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Large scale HPLC purification of peptides: The art of using spherical silica based packing material for producing large biomolecule with high purity

Over the last few decades, peptide synthesis technology has developed to allow for large scale manufacturing of peptides. The interest in using peptides as therapeutic agents has been a significant driver of this technology. Separation and isolation technology of the desired peptide product have also been developing along with the synthesis. The purification process typically includes chromatography separation for purifying the peptide active ingredient from crude synthetic peptide mixtures. A single step chromatographic process is most desired but a multiple step process is often necessary. When a multistep process is used, the first step is designed to isolate the desired material by removing most of the undesired components. The isolated material is then purified further by one or more different chromatographic steps to "polish" the material to the desired purity level.

This presentation will cover the current state for large scale peptide manufacturing with focus on HPLC purification. The chemical and physical property of the purification packing material will be also discussed. Few example of peptide pharmaceutical ingredient with more than 20 amino acids will be presented.

Biography

Marc Jacob joined Phenomenex as Global Product Manager for Chiral and Preparative Chromatography in 2011. Previously, he was Director of Process Development at Bachem (Torrance, USA) where he led efforts to develop and produce peptide Active Pharmaceutical Ingredient. Prior Bachem, he works for contract manufacturing organizations in the research, development and manufacturing of small molecules such as chiral amino acids and peptide building blocks. Jacob earned his Doctorate in Synthetic Organic Chemistry at the University of Montpellier II (France) in 1996 with an emphasis in Asymmetric Synthesis of Amino Acids and subsequently completed Postdoctoral Research at Texas A&M University in 1998 under the supervision of Sir Derek Barton (Nobel Laureate 1969)

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