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Sigma**

# You are invited

## Emerging Biotech Upstream Forum

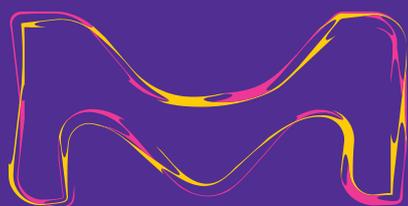
Accelerate your upstream  
process development:  
integrated solutions from  
cell line to bioreactor

**Tuesday, May 22, 2018**

**Rockville, MD  
MilliporeSigma  
14920 Broschart Road  
and**

**Thursday, May 24, 2018**

**Cambridge, MA  
Massachusetts Biotechnology Council  
300 Technology Square, 8th Floor**



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Darmstadt, Germany operates as  
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Join us and your peers for the Emerging Biotech Upstream Forum to discuss latest trends, innovations, and technologies to accelerate your upstream process development: from cell line development to bioreactor scale-up.

## agenda\*

Time	Presentation	Presenters
8:45 - 9:00	<b>Registration</b>	
9:00 - 9:50	<b>The CHOZN® GS cell line: Optimized reagents and processes for biopharmaceutical cell line development</b>	Kate Achten R&D Manager, MilliporeSigma
9:50 - 10:20	<b>Latest Developments for Chemically-Defined Cell Culture Media and Feed</b>	Tom Boilard Sales Development Specialist - Upstream, MilliporeSigma (Rockville)  Alexandra Steele Sales Development Specialist - Upstream, MilliporeSigma (Cambridge)
10:20 - 10:40	<b>Break</b>	
10:40 - 11:10	<b>Introduction to Bioreactors: Basics and Scale-up from Bench Top to Manufacturing</b>	Michael Brown Sales Development Specialist - Single-Use Bioreactors, MilliporeSigma
11:10 - Noon	<b>Measuring critical quality attributes: Use the right analytical methods as your guide</b>	Daniel Galbraith PhD Director Strategy - Product Characterization Services, MilliporeSigma
Noon - 12:30	<b>Lunch and Networking</b>	
12:30	<b>Facility Tour (May 22 Rockville venue only)</b>	

\*Agenda subject to change.

## registration

[www.emdmillipore.com/upstreamforum](http://www.emdmillipore.com/upstreamforum)

# abstracts

## **The CHOZN® GS cell line: Optimized reagents and processes for biopharmaceutical cell line development**

*Kate Achten, R&D Manager, MilliporeSigma*

CHO cells with their unique characteristics represent the major expression system within the biopharmaceutical industry. However, one of the major challenges in cell line development is to identify those rare, high-producing clones in a huge population of non-expressing or low-expressing cell lines.

In this presentation, we will provide insights about

- Challenges faced with traditional expression systems
- How the CHOZN® GS cell line – with the glutamine synthetase knock-out via Zinc Finger Nucleases – provides benefits for fast and efficient cell line development as well as stable and high titer expression.

We will also explore additional cell line engineering targets that can be modified to engineer a cell line that mitigates risks and removes bottlenecks throughout the biopharmaceutical process.

## **Latest Developments for Chemically-Defined Cell Culture Media and Feed**

*Tom Boilard, Sales Development Specialist - Upstream, MilliporeSigma (Rockville)*

*Alexandra Steele, Sales Development Specialist - Upstream, MilliporeSigma (Cambridge)*

During this session we will present the latest off-the-shelf chemically-defined cell culture media and feeds and associated services that have been developed using state-of-the-art techniques including high-throughput screening and multivariate analysis for optimum performance. Additional related topics including raw material characterization, upstream supplements, supply chain, screening strategies, and viral risk mitigation will be covered.

## **Introduction to Bioreactors: Basics and Scale-up from Bench Top to Manufacturing**

*Michael Brown, Sales Development Specialist – Single-Use Bioreactors, MilliporeSigma*

With so many different types of bioreactors on the market to choose from, a single-use option that provides seamless integration from small to large scale is ideal from both time and cost efficiency: two aspects that are very important for emerging biotechs. Engineering principles of vessel design, agitator design, sparging strategy, mixing dynamics, shear, and the oxygen diffusion coefficient, or  $kLa$ , are all important characteristics to understanding scale up. We have developed a bioreactor that works with almost any benchtop control system and can be scaled to GMP clinical/commercial sizes with minimal tech transfer testing. This presentation will highlight the basics of bioreactor function, the engineering that goes into the design, and scale-up from a 3L bench top bioreactor to a large scale GMP clinical/commercial scale.

## **Measuring critical quality attributes: Use the right analytical methods as your guide**

*Daniel Galbraith PhD, Director Strategy – Product Characterization Services, MilliporeSigma*

The question that often arises from manufacturing process development is how effective is the drug delivered at the end of the development. Each decision on the manufacturing process such as choice of clone, choice of cell culture media, fed batch or continuous process, etc., all require reference to the developers desired critical quality attributes. Understanding your product down to the finest detail is often the most important success factor in developing a new biologic drug. We will discuss what analytics are available and how these can be used to assist in the manufacturing process to inform on decisions at critical checkpoints.



**Registration:**

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Attendance to the "Upstream Forum" is limited and available to pharma/biopharma manufacturers and academics only. The offer does not extend to any company that provides products or services to the pharma/biopharma industry. MilliporeSigma reserves the right to revoke or refuse participation at any time.

**Lunch and coffee breaks are provided courtesy of MilliporeSigma.**

Travel costs, hotel accommodations and any other costs incurred are at the expense of the attendees.

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