



# Children's Cancer Institute Australia for Medical Research



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Children's Cancer Institute Australia for Medical Research is the only research institute in Australia devoted solely to research into the causes, diagnosis, treatment and prevention of childhood cancer. It is an independent Institute, closely affiliated with Sydney Children's Hospital, Randwick (SCH) – particularly the Division of Haematology and Oncology – and UNSW.

Research at the Institute is organised into a number of programmes. The Experimental Therapeutics Programme focuses on characterising genes associated with resistance to anti-cancer drugs, and identifying and evaluating new therapeutic agents. The Leukaemia Biology Programme is investigating mechanisms of drug resistance in relapsed leukaemia patients, while the Molecular Carcinogenesis Programme is focusing on critical genes involved in cell growth and differentiation, with the aim of identifying targets for novel neuroblastoma treatments. The Molecular Diagnostics Programme aims to improve the diagnosis and risk classification of childhood cancer, while the focus of the Stem Cell Biology Programme is improved therapeutic options for patients requiring transplantation, with a focus on the expansion of cord blood stem cells for transplantation, and the development of immunotherapy. In addition, the Long Term Follow Up Project – operating in tandem with the SCH Long Term Follow Up Clinic – is actively investigating late effects in survivors of childhood cancer.

### *Research Statement*

**Researcher:** Catchpoole D.

**Title:** Functional analysis of the AKT kinases during the differentiation, progression and apoptosis of neuroblastoma cells.

**Funding:** Leo and Jenny Leukaemia and Cancer Foundation (\$50,000).

**Researcher:** Catchpoole D.

**Title:** Functional apoptosis in neuroblastoma – the basis of tumour regression.

**Funding:** UNSW Postgraduate Medical School Foundation Postdoctoral Research Award (Total 3 years \$225,000; 2000 \$75,000).

**Researchers:** Haber M, Norris M.

**Title:** The role of the N-myc oncogene in mediating drug resistance and patient outcome in childhood neuroblastoma.

**Funding:** NHMRC (Total 3 years \$201,768; 2000 \$67,136).

**Researcher:** Kavallaris M.

**Title:** The role of microtubule composition in the efficacy of antimicrotubule agents in paediatric malignancy.

**Funding:** NHMRC (Total 3 years \$169,311; 2000 \$54,323).

**Researchers:** Lock RB, Rice AM.

**Title:** Treatment of childhood acute lymphoblastic leukaemia.

**Funding:** Ronald Geoffrey Arnott Foundation (\$20,000); Baxter Charitable Foundation (\$22,000); Perpetual Foundation (\$3,333).

**Researchers:** Lock RB, Russell S.

**Title:** Serial analysis of gene expression (SAGE) profiles of drug resistance mechanism in childhood acute leukaemia.

**Funding:** Sydney Children's Hospital Foundation (\$12,000).

**Researcher:** Marshall G.

**Title:** Improving the efficacy of retinoid therapy in childhood neuroblastoma.

**Funding:** NHMRC (Total 3 years \$288,522; 2000 \$95,117).

**Researchers:** Marshall M, Norris M, Haber M, Kavallaris M.

**Title:** Defining the cause and improving the treatment of childhood neuroblastoma.

**Funding:** NSW Cancer Council (Total 5 years \$1.6m; 2000 \$305,000).



*A researcher searches for a sample in the Institute's Tumour Bank, where thousands of clinical samples from children with cancer are stored.*

**Researchers:** Norris M, Haber M, Marshall M.

**Title:** Molecular detection of residual disease in childhood leukaemia and its association with clinical outcome.

**Funding:** NSW Cancer Council (Total 3 years \$168,571; 2000 \$54,358).

**Researcher:** Peaston A.

**Title:** SPIN expression control in early embryogenesis (CJ Martin Fellowship).

**Funding:** NHMRC (Total 4 years \$253,271; 2000 \$53,745).

### *Published Works*

#### *Chapters in Books*

Cheung NK, Norris MD. Detection of microscopic residual tumors in bone marrow. In: Brodeur GM, Sawada T, Tsuchida Y, Voute PA, editors. Neuroblastoma. Amsterdam: Elsevier Science BV, 2000.

Haber M, Kavallaris M. Multidrug resistance genes in Neuroblastoma. In: Brodeur GM, Sawada T, Tsuchida Y, Voute PA, editors. Neuroblastoma. Amsterdam: Elsevier Science BV, 2000.

Marshall GM. Childhood Acute Lymphoblastic Leukaemia. In: Harnett PR, Clare P, Cartmill J, editors. Clinical Oncology - A case based manual. England: Oxford University Press, 2000.

#### *Refereed Journal Articles*

Cohn SL, London W, Huang D, Salwen H, Norris MD, Marshall GM, et al. MYCN expression is not prognostic of adverse outcome in advanced-stage neuroblastoma with non-amplified MYCN. *J Clin Oncol* 2000;18:3604-3613.

Engelhardt M, MacKenzie KL, Drullinsky P, Moore MAS. Telomerase activity in acute and chronic leukemia, pre and post ex-vivo expansion. *Cancer Res* 2000;60:610-617.

Gardaneh M, Gilbert J, Haber M, Norris MD, Cohn SL, Schmidt ML, et al. Synergy between 5' and 3' flanking regions of the human tyrosine hydroxylase gene ensures specific, high-level expression in neuroblastoma cells. *Neurosci Lett* 2000;292:147-150.

Kwan E, Norris MD, Zhu L, Marshall GM, Haber M. Simultaneous detection and quantitation of minimal residual disease in childhood acute lymphoblastic leukaemia. *Brit J Haem* 2000;109(2):430-434.

MacKenzie KL, Franco S, May C, Tan C, Sadelain MA, Moore MAS. Mass cultured human fibroblasts overexpressing hTERT encounter a growth crisis following an extended period of proliferation. *Exp Cell Res* 2000;259:336-350.

MacKenzie KL, Hackett NR, Crystal RG, Moore MAS. Adenoviral vector-mediated gene transfer to primitive human hematopoietic progenitor cells: assessment of transduction and toxicity in long-term culture. *Blood* 2000;96:100-108.

Murphy KM, Ranganathan V, Farnsworth ML, Kavallaris M, Lock RB. Bcl-2 inhibits Bax translocation from cytosol to mitochondria during drug-induced apoptosis of human tumor cells. *Cell Death and Differentiation* 2000;7:102-111.

Murphy KM, Streips UN, Lock RB. Bcl-2 inhibits a Fas-induced conformational change in the Bax N terminus and Bax mitochondrial translocation. *J Biol Chem* 2000;275:17225-17228.

Norris MD, Burkhart CA, Marshall GM, Weiss WA, Haber M. Expression of N-myc and MRP genes and their relationship to N-myc gene dosage and tumor formation in a murine neuroblastoma model. *Med Pediatr Oncol* 2000;35:585-589.

Rice A, Wood JA, Milross CG, Collins CJ, McCarthy NF, Vowels MR. Conditions that enable human hematopoietic stem cell engraftment in all NOD-SCID mice. *Transplantation* 2000;69(5):927-935.

