From the Editor

Progress in Pediatric Cancer

The articles in this CCR Focus section create a sense that we are at the threshold of important therapeutic discoveries in the treatment of childhood cancer. Pediatric oncologists can be proud of their track record in treating children with cancer. As shown in Fig. 1, there has been steady, stepwise progress in the treatment of almost every tumor type over the last 35 years (1). Given the rarity of childhood cancer, this progress is in no small part due to the willingness of pediatric oncologists to work in cooperative groups. Investigators have worked out the treatment of acute lymphoblastic leukemia iteratively, adding and subtracting agents for induction therapy, and altering treatment durations and consolidation therapies. The result is a 90% 5-year survival rate. However, the field has had its challenges. New agents are classically developed in adults before children, with safety in mind, but this has had the effect of placing more emphasis on discoveries in adults than in children. The rarity of the diseases has made them more difficult to study and investigators more reliant on model systems. In addition, success has generated long-term survivors with chronic medical problems due to long-term toxicity.

Our understanding of the basis of these cancers has dramatically increased with the sequencing of the cancer genome and allowed the identification of new potential therapeutic targets. Further, our increased understanding of the molecular basis of immune response and of pharmacology offers new directions going forward. Guest Editors Carol Thiele and Susan Cohn have assembled a team to examine pediatric cancer in the era of molecular oncology. Matthay and colleagues take us beyond MYCN to the identification of 3 new targets in neuroblastoma, Loh and Mullighan identify new targets for therapy in acute lymphoblastic leukemia, and Lawlor and Thiele show that epigenetic dysregulation may underlie most childhood cancers. Lee and colleagues discuss new approaches for targeting the immune system against tumor cells, and Pinto and colleagues address the potential use of pharmacogenomics to avert toxicity from therapy. Together, these articles represent highlights and hope in our effort to protect our smallest patients from these rare but mortal diseases.

As with every edition of CCR Focus, it is our hope that the articles will inform and intrigue both the expert in the field and the interested but nonexpert observer.

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Reference
