The delicate and lace-like appearance of these cells belies their true nature: this image shows a cross-section through fat tissue. SVI research has shed new light on what happens within this tissue to contribute to conditions such as insulin resistance and type 2 diabetes.
2011 ended on a high for SVI: with the announcement of a $2million grant from the Australian Cancer Research Foundation (ACRF) and the remarkable success of SVI researchers in the Federal Government’s National Health and Medical Research Council (NHMRC) funding schemes.

In its December 2011 newsletter the NHMRC reported the results of its latest funding round. This showed that last year SVI had a success rate of 53% across all the NHMRC schemes, including Project and Program Grants and people support schemes. This is the second highest success rate reported out of the top 25 institutions and the 13th highest total amount of funding behind eight major universities and four large research institutes. This remarkable result is the best we have ever achieved and a tremendous credit to our researchers. Half of our project grants were awarded to researchers who have been at SVI for less than 5 years, which bodes well for the future. It is also a tribute to our Grants Office that does a great job ensuring grants are ready for submission.

We have also had good results from philanthropic submissions to Trusts and Foundations including a major award from the ACRF to SVI researchers Michael Parker, Louise Purton and Carl Walkley, and from the Helen McPherson Smith Trust. One can’t help feeling that there is a link between success in peer-reviewed and philanthropic grants.

These results mean we can look forward with optimism to 2012 in a diverse range of fields at top Australian institutions. Rachelle was selected from a highly competitive pool of researchers from leading US universities.

Rachelle did her PhD in Cancer Biology at Vanderbilt University in Tennessee, under the supervision of the late Dr Gregory Mundy, an ex-pat Australian and long-time collaborator of SVI’s Bone Unit. Jack Martin travelled to Vanderbilt for a number of months to assist with ongoing research in the lab following Dr Mundy’s sad passing in early 2010. He spent some of that time trying to convince Rachelle to consider SVI as a location for her first postdoctoral position. Rachelle admits that she was initially reticent to uproot her young family (her husband, Joshua, who is a research assistant, and infant son, Sam) to travel to the other side of the world. However, the idea of being able to work with Jack Martin and Natalie Sims in SVI’s Bone Unit, topped off with a little unexpected encouragement from her mother, convinced her.

Rachelle now works alongside her husband (she describes them as a ‘good package deal’) in SVI’s Bone Cell Biology and Disease Unit, where her research focuses on the signaling pathways that drive bone cell function. She is exploring how these pathways can be targeted to restore bone quality in degenerative bone diseases such as osteoporosis and osteoarthritis.

We are looking forward to participating strongly in the Review of Health and Medical Research being conducted this year by Simon McKeon and his panel. The scope of the review is quite broad, including charting the future directions of medical research, seeking opportunities in industry and with philanthropy, better ways of translating research into improved health practice, developing strategies to attract a skilled research workforce and the challenges in retaining them. These issues are very close to my heart and I hope our input will highlight the strength of Australia’s medical research institutes, and help us reach our goal of improving the health of Australians.
Dr Sandra Galic, working with Professor Bruce Kemp and long-time collaborator Greg Steinberg, has shown that a version of AMPK is involved in this process. The researchers found that mice were more sensitive to the effects of a high fat diet when a particular form of AMPK was removed from their blood cells, demonstrating that the protein protects against the negative effects of fat accumulation. Further studies showed that AMPK acts specifically in the macrophages, where it reduces the harmful effects of high fat levels.

This research goes some way towards explaining how certain common drugs used to treat insulin resistance, such as metformin and rosiglitazone may work. Bruce explains the significance of the research, "In looking at ways to protect the body from the harmful effects of obesity, focus has shifted from the fat cell, to the macrophage, and now potentially to AMPK within that cell, opening up new treatment possibilities."

He adds, "Our studies also raise the exciting prospect that drugs which activate AMPK may be able to treat other diseases where macrophages play a role, such as atherosclerosis and rheumatoid arthritis."

For a long time the immune cell known as a macrophage has been thought of as the garbage collector of the body (loosely speaking, its name means 'big mouth'): these hungry white cells were first recognised as scavengers of foreign invaders such as bacteria. However, it has become increasingly clear that they play a more wide-ranging role in health and disease: acting in many immune diseases, in the formation and spread of cancer, and in the body’s response to obesity.

As such, they are a good match for the favourite protein of researchers in SVI's Protein Chemistry and Metabolism Unit, AMP-activated protein kinase (AMPK), the body’s master regulator of cellular energy, which is beginning to be more easily described by what it can’t do, than by what it can. AMPK is emerging as a major player in human disease, with roles in cancer, heart disease and neurogenerative diseases.

In a paper published in the prestigious Journal of Clinical Investigation, SVI researchers showed that AMPK plays an important role in the macrophages, protecting the body against the deleterious effects of fat.

"Such a breadth and diversity of experience... gives us the best chance of combating the disease."
The SVI Foundation Scholarships help support PhD and Honours students at SVI, topping up their stipends by $5,000 per year. To date the fund has supported 15 PhD students and 20 Honours students.

Recipients of the 2012 SVI Foundation Scholarships include Edward Chu (PhD) and Karolina Novak (Honours), who are working with supervisor Dr Tom Brodnicki in the Immunology and Diabetes Unit. They will be investigating the role of two different genes involved in the function of immune cells that are responsible for killing insulin-producing beta cells in type 1 diabetes.

Allison Irvin (PhD) is working with A/Prof Helen Thomas in the Immunology and Diabetes Unit. She is studying how immune cells cause beta cells to die in type 1 diabetes, with the aim of finding ways to stop them.

Eliza Soo (PhD) is working in the Invasion and Metastasis Unit with Prof Rik Thompson and will be looking at the mechanisms involved in the spread of breast cancer cells. Once identified, these mechanisms will be exploited to find new ways of stopping breast cancer spread.

Chacko Joseph (PhD), supervised by A/Prof Louise Purton in the Stem Cell Regulation Unit, will be looking at the role of a particular signaling pathway in the development of blood cell diseases. By dissecting this pathway, his project aims to find ways of improving the outcomes of bone marrow transplantation.

Many thanks to Claire O’Callaghan, her SVI Support Group and our other donors for their support of the Scholarships.
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Please return to: St Vincent’s Institute of Medical Research, 9 Princes St, Fitzroy, VIC 3065

2012 Diary

Monday April 30
SVI Tour and Dinner – enjoy a brief tour of the Institute and hear about SVI’s latest research, followed by dinner. Contact Kathryn on koconnell@svi.edu.au or 9288 2746 for more information.

Monday May 28
SVI Forum – The Annual SVI Forum, chaired by SVI patron Sir Gustav Nossal, will be held at BMW Edge from 12–2pm, speakers include Professor Zihe Rao discussing Australia’s Biotechnology links with China. Contact Kathryn on koconnell@svi.edu.au or 9288 2746 for more information.

June 4
SVI Tour and Dinner

August
SVI Discovery Day (date TBC)

August 4
Susan Alberti Charitable Foundation Signature Ball

August 20
SVI Tour and Dinner

September
SVI 1000Club event (details TBC)

Monday Oct 15
SVI Charity Golf Day at Albert Park Golf Course

October 18
SVI Support Group Black Tie Dinner at the Athenaeum Club

November 11
City2Sea Fun Run

October 29
SVI Tour and Dinner
Contact Clare Lacey on 9288 2488 for more information

MICHAEL DWYER
1952-2012

It is with sadness that we report the passing of Michael Dwyer on the 2nd of March. Michael was a wonderful friend and supporter of the Institute, and was widely respected by all those who knew him. Michael chaired the SVI Charity Golf Day Committee for the last four years, with great commitment and humour. Through his support, the SVI Golf Day has raised more than $250,000 for heart disease research at the Institute.

Our sympathy goes to Michael’s wife Sally and the family.
JACK HOLT’S ENDURING GIFT

SVI owes its existence to the generosity of a single individual, Jack Holt, more than 50 years ago. From very humble beginnings, Jack Holt became one of the most successful racehorse trainers in Australian history. Throughout his career he trained more than 1000 winners, including winners of both the Caulfield Cup and the Melbourne Cup.

Before his death, Jack Holt considered how he might best share his good fortune, in a way that would benefit as many people as possible. He chose well: the 200,000 pounds he bequeathed to St Vincent’s Institute (SVI) are still reaping rewards more than 50 years later.

Since that time, scientists at SVI have been working to unravel the mysteries of disease. They have discovered proteins that control the balance between dissolving and renewing bone – an imbalance which can result in arthritis, osteoporosis and bone cancer – and they have pioneered studies into a protein called AMP kinase, which acts as the body’s fuel gauge and is a major focus of research on type 2 diabetes and obesity. SVI researchers have identified the three-dimensional structure of proteins involved in many diseases, from cancer and Alzheimer’s, to swine flu and other infectious diseases.

“Philanthropy is important for us,” says Tom Kay, “because our main source of revenue, competitive peer review research grants, do not cover the full cost of research.” The Institute is always looking to find support to fill this gap, as well as purchase equipment, support young researchers at different stages of their careers and develop new initiatives.

So just as the foundation of St Vincent’s Institute was due to the generosity of a single individual, the continued success of the Institute has been dependent on the generosity of a very large number of individuals. Imagine what a gift in your will (bequest) to SVI could help achieve in 10, 20 or even 50 years’ time.

A gift in your will to medical research could make the difference to your child or your grandchild’s health and wellbeing.

If you wish to make an enduring contribution to world class medical research through a bequest to SVI, and would like more information, please contact Clare Lacey, on (03) 9288 2480.

NEW BLOOD

David Tarascio has long heard his mother, Christine, speak of the important work that goes on at SVI. In a way, he felt that the Institute was well taken care of by the SVI Foundation and their fundraising activities, with which his mother has been particularly involved since the Foundation’s inception. It was only when he toured the Institute with his friend Mark Sullivan last year, that they both realised they too could have an impact.

Mark says “Everyone in the community will at some time be touched by a disease that SVI researchers are working on, whether it is cancer, heart disease, diabetes, or Alzheimer’s, to name a few. The opportunity I had to come and talk to the researchers first hand convinced me that I could help SVI promote their important work to a new audience.”

David, Mark and a group of friends have now formed the ‘SVI Awareness Committee’ with the aim of educating and engaging young professionals on the importance of medical research and its impact on society. The members of the committee include Jo Ashton, SVI researcher Andrew Deans, Tim Richardson, Sally Henderson, Mark Sullivan and David Tarascio (see image). The new Committee had its first meeting recently and will hold its official launch event in early May, followed by two further events this year.

2 Minutes with Cristina

Cristina Gammell Fulla joined Ora Bernard’s Cytoskeleton and Cancer Unit as a postdoctoral fellow in 2010.

My childhood ambition was… to be a marine biologist, probably mostly due to Jacques Cousteau documentaries.

My first job as a researcher was… at the University of Illes Balears, in the beautiful island of Palma de Mallorca in Spain. I was working there on a project about the use of mitochondrial DNA as a tool for population genetic studies. I had to set up thousands of reactions but I could not complain since the lab was less than 10 minutes walking distance from one of the most beautiful beaches in the south of Europe!

I got into research because… I am curious about why things happen and because I find it really rewarding.

My scientific role model is… Marie Curie for her enormous achievement in multiple sciences and especially for her advanced thinking beyond her time as a woman.

If I wasn’t doing research… I don’t have any idea what I would be doing. Seriously, I don’t see myself working in anything else.

If I could live anywhere I would… choose to live between Melbourne and Barcelona. I adore both cities so that would avoid me having to choose between them. What about living in Barcelona during the northern hemisphere summer and in Melbourne during the southern hemisphere one? Skipping winter – sounds good to me!