Can melanoma treatment be guided by a panel of predictive and prognostic microRNA Biomarkers?

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The Australasian Melanoma Conference 2016 – Sydney, Australia
Origin of Circulating miRNAs

Survival is stage dependent at time of diagnosis

Melanoma-enriched miRNA Discovery

Stark et al. (2015) Oncotarget
Serum Cohorts Analysed- Multi-Centre Study

‘Controls’
• no history of melanoma (n=102)
• previous melanoma history (n=16)
• high nevus count (n=12)

‘Melanoma’
• stage I/II (n=86)
• stage III (n=50)
• stage IV (n=119)
Significant differences comparing ‘Melanomas’ vs. ‘Controls’

Stark et al. (2015) EbioMedicine
miR-211 predicts stage IV survival

Stark et al. (2015) EbioMedicine
MELmiR-7 panel members can classify Stage I/II vs Stage IV

AUC=0.99
Research Paper

The Prognostic and Predictive Values of Melanoma-related MicroRNAs Using Tissue and Serum: A MicroRNA Expression Analysis

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Can the *Melmir-7* panel guide patient treatment?
Potential for monitoring disease activity

Stark et al. (2016) Unpublished
Potential for monitoring disease activity

Progressive Disease (PD)

Blood Sampling Dates

Fold Change Relative to Initial Blood draw

- 1/04/2014
- 7/05/2014
- 29/07/2014
- 20/08/2014

- Brain Met *
- PD noted via CT **
- Cyberknife treatment ***
- PD noted via CT ****
- Death from Melanoma ☠

89% Accuracy

Stark et al. (2016) Unpublished

- BRAF +MEK inhibitor
- Anti-CTLA4
- miRNA Panel
- Average Fold Expression
What’s next?

- Serial collection of **Stage IIIc and IV** (n=50-100) patients undergoing standard first-line therapy

- Serial collection of High Risk Thick melanoma **Stage IIb/c** (n=50) patients at routine follow-ups

**Expected Results:**

- **MELmiR-7** expression = **Progressive Disease**

- **MELmiR-7** expression = **Treatment Success**
Acknowledgments and Funding

Prof. H. Peter Soyer
A/Prof Helmut Schaider
A/Prof Andrew Barbour

QIMR Berghofer
Medical Research Institute

Prof. Nick Hayward
Dr Kere Klein
Prof. David Whiteman
Jane Palmer

Queensland University of Technology
Brisbane Australia

A/Prof. Pam Pollock
Prof. Adrian Herington

Dr Victoria Atkinson
Dr W. Phillip Law

Prof. Claus Garbe
Dr Benjamin Weide
Dr Annette Pflagfelder

Prof. Richard Scolyer
Prof. Graham Mann
Prof. Georgina Long
Dr. Lauren Haydu
Dr. James Wilmott

Dr Elin Gray
Prof. Mel Ziman

Prof. Michael Millward
A/Prof. Adnan Khattak

Funding

Merchant Charitable Foundation

Australian Government
National Health and Medical Research Council