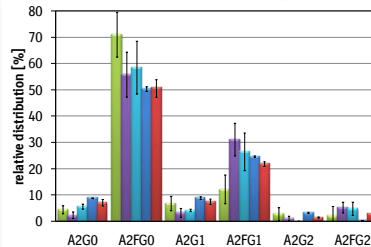


## Abstract

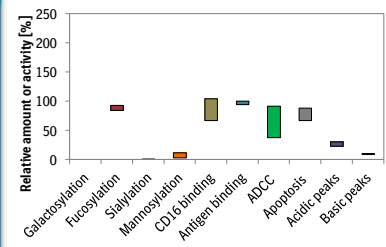
Product quality is traditionally defined by the production process. However, this dogma is revised not only for new biological molecules in order to improve efficacy, reduce side effects and enable access to new patient populations, but particularly for biosimilar development. Many of the desired product properties are influenced by posttranslational modifications with impact on biological activity, stability, immunogenicity or half life. Product quality attributes have been successfully modified during cell culture process development by rational selection of host cell, cell clone, media as well as process parameters.

## CHO Host Cell Subtypes



- Distinct glycopattern for each CHO host subtype
- Preserved across different transfections (different Mabs)
- Select subtype based on desired glycopattern

## Cell Clone

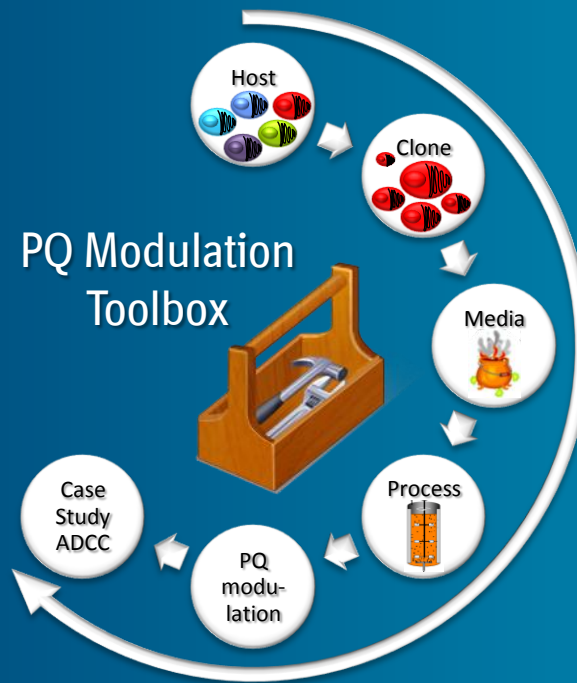


- Moderate variation of ADCC/CD16
- Clone selection offers limited potential for modulation of PQ
- Select clone based on performance and ADCC/CD16 activity

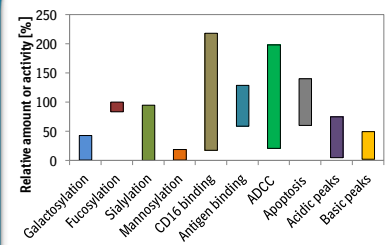
## Conclusions

- CHO host cell subtype show preserved glycopattern with low variability
- Select host according to glycopattern
- Clone selection offers limited potential for modulation of PQ
- Select clone based on performance
- Process/media offer huge potential for modulation of most PQ attributes
- Adjustment and fine-tuning possible
- Iterative approach of selecting and adjusting process conditions to fine-tune product quality attributes

## PQ Modulation Toolbox

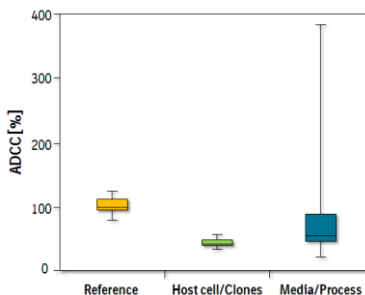


## Media



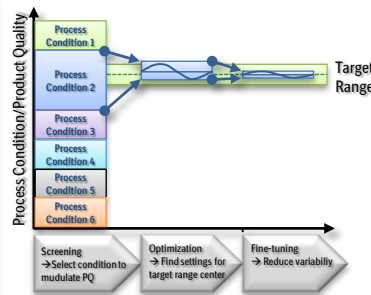
- Modulation of many PQ attributes over a wide range possible
- Combine several media attributes to address desired PQ modulation

## Case Study ADCC



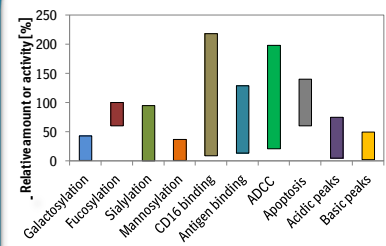
- Host/clone selection not sufficient to meet ADCC target range
- Media/process modulation enable ADCC fine-tuning from 50 to 380%

## Product Quality Modulation



- Selection of process conditions (host, clone, media, process)
- Iterative adjustment of product quality to target range

## Process



- Modulation of many PQ attributes over a wide range possible
- Combine several process attributes to address desired PQ modulation