

# Integrated Continuous Bioprocessing – A Small Company Approach for Phase 1 CTM Manufacturing



## Mr Maarten Pennings

Chief Technology Officer  
BiosanaPharma, Leiden, The Netherlands

**01 Jun 2023, 9.30am**

Host: Dr Zhang Wei

---

### Seminar Abstract

Over the past years, BiosanaPharma has developed an end-to-end-continuous process for the manufacturing of antibodies. Using high cell density perfusion, two BioSMB steps, continuous nanofiltration and UFDF, a production campaign was performed under GMP to generate multiple drug substance batches. Given some unorthodox design choices, validation of the viral clearance capacity of this continuous process revealed some interesting challenges.

In this seminar, an overview is given of techniques for continuous manufacturing, design aspects are presented and explained as well as some of the hurdles encountered in the implementation of Biosana's phase 1 production.

### About the Speaker

Maarten Pennings received his M.Sc. in Bioprocess Technology from Wageningen University and has 25 years of experience in the development of biopharmaceuticals. He spent 12 years at Xendo (now ProPharma) as a consultant process development, worked in projects on antibiotics, antibodies and viral vaccines. He has also been working on the development of continuous manufacturing in biopharma since 1999 and is a co-inventor of the BioSMB. For the past 8 years he has been in charge of process development and manufacturing for BiosanaPharma, a company developing biosimilar antibodies produced with a continuous manufacturing platform from perfusion bioreactor to bulk drug substance formulation.