



Antibody characterization for effective control of recombinant somatotropin abuse?

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Background

Recombinant bovine somatotropin (rbST) is licensed to enhance milk production in dairy cows in some countries, like the United States, but its use is banned in Europe. Effective control is therefore required. Two different approaches for control have been developed, one based on direct detection of rbST and one on detection of rbST dependent biomarkers. The best biomarker candidate for prolonged detection of rbST abuse are rbST induced antibodies.

Objective

rbST induced antibodies can only be used for screening purposes and not for detection of the presence of rbST. Will characterization of these antibodies and their antigenic binding site provide adequate structural information to use mass spectrometry to detect rbST induced antibodies? And therewith prove rbST abuse?

Characterisation of antibodies

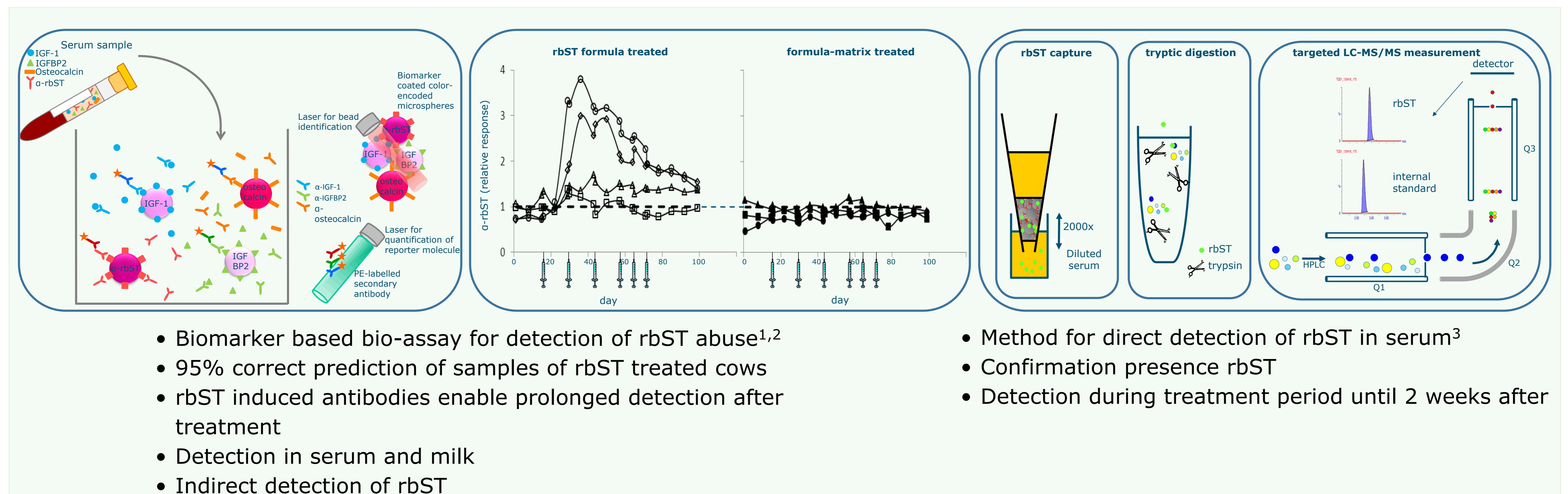
Characterisation of antibodies, in particular the antigen binding site will:

- Give structural information of antibodies
- Allow development & synthesis of calibration standards
- Allow development of more effective immuno-affinity enrichment methods for rbST analysis in complex matrices

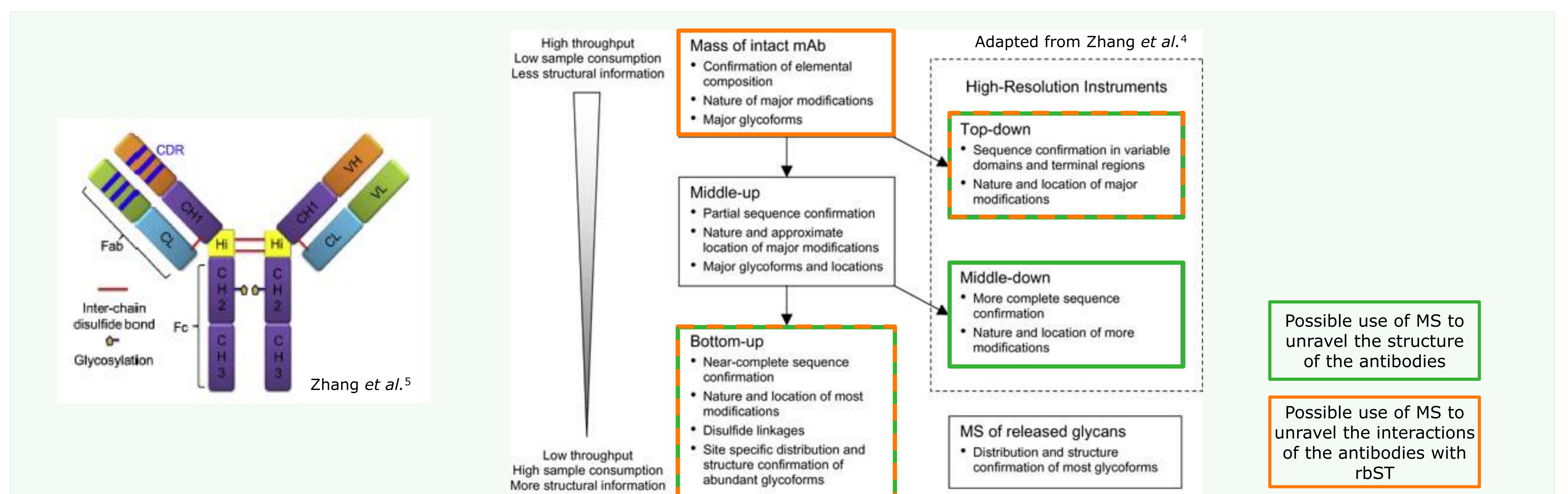
Challenges

- rbST induced antibodies are polyclonal
- rbST induced antibodies are not formed by all dairy cows
- rbST induced antibodies are low abundant in serum and milk
 - Milk and serum are complex matrices, highly abundant in proteins

Developed detection methods growth hormone abuse



Characterization of antibodies by mass spectrometry?



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