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The Hebrew University of Jerusalem

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SIR ZELMAN COWEN UNIVERSITIES FUND



THE UNIVERSITY OF  
SYDNEY



THE HEBREW  
UNIVERSITY  
OF JERUSALEM

# THE SIR ZELMAN COWEN UNIVERSITIES FUND PRIZE FOR DISCOVERY IN MEDICAL RESEARCH

AT THE HEBREW UNIVERSITY OF JERUSALEM

תשע"ז 2017

# SZCUF HISTORY



## The Fund

The **Sir Zelman Cowen Universities Fund** was established in 1978 to raise funds for medical & scientific research and to lay the foundation for cooperative work between the University of Sydney and The Hebrew University of Jerusalem for the mutual benefit of both institutions. It is located at the University of Sydney, in the historic Anderson Stuart Building, the original home of Australia's first Medical School. All grants made by the Fund are disbursed to the University of Sydney for projects nominated by the Fund's trustees at both Universities.

Since 1978 the Fund has provided millions of dollars for the support of medical research in a wide range of disciplines - the development of cultured skin for the treatment of burns and infection, the management of maturity onset diabetes, the control of pulmonary blood flow, fundamental research into the function of the heart and central nervous system, the molecular biology of AIDS and of other infectious diseases, and the study and early diagnosis of Alzheimer's disease. Since 2000, the Fund has also supported a program of academic and student exchange between the two Universities which is funded by a special donation from the John Hammond Trust. In addition, the Fund has provided support to the Orion Center at The Hebrew University, the Bosch Institute at the University of Sydney and it established the Fund Prize in 2006.



## The Founder

**Mr John Hammond**, a Sydney businessman, established the Fund in 1978. It was his view, and part of his vision for the Fund, that the development of therapies for still-incurable diseases required fundamental research. Projects supported by the Fund have reflected this view.

In recognition of his tireless fund-raising efforts, Mr Hammond was presented with an Honorary Fellowship by The Hebrew University in 1981 and an Honorary Doctorate in 1991 and was made an Honorary Fellow of the University of Sydney in 1993. He was also appointed Honorary Life President of the NSW Friends of The Hebrew University in 1980 in honour of his work for that organisation.

Mr Hammond remained a trustee of the Fund until shortly before his death in 1997 and was a most generous benefactor of the Fund.



## Sir Zelman Cowen

**Sir Zelman Cowen** had recently been appointed Governor General of Australia when the Fund was established. To honour this appointment and because of his long established links with both the University of Sydney and The Hebrew University of Jerusalem, the trustees approached Sir Zelman to allow his name to be used in naming the Fund.

Since that time, Sir Zelman served the Fund as a trustee (1992-1997) and thereafter provided warm support as Patron of the Fund till his death in December 2011.



## The Trustees

The Fund operates under the guidance of its four trustees, two representing the University of Sydney and two The Hebrew University of Jerusalem.

### Representing the University of Sydney:

**Professor Jonathan Stone**, Managing Trustee, Professor of Retinal and Cerebral Neurobiology, Director Bosch Institute and Challis Professor of Anatomy (1987-2003) at the University of Sydney.

Professor Stone's awards for contributions to scientific research include a Centenary Medal for services to Australian society and science in developmental biology and the Ludwig von Sallman Medal for Vision Research awarded by the International Society for Eye Research. Prof Stone is also a Fellow of the Australian Academy of Science.



**Professor David Celermajer AO**, Scandrett Professor of Cardiology, University of Sydney; Director of Echocardiography and Clinical Academic Cardiologist, Royal Prince Alfred Hospital Sydney; Clinical Director and Group Leader, Clinical Research, The Heart Research Institute and Cardiologist at the Children's Hospital, Westmead, Sydney.

Professor Celermajer's many awards and prizes for outstanding contributions in his field include the Commonwealth Health Minister's Award For Excellence In Health And Medical Research, "for outstanding lifetime achievement in health research". Prof Celermajer is a Fellow of the Australian Academy of Science and a past Rhodes Scholar.

In the 2014 Australia Day Honours Awards, Prof Celermajer was awarded an AO for distinguished service to medicine in the field of cardiology and to the promotion of heart health, particularly in children and young adults.



### Representing The Hebrew University of Jerusalem:

**Mr Michael Dunkel**, lawyer, co-President of the New South Wales Division of the Australia Friends of The Hebrew University, member of The Hebrew University Board of Governors.

Mr Dunkel is also a governor of the Orion Foundation which he helped establish to fund various causes and projects including the Orion Center for the Study of the Dead Sea Scrolls.

In 2005, Mr Dunkel became an Honorary Fellow of The Hebrew University and in 2007 The Hebrew University awarded him an Honorary Doctorate in recognition of his services.



**Mr Robert Simons OAM**, engineer and businessman, Federal President Of the Australian Friends of The Hebrew University, a past President of the NSW Friends of The Hebrew University, a member of The Hebrew University's Board of Governors and a member of The Hebrew University's Executive and Nominations Committees. In 2006, Mr Simons Became an Honorary Fellow of The Hebrew University.

Mr Simons is also a tireless worker for a number of other Jewish communal organizations.

His role in the Jewish community, and in particular his contribution to education, was recognised by the award of an Order of Australia Medal (OAM) in the 2007 Australia Day Awards.

# THE PRIZE

## Sir Zelman Cowen Universities Fund Prize For Discovery In Medical Research

Awarded in alternate years at the University of Sydney and at The Hebrew University, the Prize recognizes discovery in medical research carried out at either university by a scientist under 45 years of age.

It comprises an award of AUS\$20,000 and a medal crafted by Melbourne sculptor, Michael Meszaros. It is awarded for a discovery which has made a major contribution to the understanding or treatment of disease and has achieved or has the potential to achieve, therapeutic outcomes.

The Prize was established in November 2004 in honour of the Fund's Patron, Sir Zelman Cowen who served as Governor General of Australia from 1977-1982. It was established by a special donation from the John Hammond Trust.



**Dr Mark Elkins**, a Sydney physiotherapist and (at the time) a doctoral candidate, in the Faculty of Medicine at the University of Sydney, was the inaugural recipient of the award, for a groundbreaking treatment for cystic-fibrosis. The award was made in 2006, in Sydney.



**Professor Nir Friedman**, School of Engineering and Computer Sciences, Hebrew University of Jerusalem, received the first award of the Prize at The Hebrew University, for his pioneering work in the field of bioinformatics. The award was presented in Jerusalem in 2007.





# 2017 SZCUF PRIZE

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SYDNEY



Sir Zelman Cowen Universities Fund Prize  
For Discovery In Medical Research

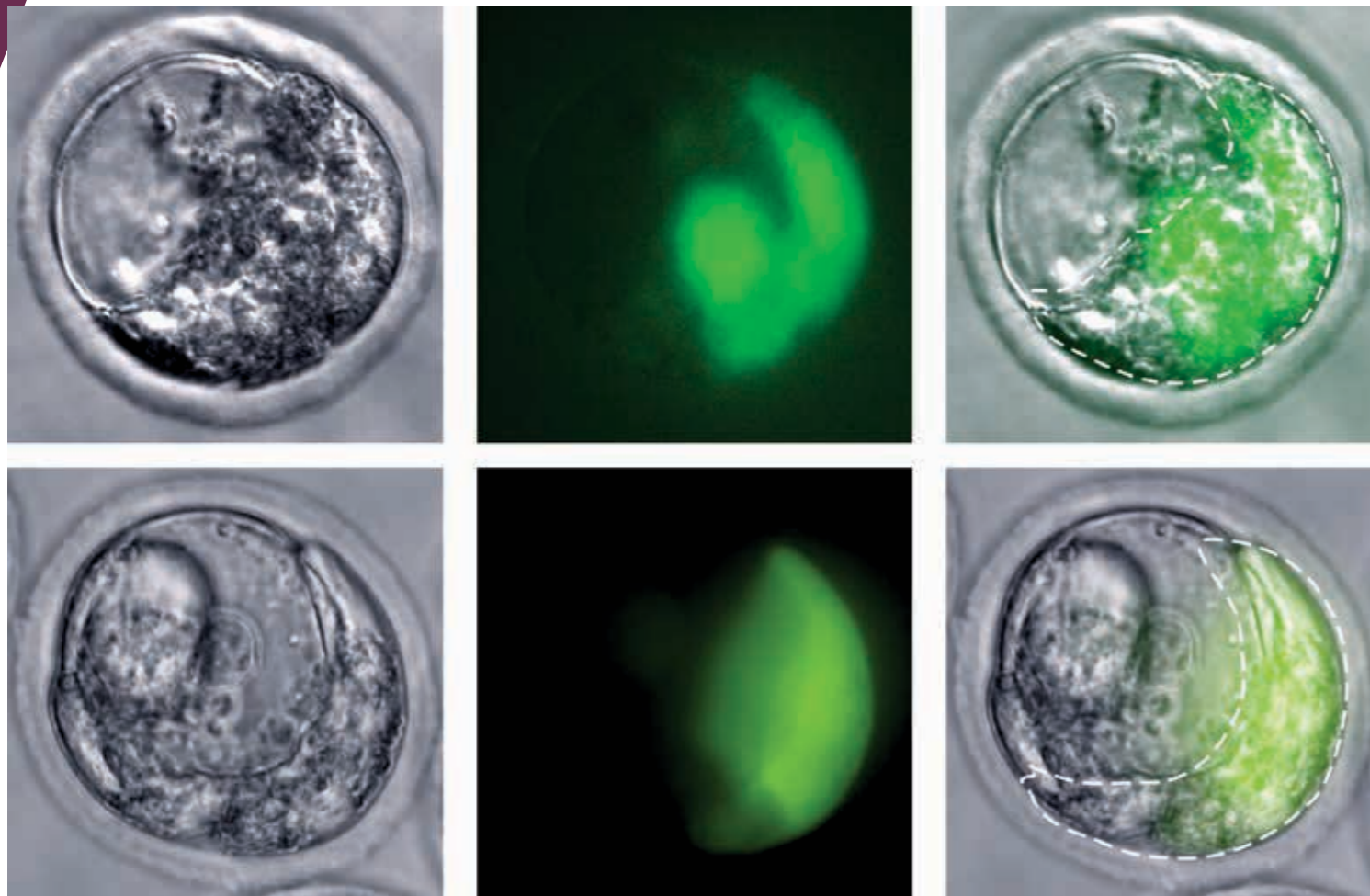


## Dr. Yossi Buganim Regenerative Medicine

Yossi Buganim received undergraduate degrees from Bar-Ilan University and a Ph.D. from Weizmann Institute of Science. As a postdoctoral fellow at Whitehead Institute for Biomedical Research, MIT, Dr. Buganim exploited single-cell technologies along with bioinformatic approaches to shed light on the molecular mechanisms underlying

somatic cell undergoing reprogramming to embryonic stem-like cells. Currently, his own laboratory, at The Hebrew University, is focused on multiple *in vitro* and *in vivo* somatic cell conversion models to allow the generation of multiple cell types for future clinical use.

Representative bright field and fluorescence images of engineered mouse embryos at the blastocyst stage expressing a GFP reporter (green signal) in the ICM, a compartment in the blastocyst that will give rise to the embryo proper.



Dr. Buganim has been awarded the **2017 Sir Zelman Cowen Universities Fund Prize** for Medical Research for his extensive and groundbreaking work in regenerative medicine.

Regenerative medicine is a new and developing field aimed at engineering, regenerating or replacing human cells, tissues or organs, in order to establish or restore normal function. Embryonic stem cells (ESCs) have enormous potential in this area because they can differentiate into all cell types in the human body. However, two significant obstacles prevent their immediate use in medicine: ethical issues related to terminating human embryos, and rejection of foreign cells by the patient's immune system. The creation of ES-like cells from skin cells, induced pluripotent stem cells (iPSCs), resolved both issues.

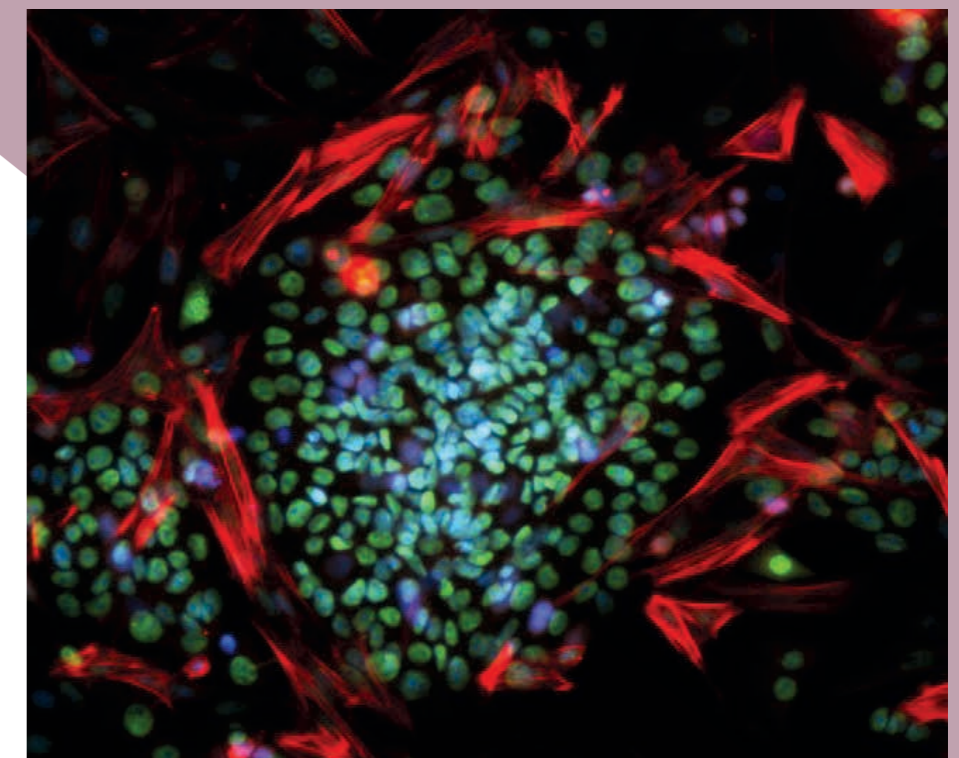
Despite these cells' enormous potential, their quality is still not sufficient to be used in clinical practice, and there is a need to find the best protocol that will enable production of high-quality iPSCs that would not pose a danger to patients.

Dr. Buganim's laboratory has made two major breakthroughs in this area, representing major steps forward in the field of regenerative medicine and transplantation.

**Project A**  
In order to improve the quality of embryonic stem cells, Dr. Buganim and his colleagues conducted bioinformatic analyses which pointed to four new key genes capable of creating iPSCs from skin cells, of superior quality to stem cells in current use. These cells (in this case mouse cells) are able to clone a whole mouse with much greater success (80%) than other iPSCs (30%). This test is the most important one determining the quality of the cells.

**Project B**  
Many women suffer recurrent miscarriages and abnormal placenta, which causes fetal growth restriction that can lead to mental retardation. Dr. Buganim's laboratory found the key genes of the placenta stem cells and by expressing them in surplus in skin cells, created induced placental stem cells. These cells looked and behaved like natural placental stem cells. Various quality tests showed that these cells have cell-generating capability *in vitro* and inside a placenta that develops following a transplant. The success of this project may enable women with placenta problems to give birth to healthy children.

Representative bright field and fluorescence images of skin cell-derived induced Sertoli cells (i.e. cells in the testis that are responsible for proper sperm production, green cells) and native peritubular cells surrounding them (red cells).





# PREVIOUS WINNERS

Sir Zelman  
Cowen  
Universities  
Fund Prize  
PREVIOUS  
WINNERS

The  
University  
of Sydney



## 2016 Award

Professor Georgina Long  
Melanoma Medical Oncology and  
Translational Research, Melanoma  
Institute Australia

Professor Long was nominated for her  
extensive contribution to the field of  
melanoma research and clinical services.



## 2014 Award – shared

Associate Professor Anthony Gill, Sydney  
Medical School, University of Sydney  
and Senior Staff Specialist, Dept of  
Anatomical Pathology Royal North Shore  
Hospital

Professor Gill was nominated for his  
contributions to our understanding of  
a number of gastrointestinal and renal  
cancers.



Associate Professor Ostoja (Steve) Vucic,  
Sydney Medical School, University of  
Sydney and Senior Staff Specialist, Dept  
of Neurology, Westmead Hospital

Professor Vucic was recognised for  
his discovery of a unique mechanism  
underlying amyotrophic lateral sclerosis  
(ALS).



## 2012 Award

Associate Professor Barry Slobedman,  
Discipline of Infectious Diseases &  
Immunology, University of Sydney and  
Centre for Virus Research, Westmead  
Millennium Institute

Professor Slobedman was nominated  
for his discoveries about the human  
cytomegalovirus (HCMV).



## 2010 Award

Dr Rachel Codd, Discipline of  
Pharmacology, Faculty of Medicine,  
University of Sydney

Dr Codd was nominated for the  
development of a range of compounds  
that may be effective in treating  
iron overload disease with orally  
administrable drugs.



## 2008 Award

Dr Catherine Leamey, Discipline of  
Physiology, School of Medical Sciences,  
University of Sydney

Dr Leamey's work was recognised for the  
the identification of the Ten\_m3 gene,  
which is essential for binocular vision.



## 2006 Award

Dr Mark Elkins, Research Physiotherapist  
at the Royal Prince Alfred Hospital,  
Sydney who, at the time of the award,  
was a PhD candidate in the Faculty of  
Medicine at the University of Sydney.

Dr Elkins was the inaugural recipient  
of the award. He was recognised for  
establishing new, low-cost, long-term  
therapy for cystic fibrosis.



## 2015 Award

Associate Professor Assaf Friedler,  
School of Chemistry, The Hebrew  
University of Jerusalem

Professor Friedler was nominated for  
his groundbreaking work in protein  
intercation as targets for drug design.



## 2013 Award

Associate Professor Eran Meshorer,  
Dept of Genetics, Silberman Institute of  
Life Sciences, The Hebrew University of  
Jerusalem

Professor Meshorer was awarded the  
Prize for his work on pluripotency.



## 2011 Award – shared

Dr Eli Pikarsky, Hebrew University-  
Hadassah Medical School, The Hebrew  
University of Jerusalem

Dr Pikarsky was nominated for insights  
gained from his work in complex mouse  
models, into the pathogenesis of human  
disease.



Associate Professor Sigal Ben-Yehuda,  
Institute for Medical Research Israel-  
Canada, Hebrew University-Hadassah  
Medical School, The Hebrew University  
of Jerusalem

Professor Ben-Yehuda, was nominated  
for her contributions to our  
understanding of the biology of bacteria.



## 2009 Award

Dr Adi Mizrahi, Department of  
Neurobiology, Silberman Institute of  
Life Sciences, The Hebrew University of  
Jerusalem

Dr Mizrahi was nominated for his  
contribution to the understanding of  
synapse formation (nerve connections)  
in the central nervous system (CNS) and  
for the development of techniques of  
CND repair.



## 2007 Award

Professor Nir Friedman, Benin School of  
Engineering and Computer Science, The  
Hebrew University of Jerusalem

Professor Friedman was nominated  
for his pioneering work in the field of  
bioinformatics.

Further information about the work of all Prize-winners  
can be found by following the links on the Fund's website  
at [sydney.edu.au/szcu/prize/announcements.shtml](http://sydney.edu.au/szcu/prize/announcements.shtml)

Sir Zelman Cowen Universities Fund  
... investing in the future through medical research

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PREVIOUS  
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