



PROGRESS REPORT TO AUSTRALIAN LIONS CHILDHOOD CANCER RESEARCH FOUNDATION

DFMO PHASE I/II TRIAL IN RELAPSED/PRIMARY RESISTANT NEUROBLASTOMA

Managed by: Kids Cancer Centre

Funding Initiative: DFMO Phase I/II Trial in relapsed/primary resistant neuroblastoma

Purpose: The goal with this Phase I study is to save the lives of children with relapsed neuroblastoma in the immediate future, by developing a new, more effective, and less toxic treatment.

Output: 1. Devise and determine the recommended Phase II dose of DFMO in combination with chemotherapy

2. To evaluate the efficacy of combining DFMO with chemotherapy

Total amount donated: \$250,000

Total expended: \$250,000

Total period of funding: 2 years

Report period: Year 2: September 2014 - September 2015

Overall report number: #2

Study coordination site: Sydney Children's Hospital, Randwick

Principal Investigator: Dr David Ziegler

Other Investigators: Prof. Glenn Marshall & Prof. Michelle Haber AM

The Australian Lions Childhood Cancer Research Foundation's impact on our Hospital, in particular the Kids Cancer Centre, has been hugely significant having contributed \$1.2 million in only 5 years.

The Australian Lions Childhood Cancer Research Foundation and the Kids Cancer Centre have a shared vision of 100% survival rates for kids with cancer and it is only because of your generosity that this project,

which was at risk of not going ahead, was able to get off the ground.

This multi-centre international study between Dr Michael Hogarty (Children's Hospital Philadelphia), and Dr David Ziegler (Sydney Children's Hospital, Randwick) and the Children's Cancer Institute, is a true cross border and collaborative clinical trial and is specifically designed to treat patients with relapsed Neuroblastoma, for whom there is little hope of survival.

With several patients now enrolled in both countries, this trial is now focusing on determining the drug's efficacy, as well as the recommended dosage for each patient required, and manage the toxicity of the combination of drugs.

Neuroblastoma Facts

- Neuroblastoma is a common and frequently lethal childhood tumor and it is almost exclusively a childhood cancer occurring most commonly between the ages of 0-5 years.
- Neuroblastoma is a solid tumour arising from particular nerve cells which run in a chain-like fashion up the child's abdomen and chest and into the skull following the line of the spinal cord.
- The most common site for the tumour to grow is in the abdomen. About 50% start in the adrenal gland above the kidney. Some tumours grow at the back of the chest and occasionally even higher up towards the neck.
- Neuroblastoma may be difficult to diagnose as symptoms often do not become apparent until the tumour has reached a certain size. Even then symptoms may be subtle and similar to other more common non-serious childhood diseases. As a result it often takes some time before the final diagnosis of neuroblastoma is made.
- Neuroblastoma accounts for 15 per cent of all paediatric cancer deaths in Australia and high-risk neuroblastoma has a survival rate of just 1 in 2.



DFMO Clinical Trial Case Study - *Dean's story

* Name has been changed to protect privacy

- Dean was diagnosed with neuroblastoma at four years of age in April 2013 in Perth, Western Australia, where the family live.
- Dean's fist-sized tumour was found after complaints of abdominal pain.
- Following treatment at a Perth Hospital – which included intensive chemotherapy, major surgery, a radiation stem cell transplant, immunotherapy and maintenance therapy – Dean was in remission by June 2014.
- Six months after this, Dean relapsed, with the family receiving the news just before Christmas last year.
- During a routine scan in December 2014, two tumours were found – one on Dean's spine, and the other on his left hip. At this time, Dean's family were told that his condition was incurable.
- After hearing from another family and doing some research on the internet, the Dean's family found the DFMO Trial, run by Sydney Children's Hospital, Randwick and the Children's Cancer Institute.
- Dean commenced on the DFMO Trial in March 2015.
- Dean has had a dramatic response to the DFMO therapy.
- After two months, both of Dean's tumours had reduced in size.
- After four months, the tumour on Dean's spine had gone and the tumour on his left hip had reduced in size significantly.
- Dean is now six-years-old and six months into the DFMO treatment and continues to do well.
- Dean's parents say he is noticeably stronger, is eating more and finally gaining weight. They also say that Dean no longer feels sick because of chemotherapy - a positive side effect due to the combined use of the DFMO drug – and as a result is able to attend school more. This has been important as Dean missed a lot of school during his first diagnosis.
- Dean's treatment – like the DFMO clinical trial – is ongoing. The family reside in Perth and travel to Sydney for treatment every three weeks, where they stay for two weeks at a time. Dean is expected to finish treatment in six months.

- Dean has two brothers – one 20-years-old and the other five-years-old – who have been very supportive during treatment. Dean's eldest brother remains in Perth, however his youngest brother travels with the family. Dean's parents comment on how helpful his youngest brother has been in terms of keeping Dean active during treatment as the two boys carry on like typical little boys.

Progress Update

- Since the trial began results have been promising, with patients surviving the high-risk cancer and staying on the trial for much longer than anticipated – evidenced by Dean's story.
- The clinical trial is currently ongoing and further results are expected to be released in the next year.
- The trial is an international trial being run across 14 hospitals in North America. As one of Australia's leading specialist medical centres for children, Sydney Children's Hospital, Randwick is the only site in Australia to host the trial.
- There are currently 18 patients enrolled in the clinical trial internationally, with 4 patients enrolled at Sydney Children's Hospital, Randwick.
- The biggest issue being faced at present is that because the results.
- The good news is that we are surprised at how long some kids are staying on DFMO – including for up to an over a year – much longer than we had ever predicted.
- The bad news is that this means that we have used a lot more DFMO than we anticipated which means more of the drug needs to be manufactured so the trial can continue. Funding for this is currently being sought.

(Editor's note: ALCCRF are providing and additional \$100,000)

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