ASX Release
4 February 2022

ASX code: PIQ

Unique panel of biomarkers identified for oesophageal cancer

- **Proteomics International has identified and validated a panel of protein biomarkers with potential to test for oesophageal adenocarcinoma, the most common oesophageal cancer**
- **Research is part of a collaboration with QIMR Berghofer to develop a novel diagnostic test**
- **Biomarkers validated in a study of more than 300 patients**
- **Collaboration is part of Proteomics International's strategy to continually expand its diagnostics portfolio in areas of significant unmet medical need**

Proteomics International Laboratories Ltd (Proteomics International; ASX: PIQ) is pleased to announce it has successfully completed its validation study with QIMR Berghofer Medical Research Institute (QIMR Berghofer) targeting oesophageal adenocarcinoma, the most common form of oesophageal cancer in Australia.

Proteomics International and QIMR Berghofer are collaborating on the development of a simple blood test for oesophageal adenocarcinoma [ASX: 9 October 2020], using a panel of biomarkers - protein 'fingerprints' in the blood - initially identified by QIMR Berghofer researchers. The analysis sought to demonstrate the robustness of the biomarkers across laboratories through a series of analytical and clinical validation experiments, building upon Proteomics International's experience acquired in developing the PromarkerD assay, the world's first test for predicting diabetic kidney disease.

Proteomics International managing director Dr Richard Lipscombe said the research studied multiple proteins in the blood associated with early-stage oesophageal adenocarcinoma. *"From these, we've been able to identify a select panel of biomarkers with the potential to be used as a diagnostic test. Importantly we have also completed validation of the panel using blood samples from more than 300 patients."*

The results of the study will be presented today at the 27th Lorne Proteomics Symposium, Victoria, the annual conference of the Australasian Proteomics Society (see copy of presentation attached, titled: *Translational Proteomics: Establishing a Mass Spectrometry Assay for Biomarkers of Oesophageal Cancer*). The results showed several protein biomarkers (N=5-7) were statistically significant in identifying oesophageal adenocarcinoma.

The study focused on Barrett's oesophagus, a pre-malignant condition that is a major risk factor for oesophageal adenocarcinoma. Barrett's oesophagus affects about 2% of the population[1] and occurs when the oesophagus is damaged by acid reflux[2]. These patients are currently screened using invasive and costly endoscopy procedures.

Proteomics International and QIMR Berghofer will now finalise arrangements for the future development of the biomarkers into a diagnostic test for oesophageal cancer.

[1] Barrett's oesophagus: epidemiology, diagnosis and clinical management (2016); doi.org/10.5694/mja16.00796

[2] American Society for Gastrointestinal Endoscopy, www.asge.org

Authorised by the Board of Proteomics International Laboratories Ltd (ASX.PIQ).

ENDS

About QIMR Berghofer (www.qimrberghofer.edu.au)
QIMR Berghofer Medical Research Institute was established by the Queensland Government 75 years ago and has a rich history of scientific discoveries and translational medical research. QIMR Berghofer is focused on improving health by developing new diagnostics and better treatments and prevention strategies, specifically in the areas of cancer, infectious diseases, mental health and chronic disorders. The Institute works in close collaboration with clinicians and other research institutes and is home to approximately 1000 scientists, students and support staff. QIMR Berghofer has an active program for the commercialisation of technologies, including those developed in conjunction with academic or commercial collaborators.

About Proteomics International Laboratories (PILL) (www.proteomicsinternational.com)
Proteomics International (Perth, Western Australia) is a wholly owned subsidiary and trading name of PILL (ASX: PIQ), a medical technology company at the forefront of predictive diagnostics and bio-analytical services. The Company specialises in the area of proteomics – the industrial scale study of the structure and function of proteins. Proteomics International's mission is to improve the quality of lives by the creation and application of innovative tools that enable the improved treatment of disease.

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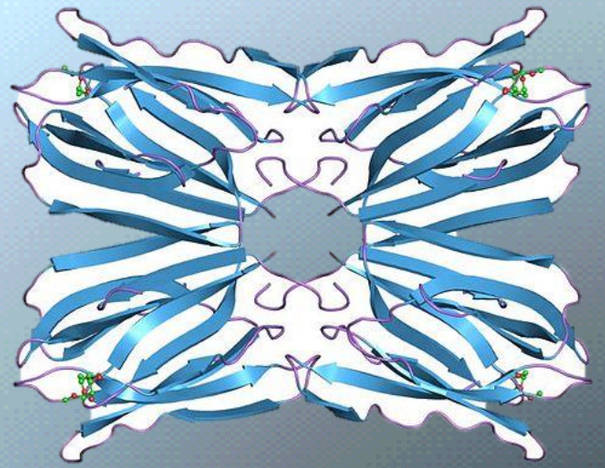
Lorne Proteomics 2022

e-Poster | February 3rd – 6th 2022

Translational Proteomics: Establishing a Mass Spectrometry Assay for Biomarkers of Oesophageal Cancer

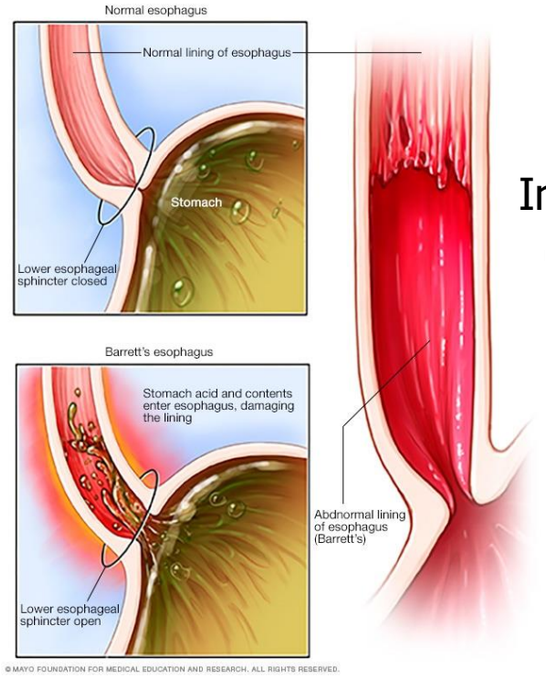
Marisa N. Duong [1] , Scott Bringans [1] , Michelle M. Hill [2] , Connor Laming [1] , Richard J. Lipscombe [1]

1. *Proteomics International, Nedlands, WA, Australia*
2. *QIMR Berghofer Medical Research Institute, Brisbane, QLD, Australia*



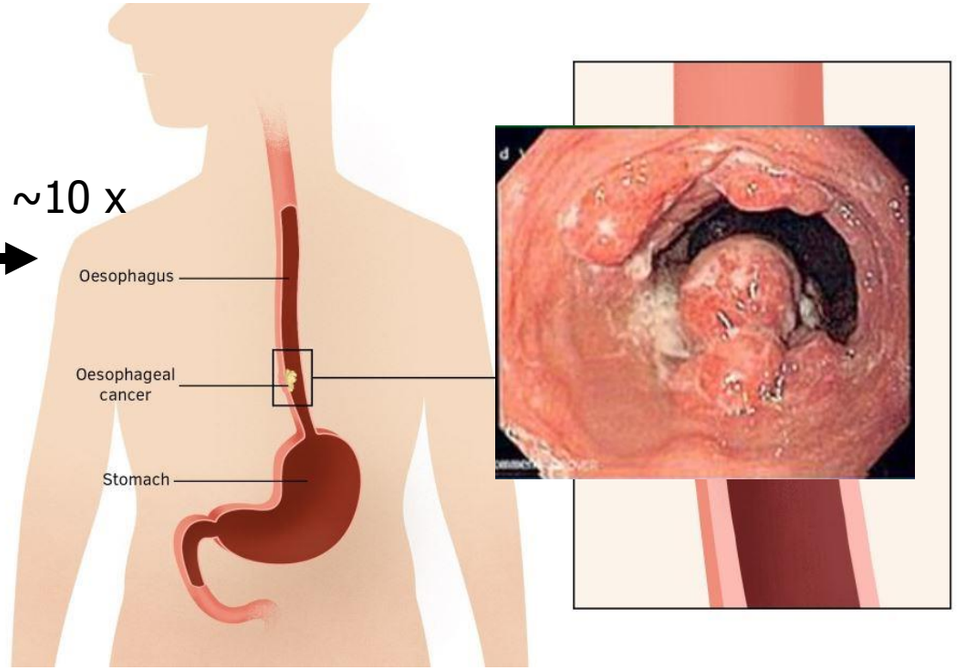
Disease Background

Barrett's esophagus (BE)



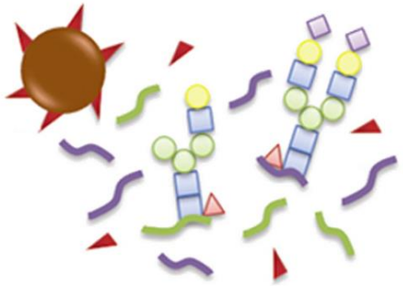
Increase risk ~10 x

Oesophageal adenocarcinoma (OAC)



Technology Transfer

QIMR Berghofer
Medical Research Institute



Glycoprotein capture from
serum & on-bead digestion

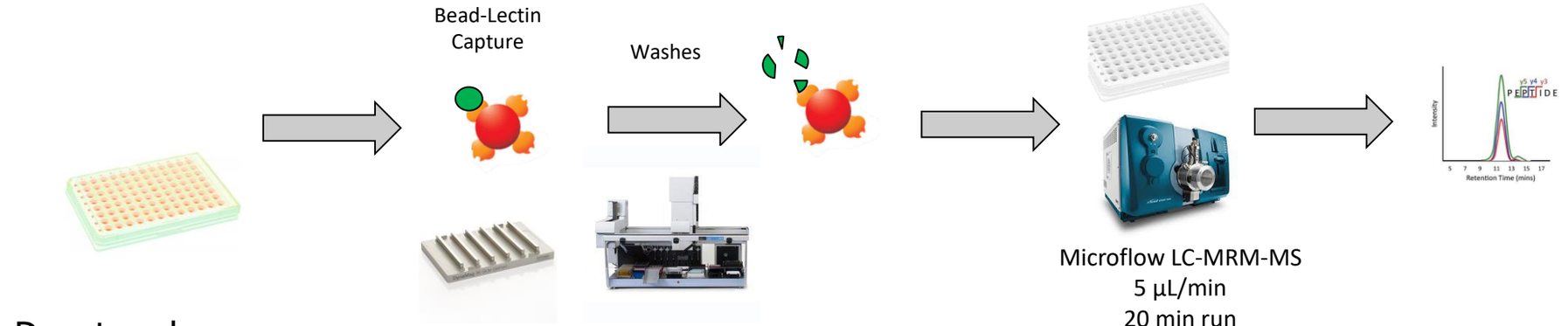
correlate with the presence of early stage OAC.

PILL
Proteomics International
LABORATORIES LTD

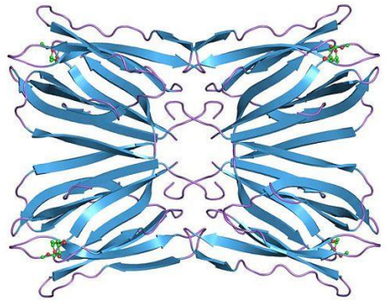
- ✓ Method transfer and optimisation
- ✓ Automated workflow
  10 h → 5 h
- ✓ Converted to Microflow LCMS
  0.4 mL/min → 5 µL/min
  50 min → 20 min

Technology Transfer

Method transfer and optimisation



- ✓ Jacalin is the lectin of choice
- ✓ Robust:
  - 4 sample replicates over 3 days 33 peptides
  - Average intraday CV is 9.3%
  - Average interday CV is 11.5%



Cohort 1 (Oschner cohort) (n = 50)

Protein	Trend (i.e. OAC compared to healthy)	
	QIMRB	***PI***
Haptoglobin	Not significant	↑
Alpha-1-antitrypsin	Not significant	↑
Alpha-1-antichymotrypsin	↑	↑
Complement component C9	↑	↑
Gelsolin	↓	↓
Plasma kallikrein	↓	Not significant
Serum paraoxonase/ arylesterase	↓	↓

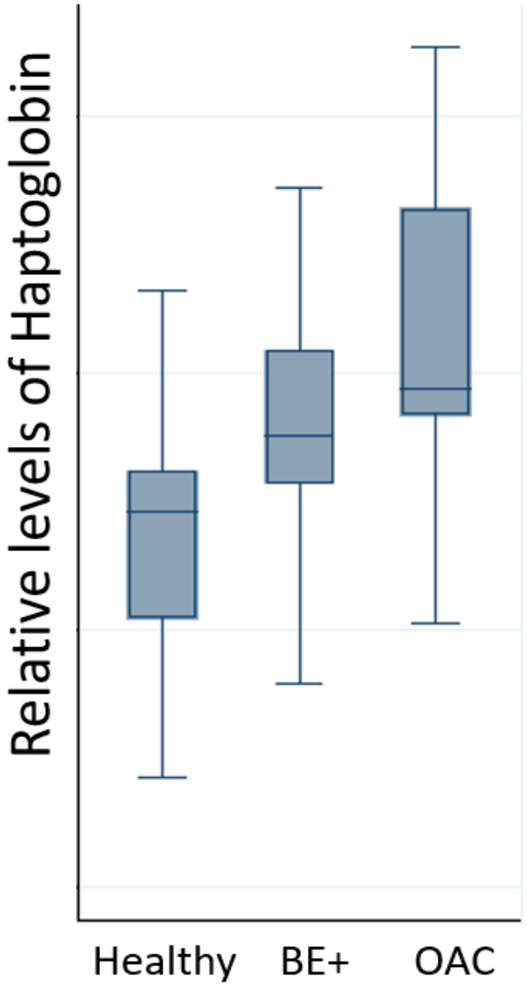
↑ or ↓ indicates p value <0.05

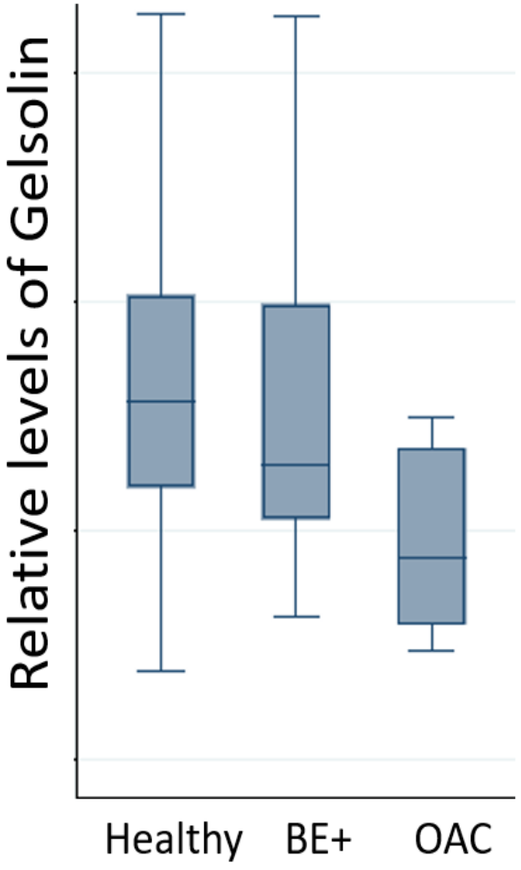
Cohort 2 (PROBENET cohort) (n=266)

Protein	Trend (i.e. OAC compared to healthy)	
	QIMRB	***PI***
Haptoglobin	↑	↑
Alpha-1-antitrypsin	↑	↑
Complement component C9	↑	↑
Gelsolin	↓	↓
Plasma kallikrein	↓	↓
Serum paraoxonase/ arylesterase	↓	↓
Beta-2-glycoprotein	↑	Not significant

↑ or ↓ indicates p value <0.05

Example proteins and peptides





Conclusions

- ✓ Robust method transferred
- ✓ Panels of glycoproteins as potential diagnostic biomarkers for OAC