



# FIBRES

Connecting ADRI Friends to Research

**SPRING 2011**

ASBESTOS DISEASES RESEARCH INSTITUTE



## FROM THE DIRECTOR

A vital step is translating research findings in understandable language. There are excellent examples of this but also failures where the message was lost by using too much simplification.

It is not unusual that gifted scientists wrongly assume that their research outcomes will easily find their way to those who may benefit the most. In addition, research jargon does not often translate easily into common language. That is why scientific journalists who are able to catch the essence of research in simple terms are so important. It is not only a privilege to do excellent research, but it is also our duty to communicate properly so that research outcomes are fully understood by patients, support groups, the government and industry.

A common way of transferring knowledge is presenting research outcomes at conferences. This is done in an oral form by presenting a study summary using a PowerPoint presentation. Usually this takes around 10-15 minutes and today medical researchers receive extensive training to give a well-structured presentation. Nevertheless, the reality is that quite a number of presentations are too specialised to be fully understood even by an educated audience. Another form of presenting research outcomes is in a poster format enabling interested scientists time to read and understand. A third form is a discussion poster where the poster is accompanied by a short PowerPoint presentation. Poster presentations allow for a greater exchange of ideas in a given time.

At ADRI we realise the importance of accurate and timely communication of research findings. When reading this issue of *FIBRES* you will see that several ADRI staff members have presented research outcomes in July. ADRI staff members were very successful securing 12 places to present their research at the 14<sup>th</sup> World Conference on Lung Cancer in Amsterdam. With more than 7000 attendees from 100 countries and more than 1900 presentations, this was the largest and most important meeting ever in thoracic oncology (cancer medicine of the chest). To keep you up-to-date of our research progress is an important part of our mission.

### PROFESSOR NICO VAN ZANDWIJK

#### Conference Presentations

Michaela Kirschner Y-Box-binding protein 1: a potential subtype-specific therapeutic target in malignant mesothelioma. We have identified a gene, *YBX1* that turns out to be important in regulating growth of a special form of mesothelioma. Patients with this form of disease seem to be confronted with a more aggressive disease course. We are investigating if we can inhibit the function of this gene and hopefully halting the progression of disease.



## PhD student receives International studentship

Dr Steven Kao, a PhD student at the ADRI, has won the International Studentship presented by Pfizer Oncology at the Sixth Annual Cancer Institute of NSW Premier's Awards for Outstanding Cancer Research in 2011. Dr Kao will spend three months at the Pfizer laboratories in La Jolla, California. His research focuses on predictive and prognostic factors in malignant mesothelioma.

Glen Reid An RNAi screen identifies new molecular targets in malignant mesothelioma. We have used a new technique, RNA interference, which allows any gene to be specifically inhibited. With this new technique we have identified 3 genes that are involved in the growth of mesothelioma cells, and we are currently testing whether these observations might have therapeutic applications.

cont. p2

## 14th World Conference on Lung Cancer Amsterdam 3-7 July 2011



ADRI research staff attended the IASLC's (International Association for the Study of Lung Cancer) 14<sup>th</sup> World Conference on Lung Cancer (WCLC) from the 3-7 July 2011 in Amsterdam. They made very successful presentations, raising the profile of asbestos-related diseases and our Institute. Professor van Zandwijk co-chaired the Conference and the ADRI team presented four oral presentations, chaired three sessions and presented seven poster including ePosters. The research presented at this conference is all very promising with anticipated publications very soon.

Glen Reid Discussant In this presentation I have discussed work from three other labs, including one in which new markers were found for mesothelioma.

Nico van Zandwijk The evolving role of biomarkers in NSCLC. Personalized medicine in NSCLC: Myth or reality. CMI Education Institute Satellite Symposium. In this presentation I have discussed markers for non-small cell lung cancer (NSCLC) that predict survival and response to therapy.

Nico van Zandwijk (Chair) Lung cancer in never-smokers. (PL02) Plenary session. The characteristics of a new group of lung cancers that do not seem to be related to cigarette smoking has been discussed.

Nico van Zandwijk (Chair) Biomarkers VIII. (MO22) Another session dedicated to markers that predict survival and response to therapy in lung cancer and mesothelioma.

### Poster Presentations

Yuen Yee Cheng Functional significance of ZIC1 and HSA-MIR-23A over-expression in malignant mesothelioma. This work involved the analysis of ZIC1, a so-called tumour suppressor gene. We found that this gene is often switched off in mesothelioma. When we reintroduced it, the growth and tumour-like properties reappeared.

Yuen Yee Cheng Epigenetic inactivation of the SFRP family by DNA methylation in malignant mesothelioma. This work also focused on so-called tumour suppressor genes in mesothelioma. We found that members of one particular gene family (SFRP family) are switched off in mesothelioma. This phenomenon is suspected to be important in the development of the disease.

Glen Reid The inhibitor of survivin expression, YM155, shows subtype-specific activity in malignant mesothelioma cells. At the present time there are no drugs specific for the different subtypes of mesothelioma. In cell cultures we found that an experimental drug (YM155) was most

effective against a mesothelioma subtype. We are now investigating whether YM155 may be a good candidate to be further tested in patients with mesothelioma.

Glen Reid Silencing of TYMS and PLK1 sensitises malignant mesothelioma cells to Gemcitabine.

Chemotherapy is often ineffective in mesothelioma, and this project aimed to identify genes that are involved in the resistance of mesothelioma against standard chemotherapy. We found that inhibiting two specific genes was able to increase the sensitivity to gemcitabine, a drug well known in cancer medicine.

Michaela B Kirschner MicroRNAs in plasma as potential markers for diagnosis of malignant mesothelioma. Reliable blood tests for the early diagnosis of mesothelioma are presently not available. We have been investigating whether microRNAs can fulfill this role, and have identified a number of small proteins (microRNAs) that maybe suitable for this purpose. We are currently validating our results by assessing these microRNAs in blood from mesothelioma patients diagnosed in other Australian centres.

Steven C. Kao Protein expression of excision repair cross complementation group 1 (ERCC1) and thymidylate synthase (TS) in malignant pleural mesothelioma (MPM) patients undergoing extrapleural pneumonectomy (EPP). The value of two potential markers predicting prognosis and response to therapy was investigated in a series of patients undergoing surgical therapy.

Steven C. Kao Prognostic factors in malignant pleural mesothelioma (MPM) in a cohort of patients compensated by the Dust Diseases Board. Clinical factors that in other studies were associated with the prognosis of mesothelioma patients were investigated in a series of NSW patients that applied for compensation at the Dust Diseases Board. We were able to confirm the prognostic value of disease subtype and gender.



Mrs Filippa Signorelli & her son Paul at the 2011 Gala Dinner

Mr Biaggio Signorelli, an Italian migrant of the mid 1950s, achieved so much in a land that was foreign to him. Through hard work and foresight he founded the Doltone House Group ([www.doltonehouse.com.au](http://www.doltonehouse.com.au)) and had much to live for and appreciate. Then in October 2007 his world changed forever when he was diagnosed with Mesothelioma. Biaggio died 8 months later in 2008.

Fulfilling Biaggio's dying wish, to help save others from this terrible disease, his family established a foundation in his honour. The Biaggio Signorelli Foundation is devoted to the early detection of asbestos related diseases, the care of patients, the development of new treatments and ultimately a cure for Mesothelioma.

Biaggio's three children are Directors of the Biaggio Signorelli Foundation along with ten independent directors. Currently the major fundraising event for the Foundation is an annual Gala Dinner held at one of Doltone House's major venues on Sydney Harbour. The first Gala Dinner was held in 2009 and the following sell-out dinners have become bigger and better. This year's dinner was no exception with the Gala Dinner held in May under the stars in a promenade marquee overlooking Sydney Harbour. The evening surpassed all expectations, not only in raising much needed funds for mesothelioma research but also in raising awareness of this dreadful man-made disease with politicians and the general public. For more information on the Biaggio Signorelli Foundation visit: [www.biaggiosignorelli.org.au](http://www.biaggiosignorelli.org.au)



Dr Anthony Linton

#### Biaggio Signorelli Foundation Fellow

The Biaggio Signorelli Foundation's contribution will allow Dr Linton, through the PhD program, to build on the research success of ADRI to identify new bio-markers and potential targets for new treatment approaches. Dr Linton is also preparing a review of the literature on the consequences of environmental asbestos exposure.

## The Swift Family Bequest & Mr Jim Tully Fellowship

The Fellowship co-sponsored by the ANZ Trustees Foundation - Swift Family Bequest and the Mr Jim Tully Memorial Trust provides support for a science graduate who will undertake study in the field of asbestos-related diseases, in particular working on a project focusing on the identification of biomarkers for malignant mesothelioma. This project is investigating the expression of microRNAs, a recently discovered family of small RNAs that are important regulators of gene expression in many cancers, and have great potential as biomarkers. In this project, microRNA expression in malignant mesothelioma will be measured in (a) tumours, with the goal of identifying genes with prognostic or predictive value, and (b) in blood, with the aim of identifying early markers of disease.

### Michaela Kirschner

#### The Swift Family Bequest & Mr Jim Tully Fellow

Michaela Kirschner commenced her Postdoctoral Fellowship at the ADRI in September 2009. Having completed her teaching degree in biology and chemistry, Michaela did her PhD with Professor Heike Allgayer and Professor Christian Manegold at the University of Heidelberg and the German Cancer Research Centre in Heidelberg, Germany (2005-2009). The focus of her PhD was on preclinical studies on the anti-metastatic effects of bisphosphonates in lung cancer and the identification of potential new target genes.



Since Michaela joined the ADRI, she has been involved in projects aiming to identify potential novel therapeutic targets and biomarkers for malignant mesothelioma. At present there are no known blood-based biomarkers for the detection of mesothelioma. Recent studies in other diseases have shown that a new range of small proteins, called microRNAs, can be detected in a range of body fluids and that the level of certain microRNAs seem to reflect the presence and activity of particular ceratin cancer types. The main focus of Michaela's work is to investigate whether microRNAs can be detected in the blood of mesothelioma patients. By assessing the microRNA content of blood from mesothelioma patients a number of microRNAs have been identified that may act as a marker of disease. Supported by the [Swift Family Bequest & Mr Jim Tully Fellowship](#), Michaela will further investigate the potential of these promising new markers in individuals at-risk of developing mesothelioma.

