Extensive heterogeneity of glycopeptides in plasma revealed by deep glycoproteomic analysis using size-exclusion chromatography

Mayank Saraswat<sup>1,2,3</sup>, Kishore Garapati<sup>1,2,3,4</sup>, Dong-Gi Mun<sup>1</sup>, Akhilesh Pandey<sup>1,2,3,4,5</sup>

<sup>1</sup>Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, Minnesota 55905, United States

<sup>2</sup>Institute of Bioinformatics, International Technology Park, Bangalore 560066, Karnataka, India

<sup>3</sup>Manipal Academy of Higher Education (MAHE), Manipal 576104 Karnataka, India

<sup>4</sup>Center for Molecular Medicine, National Institute of Mental Health and Neurosciences (NIMHANS), Hosur Road, Bangalore 560029, India

<sup>5</sup>Center for Individualized Medicine, Mayo Clinic, Rochester, Minnesota 55905, United States

## **Supplementary figure 1**

**A.** All glycopeptides were manually divided into broad glycan categories, complex, hybrid, high-mannose and truncated. Distribution of all identified glycopeptides is shown. **B.** Unique glycoforms identified for 15 most glycosylated proteins is shown.

### **Supplementary figure 2**

**A.** Unique glycopeptides identified by lectin-affinity chromatography (LAC-bRPLC) and size-exclusion chromatography (SEC) are compared in a Venn diagram. **B.** unique glycan compositions combined from all glycopeptides identified are compared between LAC-bRPLC and SEC.

### **Supplementary figure 3**

Venn diagram comparing this study's unique glycopeptide identification with previously published studies (Zhang et al.<sup>1</sup> and Sun et al.<sup>2</sup>). Sun et al.'s study was conducted on serum while this study and Zhang et. al. was conducted on plasma.

#### References

- 1. Y. Zhang, Y. Mao, W. Zhao, T. Su, Y. Zhong, L. Fu, J. Zhu, J. Cheng and H. Yang, J Proteome Res, 2020, 19, 655-666.
- 2. S. Sun, Y. Hu, L. Jia, S. T. Eshghi, Y. Liu, P. Shah and H. Zhang, *Anal Chem*, 2018, **90**, 6292-6299.

**Supplementary figure 1** 

# Α.





Β.

Hybrid

Core



All glycopeptides by glycan composition

Supplementary figure 2



