

Regulation of expression of tetraspanins CD151 and CD9 in prostate cancer

Judith Weidenhofer¹, Danielle Bond¹, Murray Cairns^{2,1} and Leonie Ashman¹

¹School of Biomedical Sciences and Pharmacy, University of Newcastle & Hunter Medical Research Institute, Australia

²Schizophrenia Research Institute, Australia

Prostate cancer is notable for its heterogeneity in the molecular characteristics of tumours as well as its disease progression and therefore patient outcomes. The tetraspanins are a family of proteins of which many are implicated in the progression of a number of cancers generally through having altered expression compared to controls. In particular CD151 and CD9 have shown prognostic potential as well as a direct involvement in prostate cancer progression in mouse models. However it is currently unknown what drives the alterations in expression of CD151 and CD9 seen in the different stages of prostate (and other) cancer. Alterations in post-transcriptional regulation of CD151 and CD9 expression in prostate cancer cell lines compared to non-tumourigenic prostate cell lines were identified by luciferase reporter assays using 3'-UTR constructs. Variations in the degree of 3'UTR targeting were observed in cell lines with different metastatic potential. miRNA expression array profiling and qPCR were used to identify specific miRNA that were responsible for the aberrant targeting, which will be confirmed with luciferase reporter assays. Validated miRNA with altered expression may indicate a mechanism through which cancer cells control the expression of CD151 and CD9. This is vital information if these proteins are to be used to their full potential as biomarkers or potential therapeutic targets in order to improve patient outcomes and quality of life.

Biography

Dr Weidenhofer received her PhD from the University of Newcastle (Australia) in 2006 for work investigating the molecular basis of schizophrenia. Since then she has focussed on understanding the molecular role of novel biomarkers for breast and prostate cancers. Dr Weidenhofer currently leads a group investigating tetraspanin proteins at the University of Newcastle (Australia).

Judith.Weidenhofer@newcastle.edu.au