

Spring 5-11-2016

Identification of cell culture levers to lower trisulfide modifications in monoclonal antibodies produced in CHO cell culture

Masaru Shiratori
Genentech, shiratori.masaru@gene.com

Jessica Wuu
Genentech

Martin Gawlitzek
Genentech

Follow this and additional works at: http://dc.engconfintl.org/cellculture_xv

 Part of the [Biomedical Engineering and Bioengineering Commons](#)

Recommended Citation

Masaru Shiratori, Jessica Wuu, and Martin Gawlitzek, "Identification of cell culture levers to lower trisulfide modifications in monoclonal antibodies produced in CHO cell culture" in "Cell Culture Engineering XV", Robert Kiss, Genentech Sarah Harcum, Clemson University Jeff Chalmers, Ohio State University Eds, ECI Symposium Series, (2016). http://dc.engconfintl.org/cellculture_xv/32

This Abstract is brought to you for free and open access by the Proceedings at ECI Digital Archives. It has been accepted for inclusion in Cell Culture Engineering XV by an authorized administrator of ECI Digital Archives. For more information, please contact franco@bepress.com.

IDENTIFICATION OF CELL CULTURE LEVERS TO LOWER TRISULFIDE MODIFICATIONS IN MONOCLONAL ANTIBODIES PRODUCED IN CHO CELL CULTURE

Masaru Shiratori, Genentech, Inc.

shiratori.masaru@gene.com

Jessica Wu, Genentech, Inc.

Martin Gawlitzek, Genentech, Inc.

Key Words: trisulfide, Chinese Hamster Ovary (CHO), cell culture, monoclonal antibody (mAb)

Trisulfide bond formations are a commonly observed modification of monoclonal antibodies produced in cell culture processes. Protein trisulfide bonds are post-translational modifications in which an extra sulfur atom is bound between two cysteines involved in disulfide bonding. This modification has been detected in both recombinant and endogenous plasma-derived IgGs. Inconsistent levels of trisulfides were identified as a source of variability observed during the conjugation process for antibody-drug conjugates (ADCs). To understand the root cause for variable trisulfide levels observed during process development for different molecule projects, cell culture studies aimed at identifying process levers to minimize trisulfide formation were conducted. Several cell culture factors, including different media components, were identified and tested to lower product trisulfides and minimize the variability at time of harvest. An assessment of concerns about product trisulfide levels will be presented. Finally, identified levers and potential mechanism(s) involved in product trisulfide formation during cell culture will be discussed in this presentation.