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Présent et futur des étapes de purification en bioproduction *The Present and Future of Downstream Processing in Biomanufacturing*

Abstract

Depuis les premières applications il y a 30 ans jusqu'aux normes industrielles actuelles, la biochromatographie est devenue l'élément central des procédés en aval. Les procédés de bioséparation sont devenus génériques, résistants, rationalisés et efficaces. Cependant, les récentes augmentations de la production de cultures de cellules de mammifères amènent des problèmes d'infrastructure et de coût importants. Simultanément, les exigences de qualité (telles que réduction considérable de la charge virale et des contaminants) restent importantes et le procédé en aval passe en position inconfortable, pris en sandwich. Le débat actuel sur la suppression du goulet d'étranglement du procédé en aval se concentre sur la rationalisation de la production, le rôle des technologies émergentes et l'utilisation des systèmes à usage unique.

From the first applications 30 years ago to its current industrial standards biochromatography grew into its role as the central workhorse in downstream processing. Bioseparation processes have become generic, robust, streamlined and efficient. In light of the recent productivity increase in mammalian cell culture, however, a threatening disconnect is leading to serious infrastructural and cost issues. At the same time quality demands such as robust virus and contaminant clearance is not getting any less important and downstream processing is maneuvering into an uncomfortable sandwich position. The current debate to debottleneck downstream operations is focussing on streamlining operations, the role of emerging technologies and the use of disposables."

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Biographie / Biography

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Uwe Gottschalk est Vice Président du Groupe, en charge des Technologies de Purification, responsable au niveau mondial pour les produits de bioséparation chez Sartorius Stedim Biotech. Il a occupé différentes fonctions chez Bayer Health Care et a été responsable de l'unité BPF de purification de protéines à Wuppertal (Allemagne). Uwe Gottschalk est titulaire d'un doctorat de chimie de l'Université de Münster. Il est membre du comité rédactionnel de BioPharm International et l'auteur de nombreuses publications. De plus, il est chargé de cours à l'Université de Duisburg–Essen (Duisburg, Allemagne) et à l'Ecole Polytechnique Fédérale de Lausanne (Lausanne, Suisse).

Mr Gottschalk est membre du conseil de la VBU (l'Association des Entreprises Allemandes de Biotechnologies).

Dr Uwe Gottschalk is Group Vice President, Purification Technologies, with global responsibility for bioseparation products at Sartorius Stedim Biotech. He has worked in different capacities for Bayer Health Care and was head of the GMP protein purification facility in Wuppertal (Germany). Dr Gottschalk holds a Ph.D. in Chemistry from the University of Münster. He is member of BioPharm International's Editorial Advisory Board and has authored many publications. Furthermore, he lectures at the University of Duisburg–Essen (Duisburg, Germany) and the Ecole Polytechnique Fédérale de Lausanne (Lausanne, Switzerland). Dr Gottschalk is a board member at the VBU (the Association of German Biotechnology Companies).