

Glyco-immunology Service Platform for target discovery and biomarkers



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Our expertise

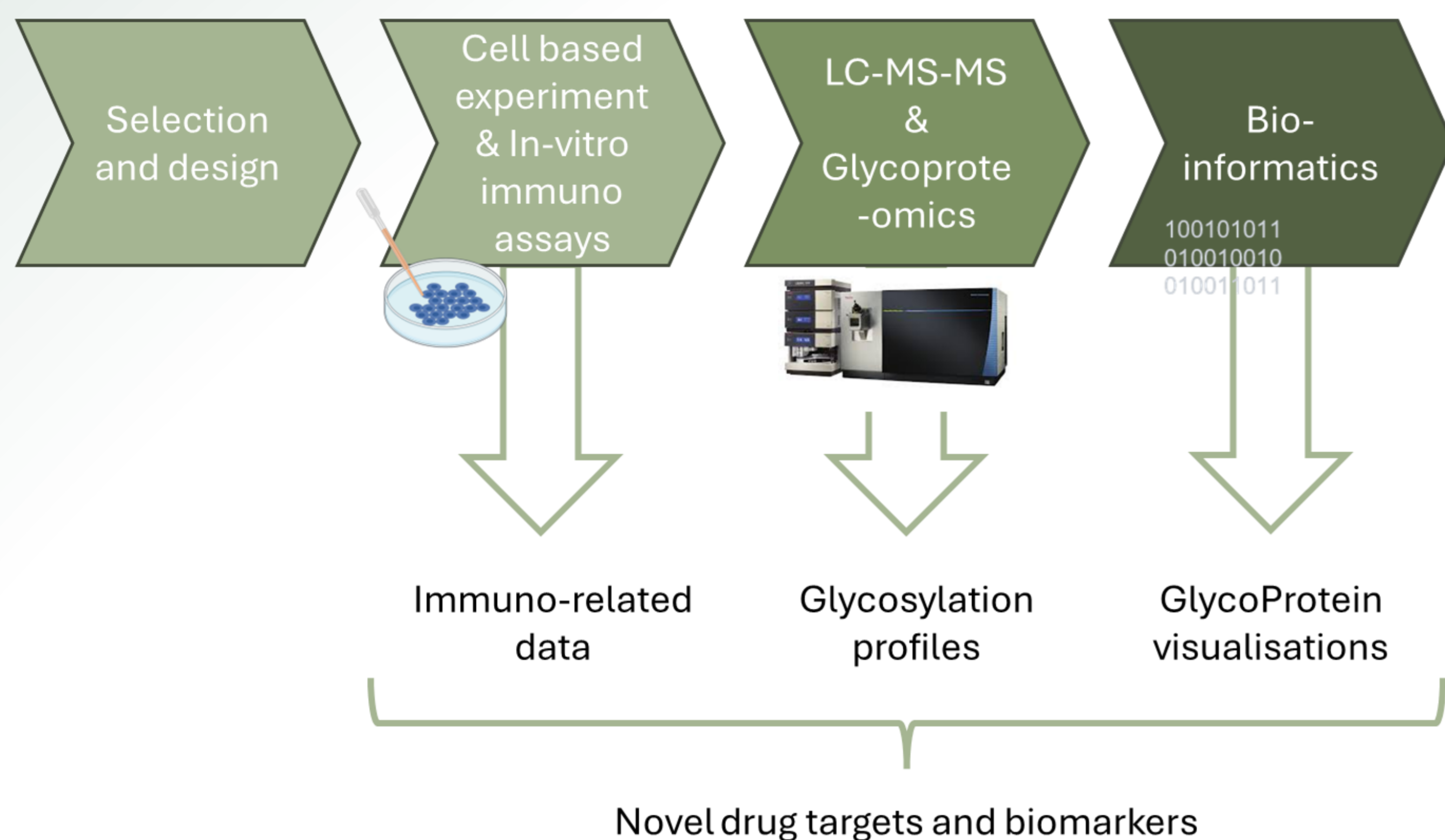


Figure 1. Schematic overview of the workflow of a project conducted by GLYSEC.

Services

- In vitro immunology assays
 - Target discovery and validation
 - Mode of action
 - Initial safety and efficacy testing
 - Lead compound optimisation
- Glycoproteomics nano LC-high resolution Orbitrap MS analysis¹
- Bioinformatics & Predictive mining
 - Unique developed software for analysing glyco-immunological data
 - Disease and metabolite vocabulary

Case study

Macrophage polarisation

- Macrophage polarisation is important in immuno-oncology
- In cancer immunotherapy, macrophages may be targeted and modulated towards a pro-inflammatory type (M1). M1 macrophages play a positive role in stopping tumor growth and removal of cancer cells.
- Glycobiology is closely associated with macrophage polarisation.

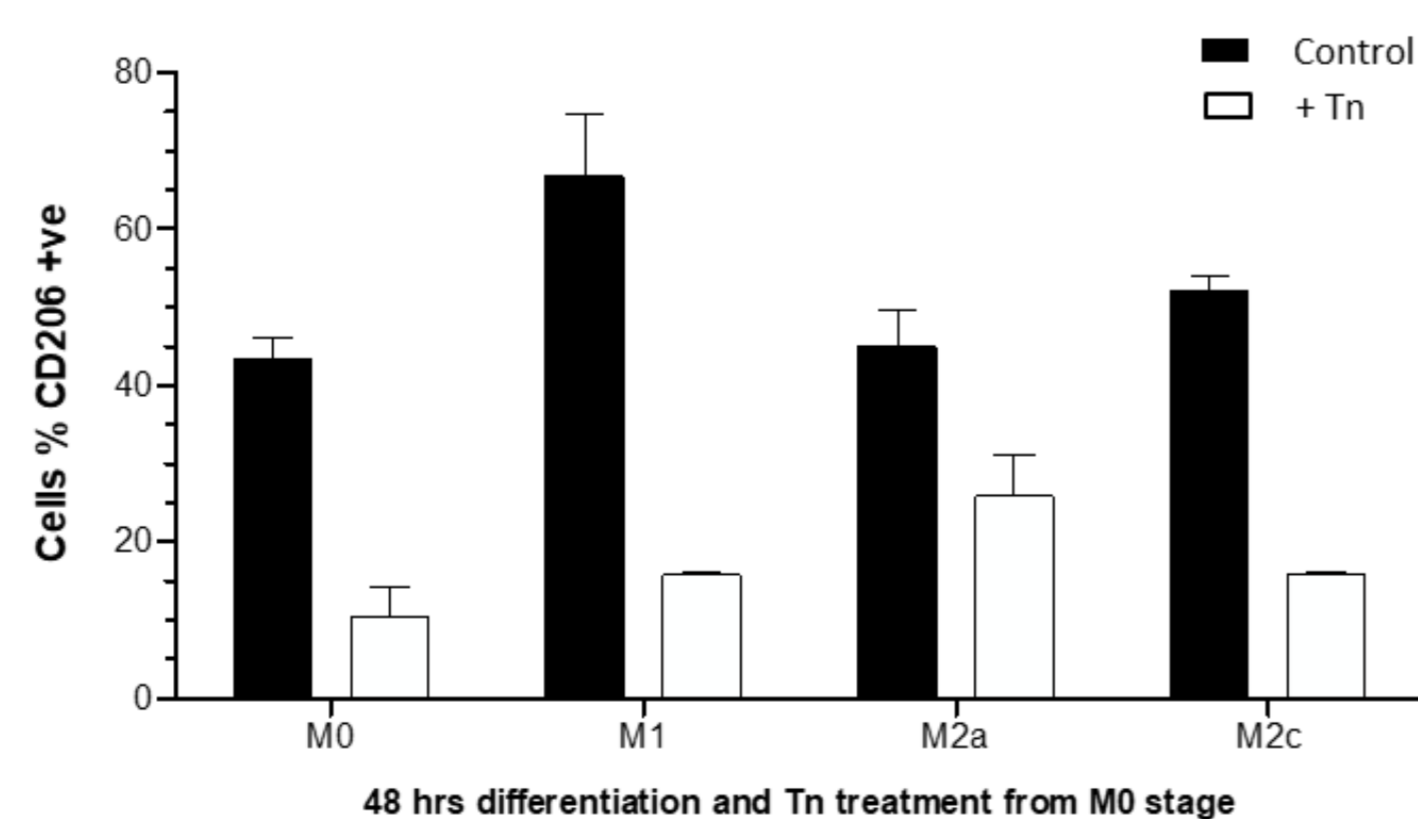


Figure 2. Inhibition of glycosylation by tunicamycin downregulates expression of markers associated with macrophage polarisation.

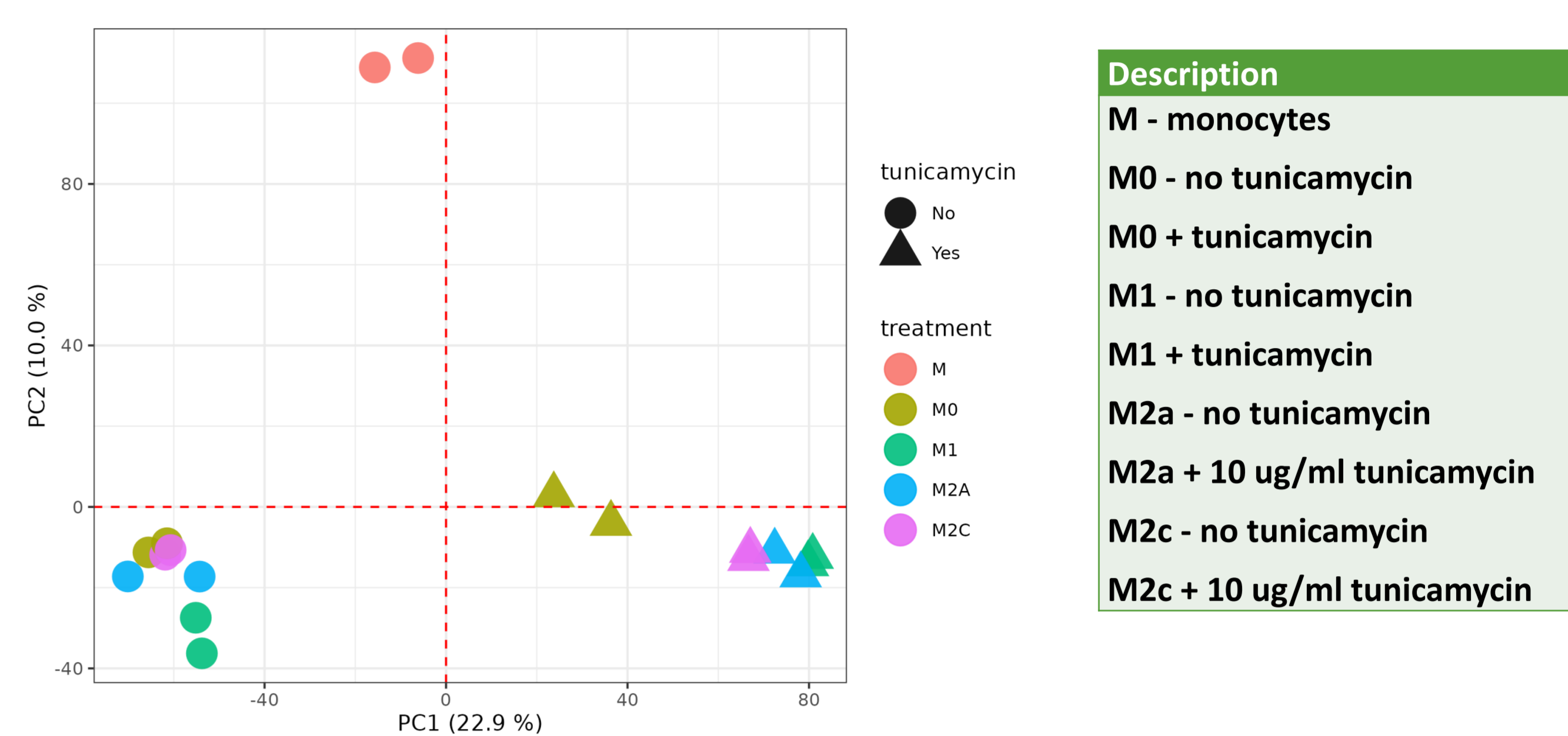


Figure 3. PCA of glycoproteomics LC-MS/MS data of macrophage samples in different polarisation stages with and without Tunicamycin treatment. (duplicate samples; all t=48 hours).

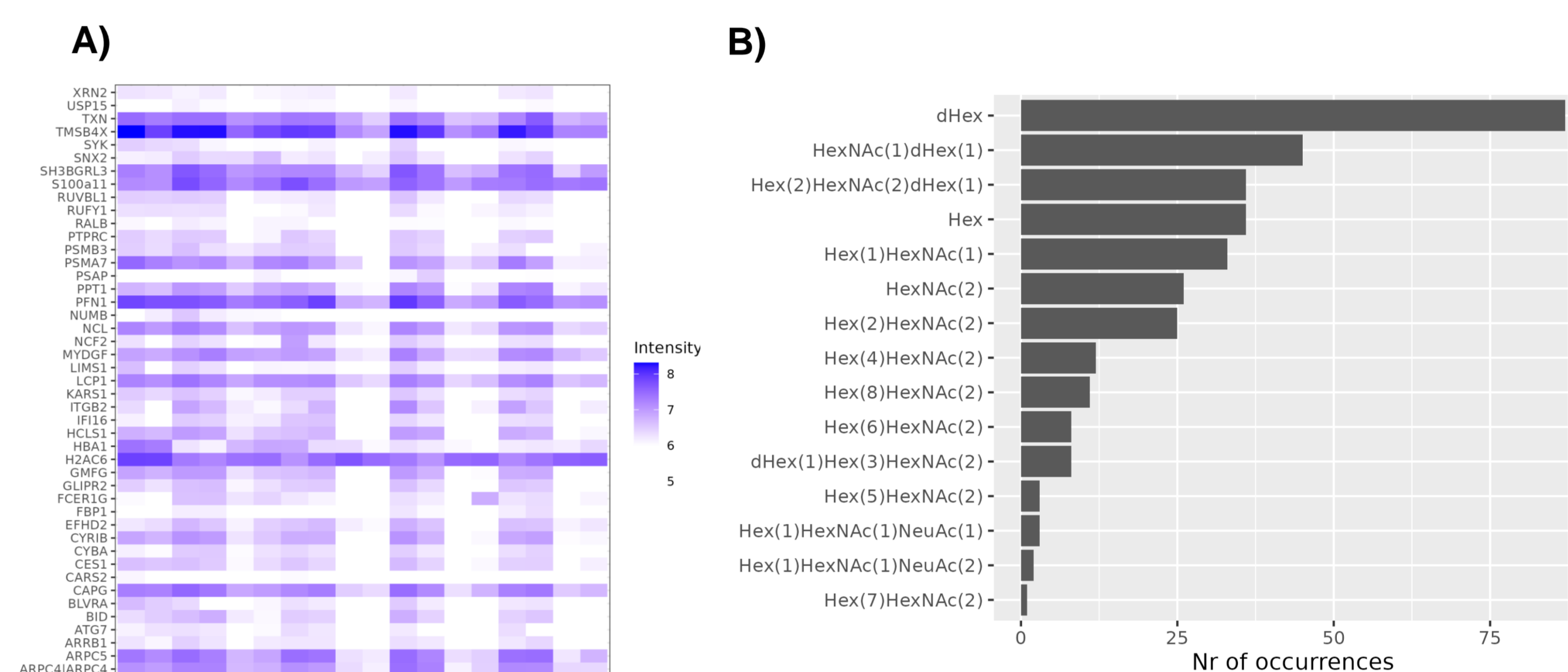


Figure 4. Glycoproteomics data analysis shows A) a heat map of the proteins that are expressed in all samples with their ¹⁰log intensity; B) most found glycosylation types.

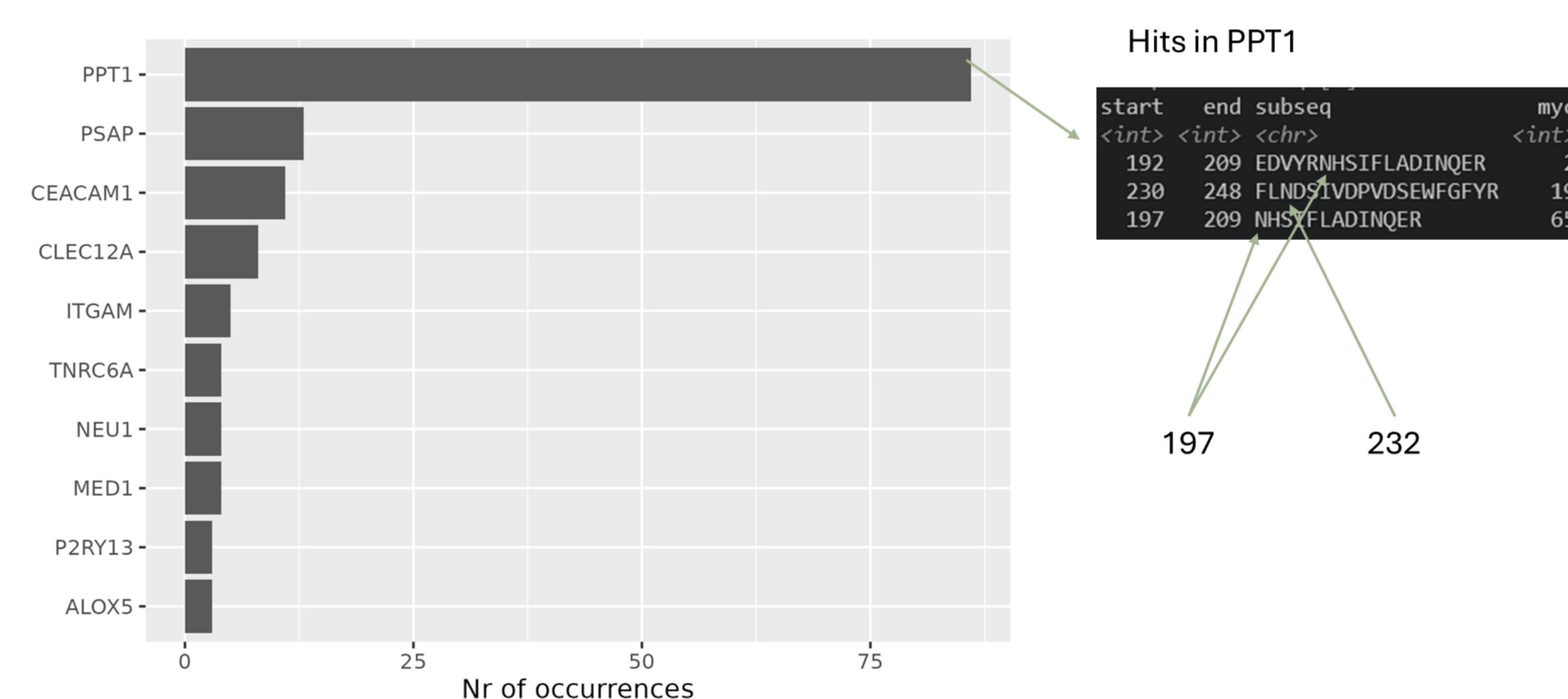


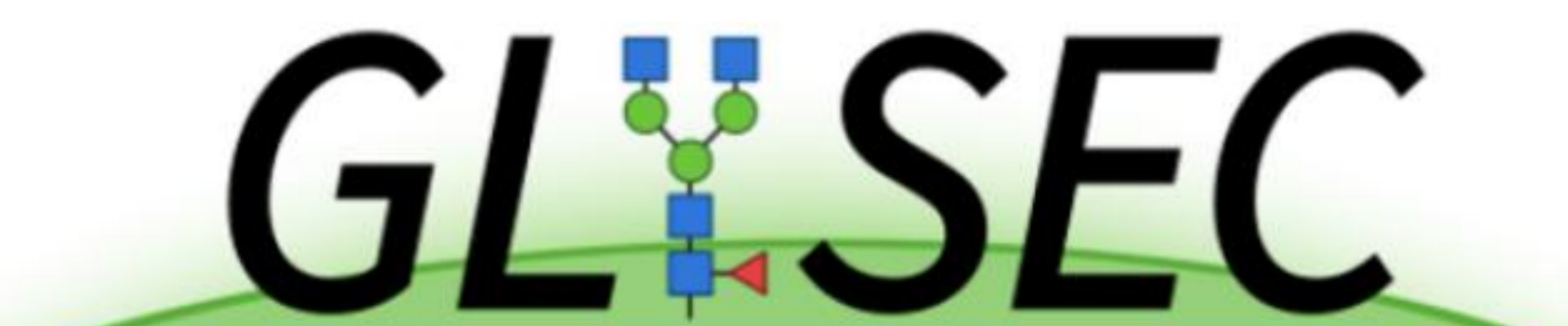
Figure 5. Top 10 genes with the highest number of glycosylation changes. PPT1 extends out of the list and was reported before in the literature both on exactly these glycosylation sites, as well as to play a role in macrophage polarisation.^{2,3}

Conclusions

The case study shows that GLYSEC platform is able to discover novel biomarkers and drug targets because of our powerful combination of synergistic techniques. Feel welcome to ask for the possibilities or a quote by sending an email to info@glycomscan.com.

References

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GLYSEC is a joint offering by ImmundNZ, GlycoMScan and TenWise.