Kids Research Institute NHMRC Project grant success for funding in 2010

Kids Research Institute researchers are involved in 14 successful NHMRC Project Grants with more than $12M being awarded to these research projects with the funding made available from 2010. Research includes investigations into lethal brain tumours, a hip disorder, loss of sight due to Type 1 diabetes and chronic kidney disease are among the projects that will be funded.

Research enables significant advances in the development of treatments, cures and prevention of childhood diseases, improving the lives of present and future patients and the families.

Glioblastomas are lethal brain tumours. Dr Geraldine O'Neill has been awarded an NHMRC Project grant to discover how these cancer cells penetrate neighbouring healthy brain tissue.

Only 20% of patients diagnosed with a glioblastoma will be alive five years after diagnosis. Penetration and spreading of the glioblastoma cancer cells into the rest of the brain means that after surgery to remove the tumour, the cancer can reappear in different parts of the brain. The spreading of the brain tumour cells is a major reason why glioblastomas are so difficult to treat.

Dr O'Neill will be testing her theory that a protein molecule, NEDD 9, promotes the spread of these deadly brain cancers.

“If we can understand the lethal ability of the cancer cells to invade then we are in a good position to come up with new therapies,” said Dr O’Neill. “The survival rate from glioblastoma is terrible and stands in stark contrast to the high survival rates of other more common cancers.”

Two of the grants will enable clinical trials to be conducted and will involve four other paediatric hospitals in Australia. One involves children with a hip disorder; the other trial involves young people that are losing their sight as a result of Type 1 diabetes.

Perthes’ disease is a disorder of the hip joint in children. A/Prof Chris Cowell, A/Prof David Little and Dr Craig Munns will investigate bisphosphonate treatment.

“It is a severe childhood disorder with over 200 new cases per year in Australia” explained A/Prof Chris Cowell.

“Perthes disease occurs following loss of blood supply to the hip and results in flattening of the normally round femoral head and painful arthritis. The hip becomes flat because the bone is eaten by cells called osteoclasts. We will test if a medicine aimed at stopping these osteoclasts can prevent hip flattening. This should decrease the risk of arthritis and the need for hip replacement.”

Diabetes is the leading cause of visual loss in young adults in Australia and other countries. A/Prof Kim Donaghue and her team have received $1,226,875 to investigate an intervention to reduce the risk of diabetic retinopathy and early retinal changes in Type 1 diabetes.

“This study will treat adolescents for 4 years and will follow them for the next 5-10 years.” A/Prof Kim Donaghue said. “This will be in collaboration with an already funded international multi centre trial. It is a unique opportunity.”

Chronic kidney disease is the seventh most common cause of death in Australia. A/Prof Stephen Alexander has received a grant to lead a team to study specific cells that may in future be used to protect against kidney disease.
“One in three Australians at an increased risk of kidney disease”, said A/Prof Stephen Alexander. “The number of patients who are being placed on dialysis due to kidney failure is increasing and the average waiting time for the solution, a kidney transplant, is five years. New discoveries and better treatments need a long term commitment and The Centre for Kidney Research is at the forefront of this challenging battle.”

The team has identified three types of white cells that can reduce kidney damage. The first is a unique set of gamma-delta T cells that expand in the kidney and protect against injury. The second is a restricted set of CD8 T cell that can protect against kidney injury. The third are targeted natural regulatory T cells. These studies develop each of these three subsets as potential cellular therapies for treating chronic kidney disease.

These research projects will improve our understanding of childhood diseases and enable the development of innovative treatments with better outcomes for children and their families.