PROJECT GRANTS
FUNDING TO COMMENCE IN 2013

In total, for 2013, $1,180,000 in funding has been allocated, supporting 20 projects.
The successful projects are listed below in alphabetical order by Institution.

FLINDERS UNIVERSITY

CHIEF INVESTIGATOR	EC	REF	PROJECT TITLE/ SIGNIFICANCE	DURATION	CAT	PROJECT FUNDING
BURDON, Dr Kathryn		13774	Gene identification in Congenital Cataract using high throughput sequencing technology	1 Year	BS	**$70,000**
Congenital cataract is a common cause of childhood blindness. The prevalence in Australia is around 2.2 per 10,000 births and can lead to lifelong visual impairment or blindness. Many cases have a genetic basis. Over 25 genes have been reported to date and many genes are yet to be identified. This project will screen a large repository of DNA samples from patients for mutations in these known genes, then undertake gene discovery in families with no mutation using modern high throughput genomic technology, for providing molecular genetic diagnosis.						
DIXON, Ms Dani-Louise		13718	Reducing respiratory syncytial virus (RSV) induced epithelial damage via the neutrophil moderator, feG	2 Years	BS	**$73,000**
Bronchiolitis is the most common severe respiratory tract illness in infants and remains a major cause of infant hospitalisation. Apart from supportive intervention, there is no treatment. Strong evidence suggests that the major viral cause of bronchiolitis, RSV, induces host immune cells (neutrophils) to damage the lung, increasing disease severity and leading to asthma/wheeze in up to 50% of patients. Recently our lab demonstrated the ability of a protein, feG, to prevent and treat such lung damage. We aim to test the therapeutic potential of feG in decreasing lung damage caused by RSV.						
HOBBS, Mr David		13700	Can children with cerebral palsy improve their hand sensation using special haptic computer games? A randomised controlled trial.	2 Years	CS	**$65,000**
The aim of this project is to determine if the sense of touch can be improved in the hands of children with cerebral palsy (CP) who have a known sensory loss. This will be investigated using a novel "in-home" computer gaming system within a randomised controlled trial (RCT), which provides the highest level of research evidence. This technology trial will be a world first. Demonstrating that touch sensitivity can be "trained" in children with CP has the potential to influence how rehabilitation professionals provide treatment for the impaired upper limb.						

Flinders University cont'd

JESSUP, Dr Claire	**EC**	13665	The importance of cell-to-cell interactions in juvenile (Type I) Diabetes	2 Years	BS	**$35,000**
Juvenile diabetes, or Type 1 diabetes (T1D), affects over 120,000 Australians with 2 children newly diagnosed every day (Australian Institute of Health and Welfare, 2010). In children, T1D is more common than cancer, cystic fibrosis and multiple sclerosis. T1D occurs when the body's immune system damages the insulin-producing cells in the pancreas. Although insulin injections are a form of treatment, there is no cure. This research will investigate the cell-to-cell cross-talk within the pancreas during blood glucose sensing and cellular attack and may identify novel targets to prevent T1D.						

MENZIES SCHOOL OF HEALTH RESEARCH

CHIEF INVESTIGATOR	EC	REF	PROJECT TITLE/ SIGNIFICANCE	DURATION	CAT	PROJECT FUNDING
CHANG, Professor Anne		13688	Adaptive and innate immunity in children with bronchiectasis	2 Years	CS	**$73,000**
Our national and NT-based studies found that Indigenous children are most at risk of bronchiectasis. Our study will identify the pathobiology with respect to presence of: (a) dysfunctional efferocytosis of apoptotic airway epithelial cells associated with neutrophilic inflammation; and (b) diminished innate and adaptive immunity to NTHi. To date, there are no studies that have examined the pathobiology of children with bronchiectasis. Understanding the biology is an important to future therapeutic interventions. For example, azithromycin improves phagocytic function of alveolar macrophages.						
SMITH-VAUGHAN, Dr Heidi		13699	Would the pathogenic nontypeable Haemophilus influenzae please stand up; a whole-genome comparison of disease- and non-disease-related isolates	2 Years	BS	**$71,000**
Internationally, efforts to control nontypeable Haemophilus influenzae (NTHi) carriage and disease have had limited effect. For young Indigenous children in the Northern Territory, NTHi carriage prevalence exceeds 80% contributing to high rates of ear and chronic lung disease, and potentially pneumonia and bacteraemia. NTHi is a highly diverse bacterium which is morphologically and phylogenetically similar to commensal Haemophilus species. Thus, it is not currently possible to discriminate pathogenic NTHi from commensal NTHi, and this has implications for clinical and vaccine research.						

UNIVERSITY OF ADELAIDE

CHIEF INVESTIGATOR	EC	REF	PROJECT TITLE/ SIGNIFICANCE	DURATION	CAT	PROJECT FUNDING
GILES, Dr Lynne		13745	Toddlers with depressed mothers: What are the consequences for adolescent mental health?	2 Years	CBS	**$70,000**
This study will examine whether children whose mothers had depressive symptoms when they were toddlers (aged 2-3 years) have an excess of mental health problems at age 13 (transitioning to adolescence). Among children whose mothers had depressive symptoms, we will also investigate whether childcare in toddlerhood modifies any effect on mental health at age 13. Problems in adolescence can have lasting effects on many domains spanning mental health, relationships and life opportunities. The life course of toddlers of depressed mothers may thus be profoundly altered by interventions in early life.						
LEWIS, Miss Victoria	**EC**	13661	The role of a Type I secretion system in Pseudomonas aeruginosa biofilm formation	1 Year	BS	**$31,000**
Pseudomonas (P.) aeruginosa is a clinically significant, opportunistic pathogen, which is also the major cause of morbidity and mortality for individuals with Cystic Fibrosis (CF). In CF individuals, P. aeruginosa colonization occurs in early childhood, such that by the age of 19, 75-80% of patients have irreversible lung infections. P. aeruginosa infections persist despite long-term antibiotic treatment via the formation of biofilms. In this project, we will characterise the role of a novel protein secretion system that has a crucial role in the formation of P. aeruginosa biofilms.						
MUHLHAUSLER, Dr Beverly		13762	A maternal low GI diet for improving offspring metabolic outcomes	2 Years	BS	**$70,000**
Low glycemic index (GI) diets promote weight loss and improve insulin sensitivity in adults, but it is not known if consuming these diets during pregnancy and breastfeeding can protect infants and children from obesity and diabetes. This proposal aims to determine whether consuming a low GI diet compared to a moderate-high (typical Australian) diet during pregnancy and lactation can reduce fat mass and increase insulin sensitivity in the offspring. This has the potential to identify a simple dietary strategy for reducing the risk of obesity and diabetes in future generations of Australians.						
PISHAS, Miss Kathleen	**EC**	13713	Examining the therapeutic potential of targeting the MDMX oncogene for the treatment of childhood sarcomas	2 Years	BS	**$35,000**
Sarcomas represent a group of bone or soft tissue cancers that disproportionally affect the young. Despite the implementation of intensive multi-modal treatment strategies, current five year survival rates for young South Australians diagnosed with bone cancer is only 56%, amongst the worst for all childhood cancers. Alternative systemic therapeutic options are urgently required to improve patient outcomes. Our research team is the only group within South Australia investigating the therapeutic potential of novel agents for the targeted treatment of these aggressive childhood cancers.						

University of Adelaide cont'd

ROBERTS, Dr Rachel		13685	Evaluation of a group program for siblings of children with special needs	2 Years	CS	**$70,000**
Over 200,000 Australian children have a severe disability or chronic illness, most of whom will have at least one sibling. The sibling relationship is often the longest of any, with siblings often taking a caring role when parents are no longer able to. Siblings of children with special needs have an increased risk of mental health problems. The most common intervention provided in Australia is the group program, SibworkS which aims to enhance mental health. This research will be the first to establish whether SibworkS is effective and as such whether it should be offered more widely.						
SAWYER, Professor Michael		13671	Does nurse home-visiting improve the longer term health and wellbeing of mothers and children?	1 Year	CS	**$70,000**
The South Australian Family Home-Visiting program is a targeted 2-year intervention delivered by nurses to mothers of children aged 0 to 2 years. The program is designed to improve the short-term and longer-term health and wellbeing of mothers and young children. The present study will determine whether mothers and children who received the South Australian program have better outcomes when children are aged 5 years than a comparable group of mothers and children who did not receive the program.						
SHOUBRIDGE, Dr Cheryl		13772	Preferential transmission of the mutant allele(s) of the ARX homeobox gene.	2 Years	BS	**$71,000**
Intellectual disability is frequent in the population, with as many as 1 in every 50 people in the world directly affected. ARX is one of the most frequent genes mutated in X chromosome-linked intellectual disability. Our recent work has reported that we observe a higher than expected inheritance of these mutations from mothers carrying these mutations. Our study will specifically examine the reasons behind this preferential inheritance of the disease causing mutations leading to intellectual disability.						
STARK, Dr Michael		13764	Early continuous assessment of cerebral fractional oxygen extraction for the identification of very preterm neonates at risk of acquired neonatal brain injury	2 Years	CS	**$50,000**
Approximately 22% infants born <32 weeks gestation develop intra-ventricular haemorrhage (IVH) per year in Australia with an annual societal cost of $350million. Clinical interventions have failed to prevent IVH with the major barrier to neuro-protection identifying the infants at highest risk. Early assessment of cerebral oxygen use in very preterm infants will provide clinicians with a sensitive, clinically useful means of identifying those infants at highest risk of brain injury, a critical first step in preventing the life-long consequences of these devastating sequelae of prematurity.						

University of Adelaide cont'd

WILKINSON, A/Professor Dominic		13776	The impact of a parent handbook for end-of-life decisions in critically ill children: a pilot qualitative study	1 Year	CS	**$60,000**
Decisions about life-sustaining treatment are common in paediatric and neonatal intensive care. These decisions are often extremely difficult and stressful for families. Parents are supported in decisions by their child's doctors and nurses, as well as by family and friends. However, there are few, if any independent sources of information for parents. There are no existing written sources that explain in an accessible way the ethics of end-of-life decisions for parents. This project will pilot a novel resource for parents facing one of the most difficult decisions of their lives.						

UNIVERSITY OF SOUTH AUSTRALIA

CHIEF INVESTIGATOR	EC	REF	PROJECT TITLE/ SIGNIFICANCE	DURATION	CAT	PROJECT FUNDING
CHUNG, Dr Rosa	**EC**	13715	The potential role of vascular endothelial growth factor (VEGF) in the faulty bony repair of injured growth plate	1 Year	BS	**$31,000**
In children, the growth plate is responsible for bone growth; yet its injuries can result in unwanted bony repair causing orthopedic problems requiring invasive corrective surgeries. Currently, little is known of underlying mechanisms for the faulty repair. While VEGF-induced angiogenesis is vital in bone fracture repair, its role is unknown in growth plate bony repair. This study will reveal VEGF's role in growth plate repair, positive information will lead to identification of a potential novel therapeutic target for preventing unwanted bony repair and inducing growth plate regeneration.						
MAHER, Dr Carol		13673	Step up' - a pedometer based physical activity self-management program for adolescents with physical disability	2 Years	CBS	**$70,000**
Physical activity is important for physical and psychological health, as well as for maintenance of physical function and independence in young people with physical disabilities. However, people with physical disabilities have difficulty finding appropriate avenues for physical activity. This project involves the development and evaluation of a novel and feasible pedometer-based physical activity self-management program for young people with physical disability. Given its low-cost, low-touch nature, once developed, this program could be readily incorporated into ongoing clinical services.						

University of South Australia cont'd

XIAN, Professor Cory		13720	Towards a fish oil-based omega-3 therapy for preventing bone loss during chronic methotrexate chemotherapy	1 Year	BS	**$75,000**
While chemotherapy of acute lymphoblastic leukaemia (the major childhood cancer) has a 75% cure rate, it can cause significant bone loss that lacks protective treatments. Recently in rats treated with methotrexate (the major childhood cancer drug), we observed bone protective effects of dietary fish oil supplementation. Here we will evaluate its efficacy during chronic chemotherapy and define minimal effective intake of omega-3 fatty acids. This work will potentially lead to a safe and cost-effective strategy for ensuring bone health and life quality for children during and after chemotherapy.						
ZHOU, Dr Fiona	**EC**	13711	Cellular and Molecular Mechanism of Bone Pain Associated With Childhood Chemotherapy	1 Year	BS	**$15,000**
Chemotherapy has a high success rate in treating childhood cancer; yet it causes significant bone pain in patients, and increase in burden. Currently, how chemo induces skeletal pain is unclear, and the available analgesics are non-specific, temporary, and can cause adverse effects. Recently we observed an increase in production of pain inducing neuronal growth factors in our chemotherapy rat model. Here, we propose to investigate the cells and molecules involved in chemo-induced bone pain. This study will be valuable for developing specific and safe strategies for managing chemo bone pain.						

WOMEN'S AND CHILDREN'S HEALTH RESEARCH INSTITUTE

CHIEF INVESTIGATOR	EC	REF	PROJECT TITLE/ SIGNIFICANCE	DURATION	CAT	PROJECT FUNDING
SHARMA, Dr Raman		13695	Mutations in THOC2 implicate mRNA export pathway in intellectual disability	1 Year	BS	**$75,000**
Intellectual disability (ID) represents a range of clinically diverse and genetically heterogeneous disorders, which affect >1/50 individuals world-wide. Using advanced DNA sequencing of affected individuals from 500 Australian and overseas families, we identified five different patients with mutations in the THOC2 gene. THOC2 facilitates effective transport of molecules within a cell and thus ensures proper cell function. Understanding how THOC2 mutations disrupt cellular process crucial for the function of neurons will offer diagnostic and therapeutic help for patients and their families.						

BS – Basic science
CS – Clinical study
CBS – Community based study
EC – Early career grant