

## Selected Publications

1. D. Baur, M. Angarita, T. Müller-Späth, F. Steinebach, and M. Morbidelli, "Comparison of batch and continuous multi-column protein A capture processes by optimal design," *Biotechnol. J.*, DOI: 10.1002/biot.201500481 (2016).
2. M. Angarita, D. Baur, T. Muller-Spath, R. Lievrouw, G. Lissens, and M. Morbidelli, "Twin-column CaptureSMB: a novel cyclic process for protein A affinity chromatography," *J. Chromatogr. A* **1389**, 85–95 (2015).
3. N. Ulmer, T. Muller-Spath, L. Aumann, B. Neunstoecklin, M. Bavand, and M. Morbidelli, "Affinity capture of F(ab')<sub>2</sub> fragments: using twin-column countercurrent chromatography," *BioProcess Int.* **13**, 22, 24, 26, 28–29 (2015).
4. H.-K. Knutson, M. Max-Hansen, C. Jönsson, N. Borg, and B. Nilsson, "Experimental productivity rate optimization of rare earth element separation through preparative solid phase extraction chromatography," *J. Chromatogr. A* **1348**, 47–51 (2014).
5. A. Das, *Continuous Flow Manufacturing and Its Implications on Downstream Biologics Processing* (Beroe, Inc. ([www.beroe-inc.com](http://www.beroe-inc.com)), 2013).
6. A. Das, *Implementation of Advanced Chromatography Techniques to Mitigate Purification Concerns in Bispecific Monoclonal Antibody Manufacturing* (Beroe, Inc. ([www.beroe-inc.com](http://www.beroe-inc.com)), 2013).
7. M. Krättli, F. Steinebach, and M. Morbidelli, "Online control of the twin-column countercurrent solvent gradient process for biochromatography," *J. Chromatogr. A* **1293**, 51–59 (2013).
8. O. Ludemann-Hombourger, "The ideal peptide plant," *Spec. Chem. Mag.*, 30–33 (2013).
9. T. Müller-Späth, M. Angarita, D. Baur, R. Lievrouw, G. Lissens, G. Ströhlein, M. Bavand, and M. Morbidelli, "Increasing capacity utilization in protein A chromatography," *BioPharm Int.* **26**, 33-35, 38 (2013).
10. T. Müller-Späth, G. Ströhlein, O. Lyngberg, and D. Maclean, "Enabling high purities and yields in therapeutic peptide purification using multicolumn countercurrent solvent gradient purification," *Chim. Oggi* **31**, 56–61 (2013).
11. T. Müller-Späth, N. Ulmer, L. Aumann, G. Ströhlein, M. Bavand, L. J. A. Hendriks, J. de Kruif, M. Throsby, and A. B. H. Bakker, "Purifying Common Light-Chain Bispecific Antibodies," *BioProcess Int.* **11**, 36–45 (2013).
12. T. Müller-Späth, G. Ströhlein, L. Aumann, H. Kornmann, P. Valax, L. Delegrange, E. Charbaut, G. Baer, A. Lamproye, M. Jöhnck, M. Schulte, and M. Morbidelli, "Model simulation and experimental verification of a cation-exchange IgG capture step in batch and continuous chromatography," *J. Chromatogr. A* **1218**, 5195–5204 (2011).
13. B. T. Takizawa, *Evaluation of the financial impact of continuous chromatography in the production of biologics*, M.Sc. Thesis, Massachusetts Institute of Technology, 2011.



14. C. Grossmann, G. Ströhlein, M. Morari, and M. Morbidelli, "Optimizing model predictive control of the chromatographic multi-column solvent gradient purification (MCSGP) process," *J. Process Control* **20**, 618–629 (2010).
15. T. Müller-Späth, L. Aumann, G. Ströhlein, H. Kornmann, P. Valax, L. Delegrange, E. Charbaut, G. Baer, A. Lamproye, M. Jöhnck, M. Schulte, and M. Morbidelli, "Two step capture and purification of IgG2 using multicolumn countercurrent solvent gradient purification (MCSGP)," *Biotechnol. Bioeng.* **107**, 974–984 (2010).
16. T. Müller-Späth, M. Krättli, L. Aumann, G. Ströhlein, and M. Morbidelli, "Increasing the activity of monoclonal antibody therapeutics by continuous chromatography (MCSGP)," *Biotechnol. Bioeng.* **107**, 652–662 (2010).
17. T. Müller-Späth, L. Aumann, L. Melter, G. Ströhlein, and M. Morbidelli, "Chromatographic separation of three monoclonal antibody variants using multicolumn countercurrent solvent gradient purification (MCSGP)," *Biotechnol. Bioeng.* **100**, 1166–1177 (2008).

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