

THANK YOU FOR BEING A LIGHT

NEUROBLASTOMA

2022 PROGRESS REPORT



NURTURING A NEW GENERATION OF NEUROBLASTOMA SCIENTISTS

AS CHIEF OF PAEDIATRICS AT SICKKIDS, **Dr. Meredith Irwin** plays a major role in advancing care at SickKids, science at the Research Institute and the hospital's vision of Precision Child Health (PCH). PCH is a movement that will shift us from a one-size-fits-all approach to medicine, to health care that is individualized to each patient's unique characteristics. Dr. Irwin leads the Department of Paediatrics while still prioritizing neuroblastoma and "making sure we continue to develop young scientists in this area." She and **Dr. David Kaplan**, Senior Scientist, Neurosciences & Mental Health, are pleased to share the following updates about some rising stars in their field:

- Since completing her PhD with us, **Dr. Ivette Valencia-Sama** has become a research associate at SickKids and will now help oversee other neuroblastoma trainees and students. She has expanded her research to include new drug combinations that she feels will be more effective than single drugs in neuroblastoma, beyond those we previously reported on and which were featured in a publication in the journal *Cancer Research*. She is investigating specific genetic changes, or mutations, that are found in neuroblastoma patients to see which ones might make the tumour cells more or less sensitive to certain cancer drug combinations. She is completing the draft of a paper on this research.
- **Yagnesh Ladumor** is nearing the end of his PhD training. He is advancing our understanding of pathways that help explain why it may be beneficial for some individuals with neuroblastoma to take vitamin D. Earlier this year, he published [this paper](#) in *Molecular Cancer Research* looking at how vitamin D slows down neuroblastoma cells, though more research is needed to understand how to make it more effective at killing the cells, alone or in combination with other drugs.
- **Dr. Madeline Hayes** continues to make a big impact at SickKids. She successfully secured a new position as an independent scientist with her own lab at our Research Institute. Her lab is contiguous with the Irwin and Kaplan neuroblastoma research labs. While Dr. Hayes started as a sarcoma or muscle tumour researcher, she is now committed to working on both types of tumours, which together account for the majority of solid tumours that affect children. Working with Dr. Irwin, she uses the zebrafish model to identify important genes and treatments for high-risk metastatic neuroblastoma. "One of our goals is to bring impressive young scientists into neuroblastoma research," says Dr. Irwin, "and we are so excited to collaborate."



Dr. Meredith Irwin,
Chief of Paediatrics

INCREASING DRUG ACCESS TO NEUROBLASTOMA PATIENTS

More multi-centre trials

Under the leadership of Dr. Irwin and Dr. Daniel Morgenstern—Staff Physician and Lead of the New and Innovative Agents Program, Haematology/Oncology—SickKids has been closely involved in multi-centre trials for new neuroblastoma drugs.

These collaborations are critical, as they provide our patients with access to international trials. They also demonstrate how SickKids is involved in key decisions about establishing different trials and connecting them to our patients.

As you may recall, Dr. Irwin's lab looks at inhibitors of the ALK gene, which plays an important role in neuroblastoma. In one clinical trial where Dr. Irwin was the local lead, she and her co-authors reported on the safety, pharmacokinetics and efficacy of the drug ceritinib in paediatric patients with ALK-positive malignancies. (Their findings were published [here](#) in the December issue of the journal *Lancet Oncology*.) Dr. Irwin was invited to speak about the potential of this drug and other drugs as well at the Paediatric Strategy Forum, which you can read about in [this review](#) within the *European Journal of Cancer*. Importantly, neuroblastoma patients across Canada have had access to this trial and others for new treatments at Sick Kids.

A NEW AND IMPROVED RISK CLASSIFICATION

To help tailor treatments for neuroblastoma globally

A GROUP OF COLLABORATORS from the Children's Oncology Group, co-led by Dr. Irwin, have updated how experts classify individuals with neuroblastoma.

They modernized the previous version of guidelines from about 20 years ago by harnessing data over the course of 10 years across nearly 5,000 paediatric patients newly diagnosed with neuroblastoma in Canada, the United States and Australia. The team then determined which combination of biomarkers and clinical factors should be used to provide the best prognostic information and "improve our ability to predict outcomes and tailor therapies for patients with neuroblastoma," says Dr. Irwin. "This will allow us to spare children with a low risk for recurrence from toxic therapies and late effects, while intensifying therapy and investigating novel approaches for those with high-risk disease."

While this was a North American project, with the team's report released [here](#) in the *Journal of Clinical Oncology*, Dr. Irwin is now co-leading an international effort to update the guidelines.

UPDATED RISK CLASSIFIER BASED ON
~5,000
PAEDIATRIC PATIENTS NEWLY DIAGNOSED WITH NEUROBLASTOMA

Every day, SickKids is working towards improving the lives of children, and our success depends on the generosity of donors like you. Your commitment to advancing life-saving neuroblastoma research and care ensures that we can continue to offer the best possible health outcomes for children so they can live longer and healthier lives. Thank you for your remarkable generosity.