

Charge Isomer Distribution of Different Pituitary and Recombinant Human Thyrotropin (hTSH) Preparations

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Glycoproteins normally display a complex isoelectric focusing (IEF) profile reflecting their charge isomer heterogeneity and distribution. This is mainly due to their carbohydrate moiety that, in the case of hTSH, is between 8 and 18% of the total molecular mass. Since, according to literature, the quality and quantity of these carbohydrates depends on the host cell or expression system, the culture and bioreactor conditions and the downstream processing route (purification strategy), we analyzed seven different preparations: 2 native (pituitary-derived) and 5 recombinant (CHO-derived). Surprisingly the distribution and intensity of the different bands were very similar, if not identical, under several experiments, just according to the nature of the host cell, i.e. the pituitary-derived were similar between them and so were the CHO-derived, displaying the same 8 or 7 main bands, respectively. We conclude that apparently the culture and bioreactor conditions as well as the downstream processing do not remarkably affect the carbohydrate moiety of this glycoprotein, even though some minor differences in glycan composition have been detected.

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