عنوان مقاله:

Comparative Study of Two Tenecteplase Therapeutic Protein Purification Methods

محل انتشار:

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خلاصه مقاله:

Therapeutic Tenecteplase (TNKase) is a recombinant and site directed mutant version of human tissue plasminogen activator (TPA) with clinical advantages over TPA. Due to specific glycosylation, TNKase is preferred to over-express in mammalian cell lines such as Chinese Hamster Ovarian (CHO) Cells. The production and purification of this protein need huge efforts and costs, which directly increase the end product price and limits its medical applications in developing countries despite its benefits. In the current study, we compared two purification methods in order to minimize purification steps as well as purification costs. In the first method, DMEM medium containing CHO-C۱۱۱ cells expressed recombinant TNKase was purified by a three columns protocol including Sephadex® G-۱۰, HiPrepTM CM FF and L-lysine HyperD®. In the second method, because of its properties, only L-lysine HyperD® column was applied for purification of protein molecules with the lysine binding site, including TNKase. Our results showed that in the second method, higher purification fold and purification yield (۱.۱۴ and ۱.۲۵ times, respectively) have achieved compared to the first method. This finding in addition to reduction in purification steps, purification cost and time, make it possible to use this method for purification of TNKase. In addition, we suggest overexpressing this protein in serum-free cell lines such as CHO-DG۴۴ in order to minimize impurities and make purification procedure easier.

کلمات کلیدی:

Tenecteplase, Purification, human tissue plasminogen activator