

Quantitative changes in the serum proteome in patients with obesity and Type-2 diabetes following metabolic bariatric surgery

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CONFLICT OF INTERESTS

Nothing to Disclose.

Proteomics: looking beyond a single biomarker

WHAT IS PROTEOMICS?

The large-scale measurement of proteins in a biological sample.

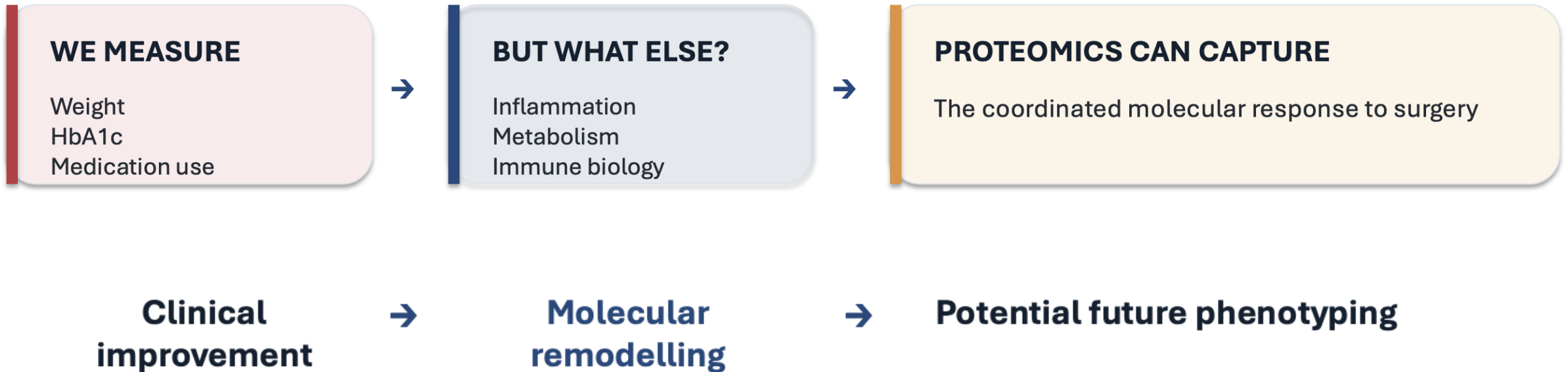


Instead of asking: “Is protein X increased?”

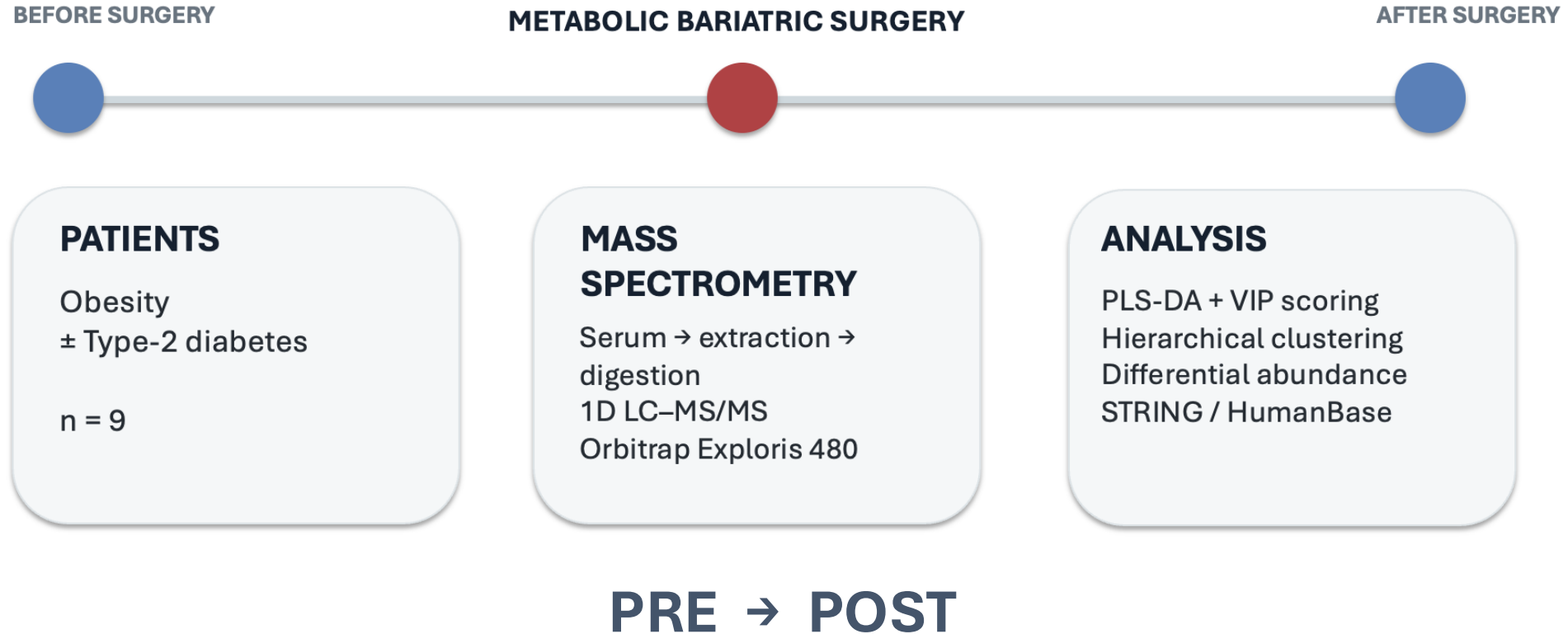
Proteomics asks: “What is happening across the entire biological system?”

Why is this important in metabolic bariatric surgery?

METABOLIC SURGERY CHANGES THE PATIENT RAPIDLY!



From patient serum to molecular fingerprints



Goal: identify molecular signatures associated with surgical response

Surgery leaves a distinct molecular fingerprint

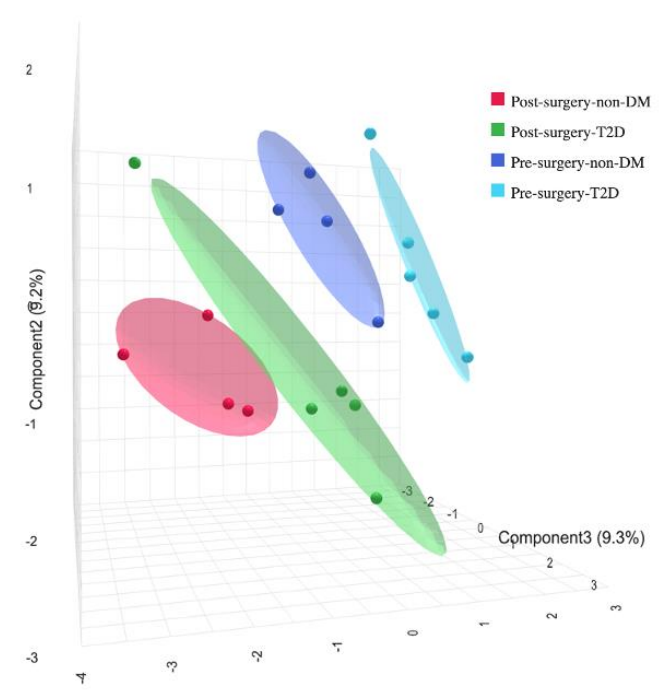
CLEAR PRE / POST SEPARATION

MULTIVARIATE SIGNAL

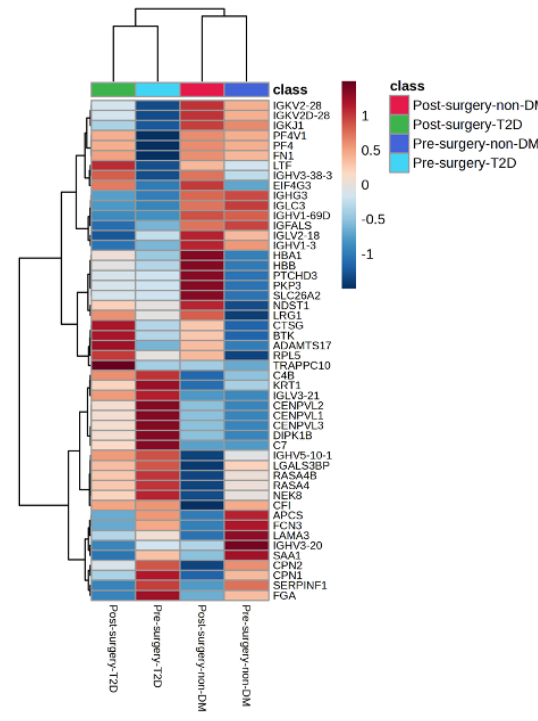
PLS-DA shows clear stratification of pre- and post-surgical proteomes.

The change is global — not just a single protein.

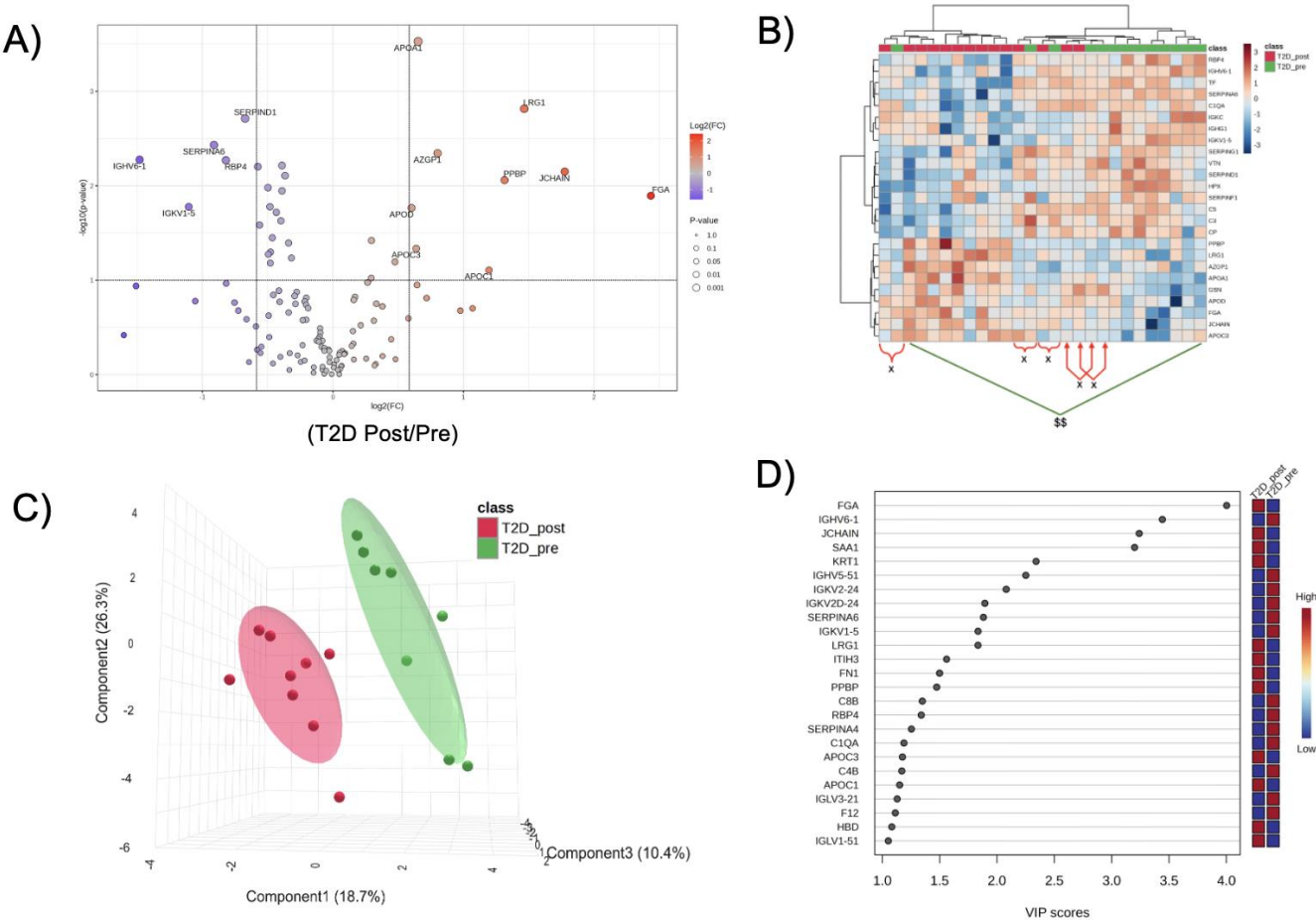
PLSDA (Partial least squares discriminant analysis)



Hierarchical clustering



T2D leaves a distinct molecular signature



TRAPPC10

↑ post-surgery in T2D
FC 4.112 | p < 0.0023

LGALS3BP

High in T2D pre-surgery
↓ following surgery

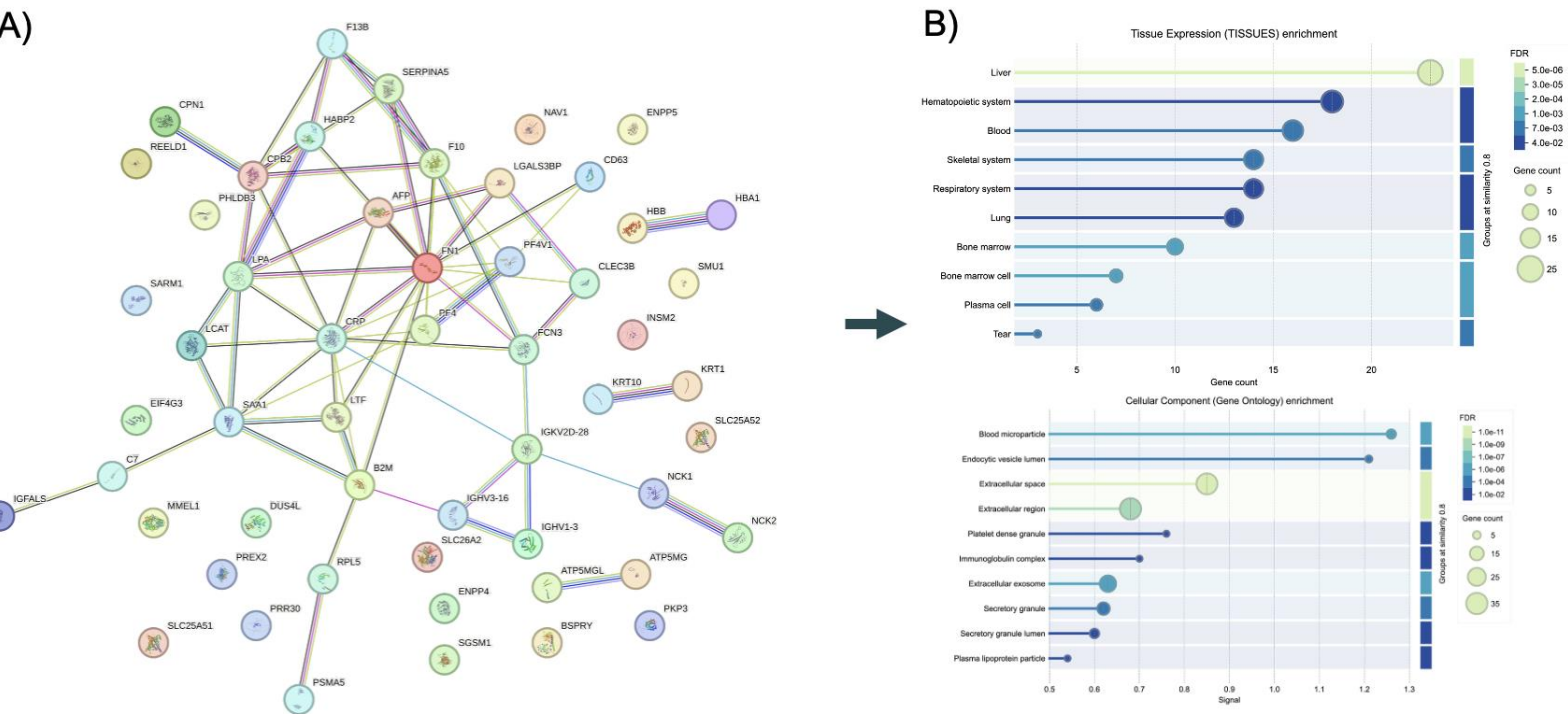
CPN1

Elevated pre-surgery in both groups
→ toward baseline after surgery

Candidate markers of metabolic adaptation / resolution

From protein changes to biology

Network and Pathways Analyses of Patient Serum Proteome



IMMUNE / COMPLEMENT

Complement and immune-response signatures

INFLAMMATORY SIGNALING

Acute-phase / chemokine-associated biology

EXTRACELLULAR MATRIX

Fibronectin and wound-healing related processes

TISSUE-SPECIFIC SIGNALS

Liver / systemic metabolic involvement

METABOLIC SURGERY LEAVES A MOLECULAR FOOTPRINT

- Surgery **remodels** the **serum proteome**
- **Immune, inflammatory & ECM pathways** are modulated
- Patients with **T2D** show **distinct proteomic changes**
- Candidate proteins may **define metabolic response**

NEXT STEP → VALIDATION IN A LARGER, INDEPENDENT COHORT

Thank you!

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