

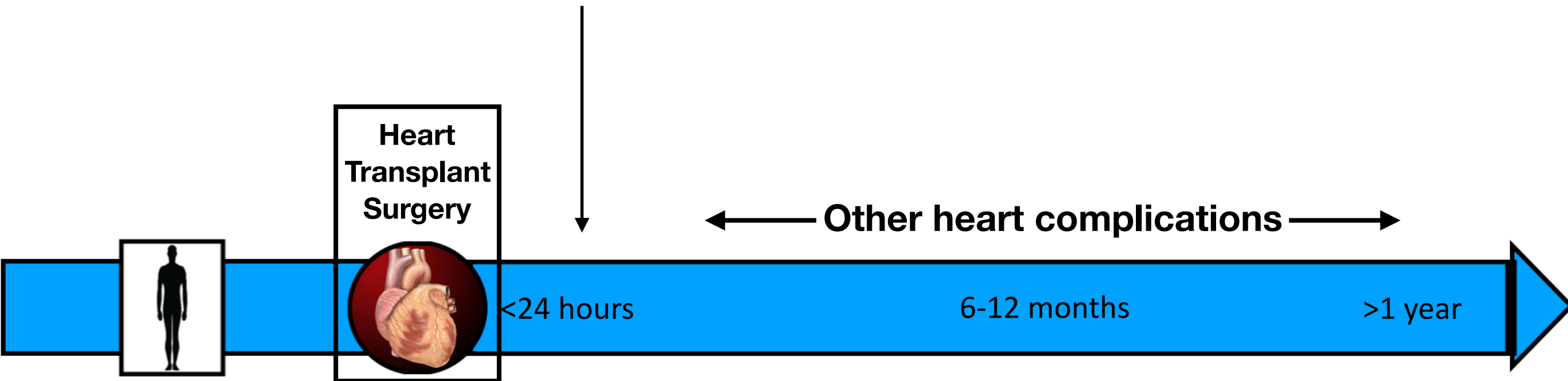


COLUMBIA UNIVERSITY
MEDICAL CENTER

Clinical Workflow for Identification of Novel Primary Graft Dysfunction Biomarkers using Exosome Proteomics

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Primary Graft Dysfunction



- **Fatal disorder**
- **Unknown etiology**
- **3-30% estimated incidence***
- **Large need to:**
 - **Identify (recipient) biomarkers for PGD before transplant**
 - **Elucidate molecular mechanisms of PGD**

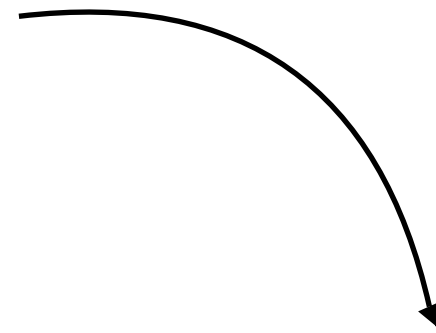
Goal:

A non-invasive clinical test for predicting PGD prior to heart transplant

- **Non-invasive**
- **Relatively inexpensive**
- **Technically non-prohibitive**
- **Yield interpretable and actionable results**

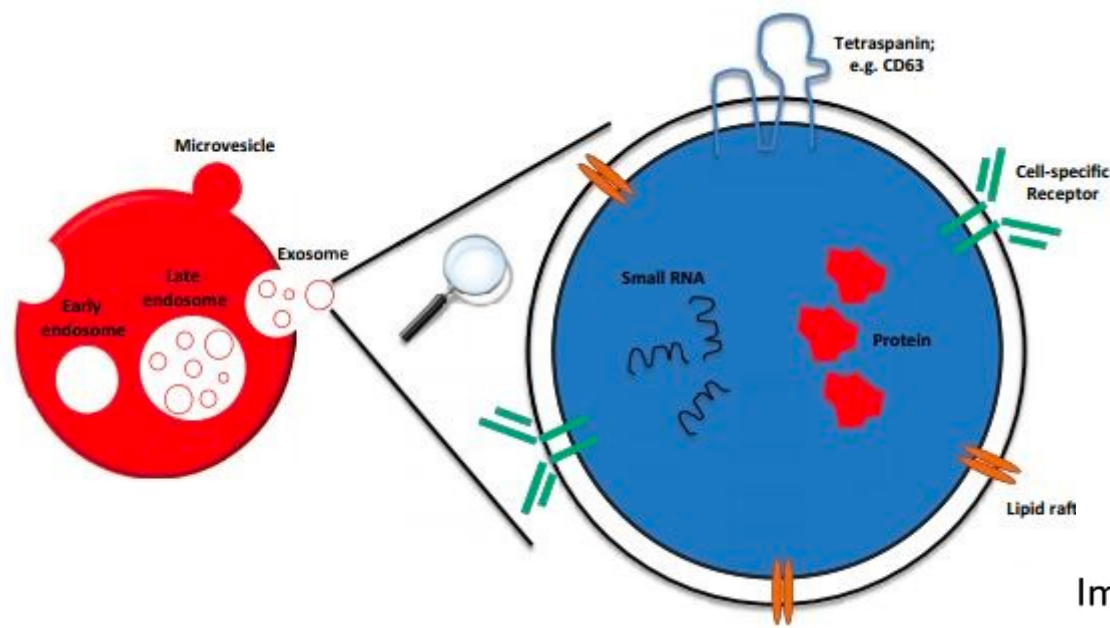
So, where to look?

One person's trash is another person's treasure

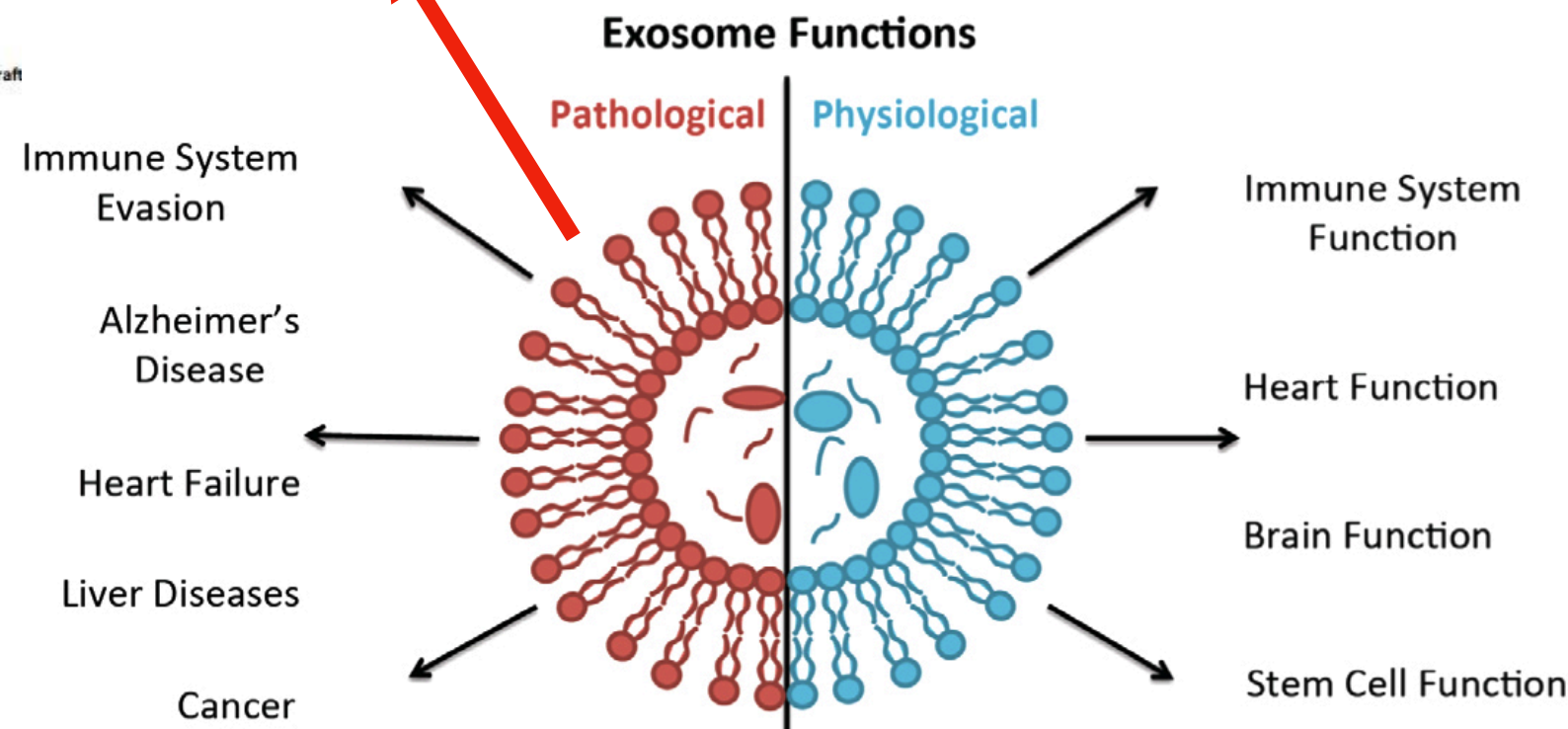


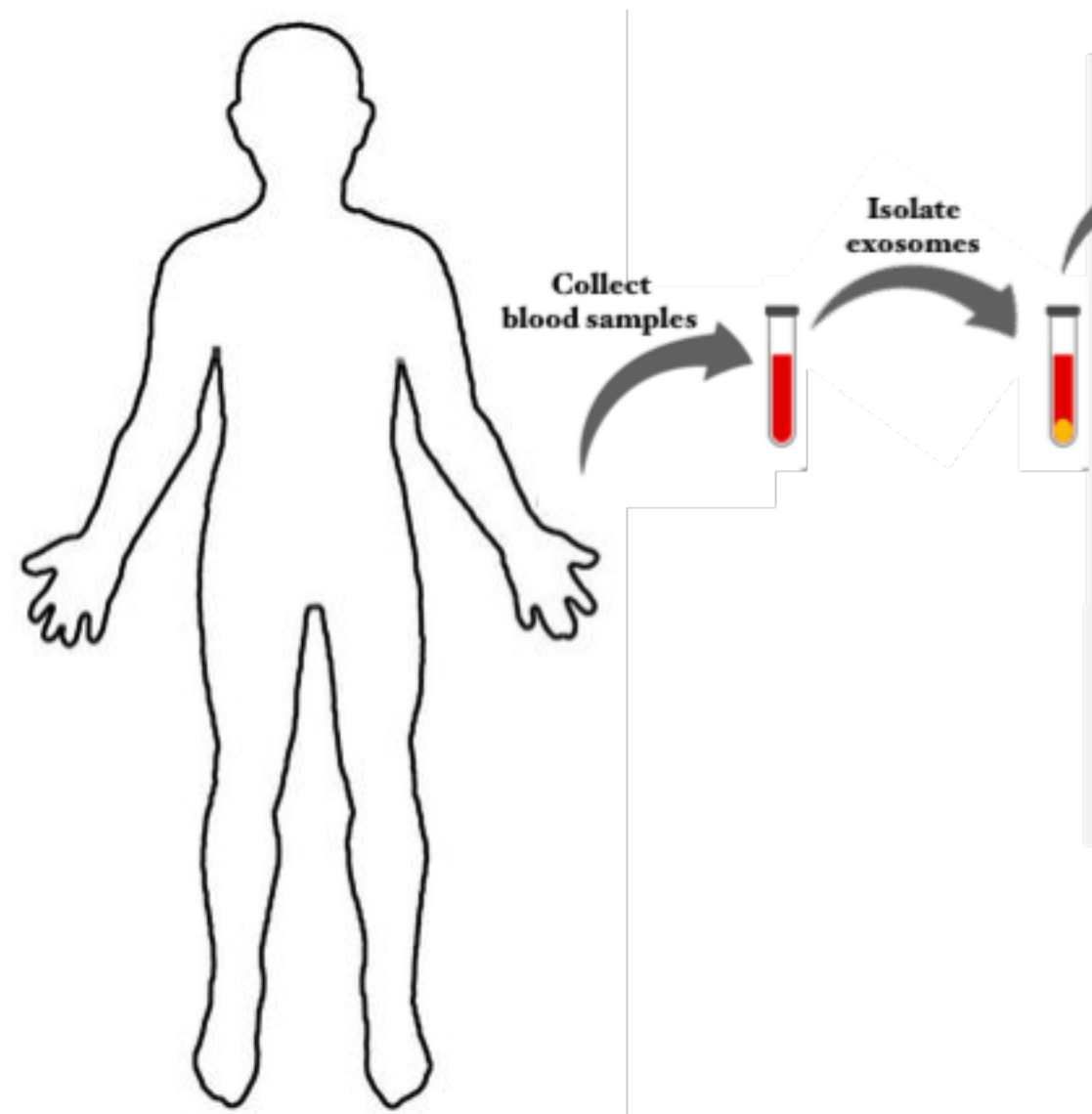
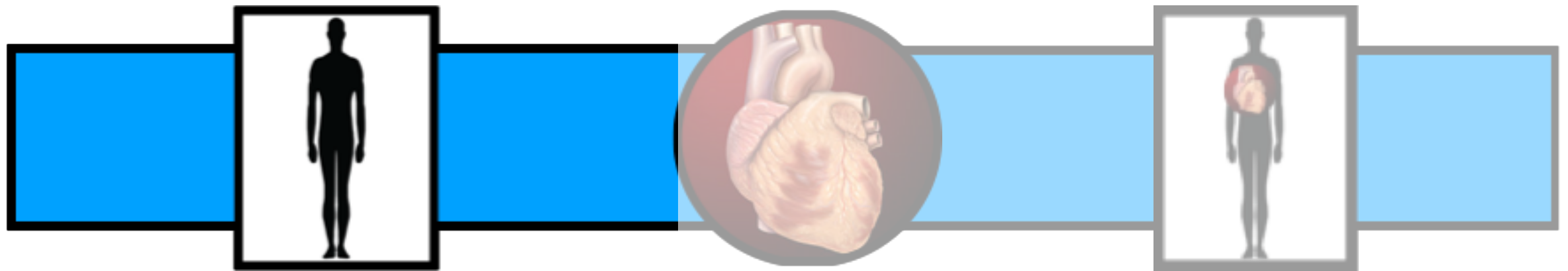
One person's trash is another person's *biomarker*

- **Exosomes**

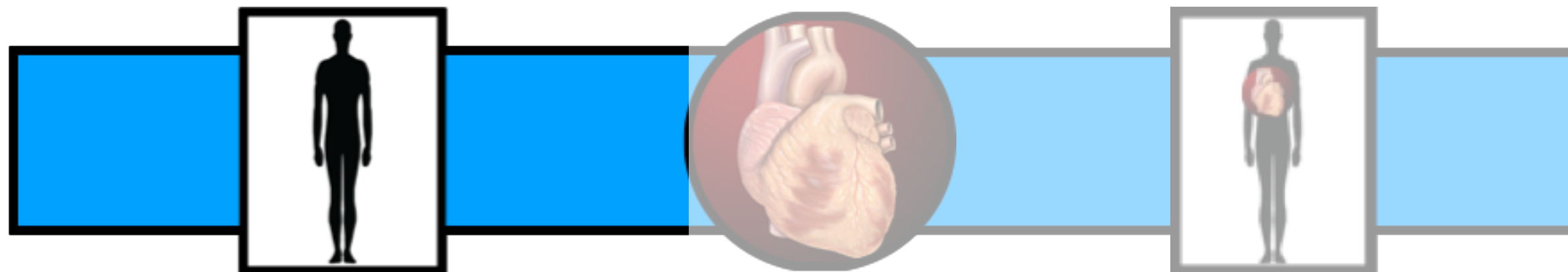


Primary Graft Dysfunction?

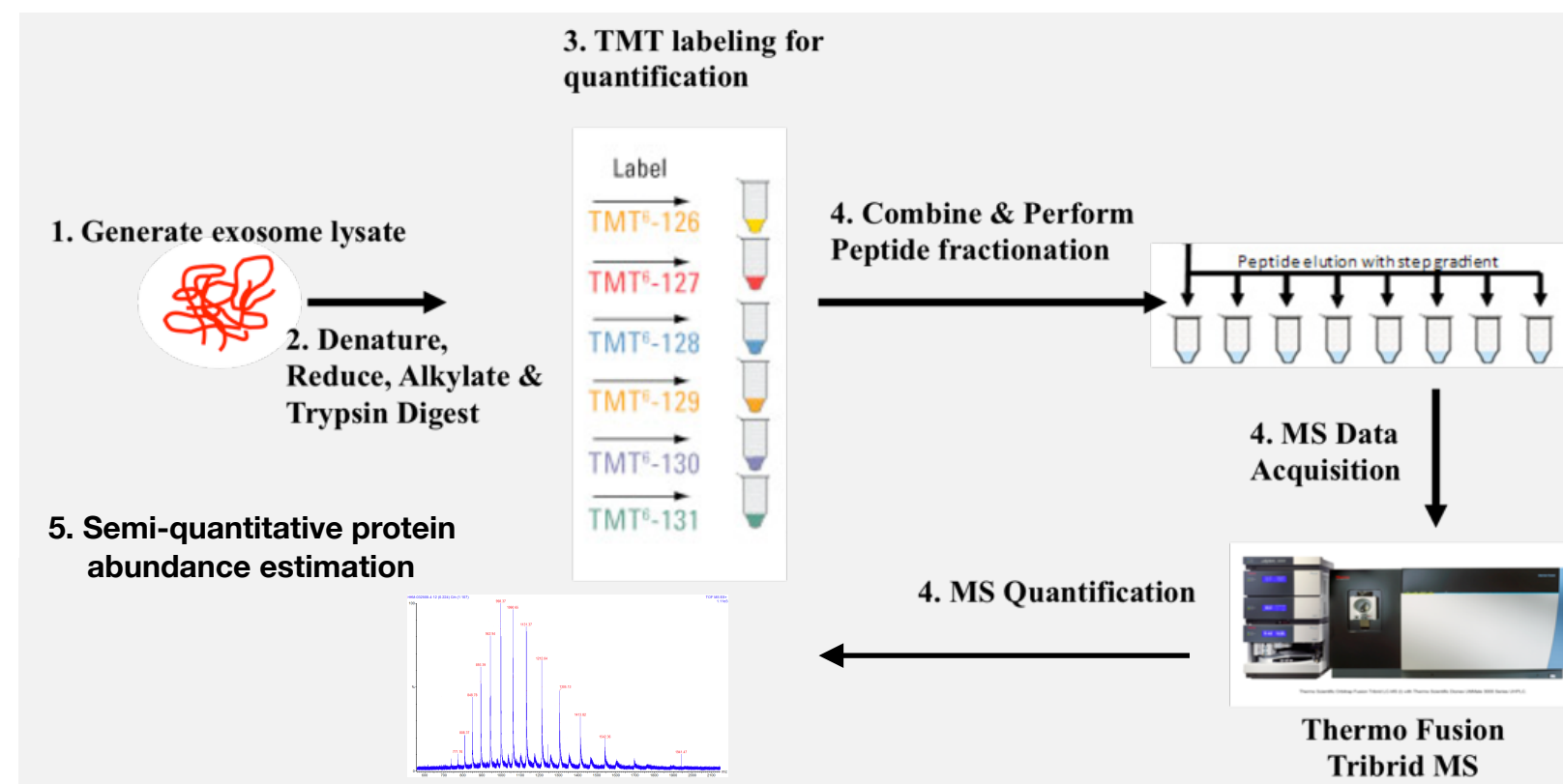


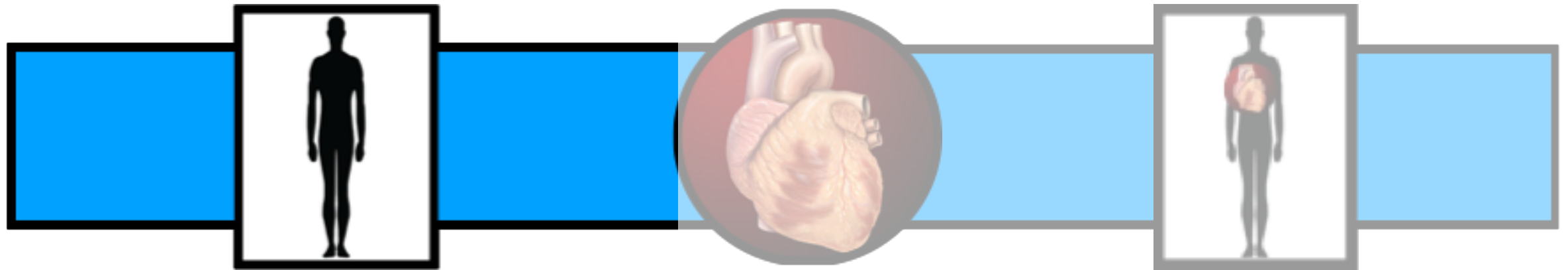


**1. Clinician
collected and
prepared samples**

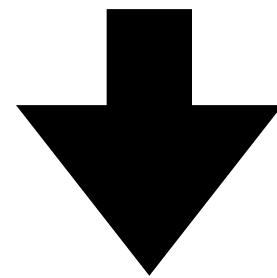


2. Proteomics core processed samples

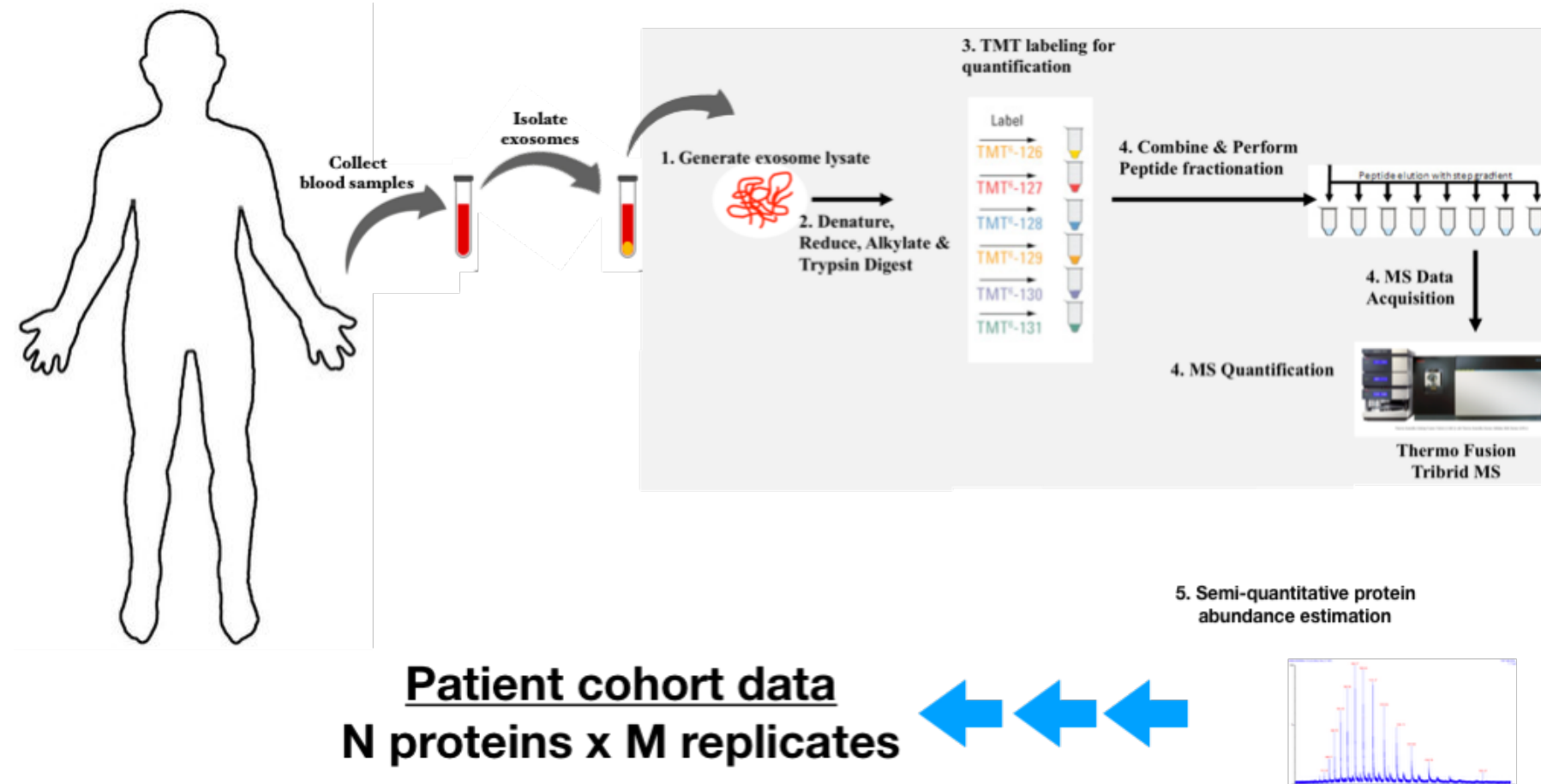




**3. Data scientists
investigate and
analyze
proteomics data**



**Biomarker proteins to be
used in a clinical test**



**Agnostic exosome
proteomics**



**Targeted protein
biomarker assay**

- Non-invasive ✓
- Relatively inexpensive ✓
- Technically non-prohibitive ✓
- Yield interpretable and actionable results ?

Clinical proteomic data workflow

