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Hansen, Anders Holmgaard; Amann, Thomas; Kol, Stefan; Kildegaard, Helene Fastrup

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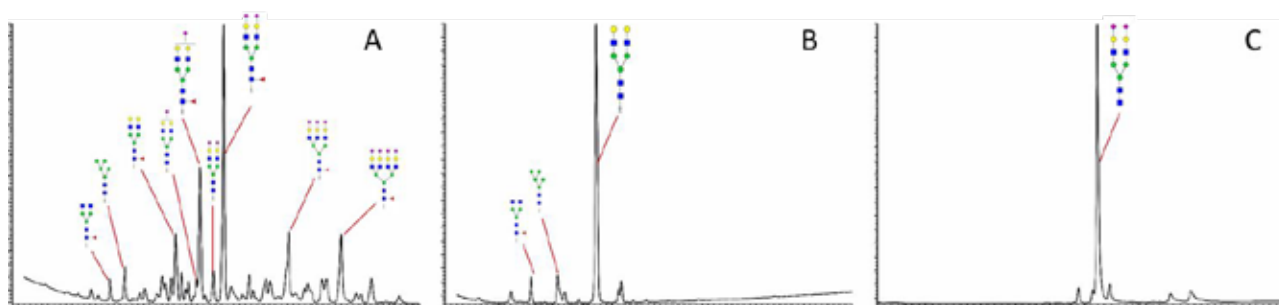


## Humanizing recombinant glycoproteins from Chinese hamster ovary cells

Anders Holmgaard Hansen<sup>1</sup>, Thomas Amann<sup>1</sup>, Stefan Kol<sup>1</sup>, Helene Faustrup Kildegaard<sup>1</sup>

<sup>1</sup> Novo Nordisk Foundation Center for Biosustainability. Technical University of Denmark. Lyngby.  
e-mail: [ahoha@biosustain.dtu.dk](mailto:ahoha@biosustain.dtu.dk)

With new tools for gene-editing like zinc-fingers, TALENS and CRISPR[1], it is now feasible to tailor-make[2] the N-Glycoforms for therapeutic glycoproteins that have previously been almost impossible. We here demonstrate a case of humanizing a recombinant human glycoprotein that in Wild type (WT) Chinese hamster ovary (CHO) cells are making a very heterogeneous mixture of N-Glycans (see Figure 1). We speculate that the CHO pattern of N-Glycans would affect half-life and/or efficacy of the glycoprotein in the bloodstream making it unsuitable for human intravenous use, whereas our humanized version would be identical to the native human glycoprotein.



**Figure 1.** Fluorescence trace from LC-MS run of RapiFlour labelled N-Glycans, released from purified glycoprotein. Heterogeneous N-Glycans from glycoprotein produced in CHO-WT (A). Glycoprotein produced in CHO-KO strain produces a much more homogenous pattern of N-Glycans (B). The N-Glycan pattern target for this work; N-Glycan pattern of Human plasma glycoprotein (C).

[1] Grav, L. M.; Lee, J. S.; Gerling, S.; Kallehauge, T. B.; Hansen, A. H.; Kol, S.; Lee, G. M.; Pedersen, L. E.; Kildegaard, H. F. *Biotechnol. J.* 2015, 10 (9), 1446.

[2] (1) Yang, Z.; Wang, S.; Halim, A.; Schulz, M. A.; Frodin, M.; Rahman, S. H.; Vester-Christensen, M. B.; Behrens, C.; Kristensen, C.; Vakhrushev, S. Y.; Bennett, E. P.; Wandall, H. H.; Clausen, H. *Nat. Biotechnol.* 2015, No. October 2014, 2014.