow velocity of the flow field in the test tube of the centrifuge, combined with the stability analysis method. We can find out the transient behavior of flow instabilities associated with the Boycott effect in the batch settling mode in long tubes, which will affect the Centrifugal efficiency, so as to predict the best centrifugal placement angle and increase the efficiency of the centrifuge.

Strength:

Through theoretical background verification, it provides effective and accurate optimization analysis of the centrifuge, so that the product can exert better centrifugal efficiency than other products. And by integrating this method, a new generation of centrifuges that provide individual optimal separation angles for different solutions can be produced.

Competing Products:

Various types of centrifuges on the market

Intellectual Properties:

Patent application in progress

Contact (do not need to fill out):

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