

# Newsletter

3-2022

*15<sup>th</sup> Anniversary*

## About this edition

Since its development QconCATs have been used as reference standards in numerous studies. Besides that, novel applications for QconCAT technology have been developed.

In this edition we highlight the application of QconCATs in quality control of recombinant proteins and medical products and feature the special application of QconCATs as DosCATs, a technology bridging mass spectrometry and western blotting.

## Quality control of recombinant proteins and medical products using LC-MS/MS

Production of biosimilars, therapeutically relevant biomolecules or vaccines is often performed in an appropriate host organism (e.g. cell culture, bacterial expression systems...). Sophisticated production and purification procedures need to be implemented to remove or reduce remnants from the host cell (host cell proteins – HCP) as these unwanted contaminations have the ability to seriously harm the patient or cause side effects.

LC-MS/MS provides a valuable contribution to the current quality control systems (ELISA, western blot), enabling unbiased detection of HCPs but also targeted detection of the most critical HCPs and even quantification of the contaminations using reference standards like QconCATs.

Read our [Application Note](#) for more information.

## YPIC Challenge #3

YPIC proudly presents:



Supported by  POLYQUANT

### Thanks to all participants of this year's YPIC challenge

The secret code has been cracked and the winning manuscript is:

„Elves that wear hats? How to unravel the secret protein message!”

Dirk Winkelhardt, Dominik Lux, Karin Schork, Beyza N. Güven and Martha Ingola from the Ruhr University Bochum convinced the jury with their creativity, efforts and esprit. Thank you very much!

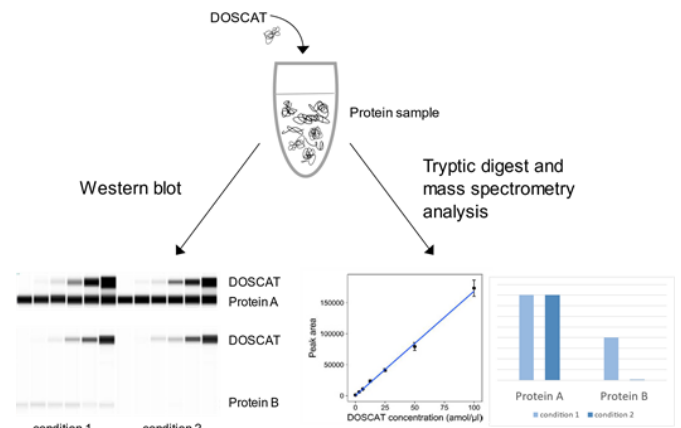
For more information you can also visit <http://eupa.org/ypic/the-challenge/>.

## Special feature application involving QconCAT technology

### DosCAT – a dual standard connecting mass spectrometry and western blotting

Western blotting is a widely used technology in molecular biology research. Despite its high sensitivity, its use is generally restricted to protein detection and relative quantification. Absolute protein quantification can only be achieved using mass spectrometry and QconCAT standards, which give you high quality data with high sensitivity, specificity and reproducibility. DOSCATs (DOuble Standard conCATamers) are designed to unite western blotting with absolute protein quantification using mass spectrometry. DOSCATs encode both epitope sequences and tryptic peptides of your proteins of interest in a single protein. A custom-made DOSCAT can thus be used as reference standard for both western blotting and mass spectrometry simply by adding a known concentration of DOSCAT to your protein sample of interest.

[\[PubMed\]](#)



Cell lysate  $\pm$  stimulus, spiked with increasing concentrations of DOSCAT. Western blots were probed with target protein-specific antibodies (left). Calibration curve for DOSCAT (middle). Illustration of quantified protein content (right). Image source (western and calibration curve): Bennett et al. Sci Rep 2017. <https://pubmed.ncbi.nlm.nih.gov/28368040/>

### Meet us:

- The [7<sup>th</sup> Halle Conference on Recombinant Proteins](#), takes place October 13<sup>th</sup>-14<sup>th</sup>, 2022 in Halle, Germany, providing a platform for discussing developments in the field of recombinant protein production and exchanging know-how between researchers from industry and academic science. Meet us at our poster “Comprehensive analysis of protein quality using quantitative LC-MS/MS technology”.
- The [PROTEINA](#) Meeting takes place November 3<sup>rd</sup>-4<sup>th</sup>, 2022 in Magdeburg, Germany and provides networking opportunities between research and industry discussing the potential of sustainable usage of innovative proteins. We are looking forward to lots of fruitful discussions.

