DIVISIONAL OVERVIEW
The Division of Immunology/Allergy continues as a leader in patient care, research and education in immunology. This year marks the launch of the Canadian Jeffrey Modell Foundation (JMF) Immunodeficiency Network and the Primary Immunodeficiency (PID) Network in Israel. Under Dr. Roifman’s leadership, these national programs are facilitating early recognition, diagnosis, research and effective treatment of primary immune deficiencies. Upcoming collaborations with the Canadian Jeffrey Modell Network members truly illustrate our vision of providing timely and optimal care to patients with PID worldwide.

The Primary Immunodeficiency program at The Hospital for Sick Children is the largest centre of its kind in Canada. Medical services are provided to over 2000 outpatients referred from physicians and hospitals nationally. This number has steadily increased by thirty percent over the last 10 years. To diminish waiting time in the Immunology clinic we have recently established the Complex Immunodeficiency Clinic. This addition has improved evaluation of our complex patients by providing extensive time and attention to their conditions.

The Hypogammaglobulinemia Program at SickKids is recognized globally for its innovative approach and long-term follow-up of over 150 patients. We transformed the therapy of these patients from multiple hospital based admissions, to visiting the short stay unit and subsequently receiving treatment in their community. The proficiency of our team coupled with convenient care at a medical centre close to home, provides our patients with the personalized treatment they require. To further enhance this program, we are now implementing home therapy as the ideal model of treatment. Our recent symposium for a Canadian consensus on home treatment has resulted in funding by the Canadian Immunodeficiency Society (CI Society) and a publication in the Journal of Clinical Immunology.

Innovative protocols created by members of the division have elevated the profile of the Bone Marrow Transplantation (BMT) program as one of the best in the world for survival of PID patients. In 1990 we made history with implementing matched unrelated donor transplants for PID. Today we demonstrate the impact of our procedures with a recently published study in JAMA. This analysis illustrates an 80% survival rate for SickKids patients utilizing our protocol. In contrast only a 50% survival rate is achieved by a widely used standard protocol exercised in most other countries in Europe and the US. Our protocol has become the preferred modality for treatment of severe combined immunodeficiency when full HLA matched related donor is not available. Our scientific and clinical achievements lead to much recognition. This includes membership by Dr. Roifman in the World Health Organization Scientific Committee for Clinical Immunology, which defines the classification of PIDs. Similarly we contributed to the Manual of Clinical Laboratory Immunology detailing the process of diagnosing a primary immunodeficiency.

Research remains a major focus of activity in the division. Dr. Roifman’s laboratory continues to innovate anti-cancer treatments. Novel compounds were designed against targets in solid tumours which have lead to significant tumor shrinkage in vitro and in vivo. Moreover, since Dr. Roifman’s lab synthesized CR4, another novel compound capable of killing acute lymphocytic leukaemia (ALL) and acute myeloid leukaemia (Blood 2003), it is currently being given to patients with ALL in a phase one clinical study conducted by LymphoSign. The role of Eph receptors in the immune system is gaining recognition with our recent publication in the Journal of Immunology. Meanwhile the discovery of a genetic aberration in the RNA component of RMRP has initiated testing of patients for this defect (JACI 2006).
Dr. Grunebaum and his group have successfully developed and described a novel method to efficiently deliver full length enzymes such as Purine Nucleoside Phosphorylase (PNP) into cells. (*J Clin Invest*, 2006). To further this endeavour his laboratory continues to develop safer methods of inserting genes into bone marrow cells. This will facilitate therapy for diseases such as PNP and Adenosine Deaminase (ADA) deficiency, while improving the substandard outcomes for these patients.

In view of his academic achievements and his multiple contributions to clinical immunology in Canada the CI Society created the *Chaim Roifman Scholar Award*. Launching in 2007, the recipients of this research grant will study the clinical, cellular and molecular characteristics of genetically determined immuno-deficiency diseases, discover improved diagnostic tools for PID, research novel therapeutic approaches for PID or advance education of patients and medical professionals on PIDs.

Education remains an important activity of every member of the division. The tireless dedication of our staff to teaching has recently been fully recognized by the full approval of reviewers from the *Royal College of Physicians and Surgeons*. Beyond this program we continue to attract more than 25 outstanding candidates every year from across the world. International trainees have the opportunity to participate in a flexible program which can be predominantly research oriented. Our commitment to education goes beyond the training program.

Dr. Roifman organized and chaired the JMF anniversary scientific program and together with Dr. Grunebaum organized the CI Society/Canadian Society of Allergy and Clinical Immunology conference in Edmonton. In addition Dr. Adelle Atkinson was granted the CI Society physician’s awareness award for a third consecutive year. Similarly Brenda Reid was presented with a nursing education grant by the CI Society for her leadership in the teaching of PID care to nurses globally.

From the common cold to cancer, the clinical applications and research potential of immunology converge with almost every aspect of patient care. Thanks to the support of *The Donald & Audrey Campbell Chair*, the *Jeffrey Modell Foundation*, the CI Society, Canadian Institute of Health Research, March of Dimes, and the Canadian Centre for Primary Immunodeficiency, children in our division will receive the best care possible, as soon as possible.

### HONOURS AND AWARDS


Reid B: Nurses Awareness Initiative, Canadian Immunodeficiency Society, 2006.


### PUBLICATIONS


