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

https://giphy.com/search/homer-trash
One person’s trash is another person’s biomarker

- Exosomes

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.
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Agnostic exosome proteomics
Targeted protein biomarker assay

Patient cohort data
N proteins x M replicates
Clinical proteomic data workflow