The University of British Columbia

Graduate Program in BIOINFORMATICS

EXIT SEMINAR

Olena Morozova

B.Sc. (Hons), The University of Toronto, 2006

Friday, April 20, 2012 at 11 AM

LOCATION: Lecture Theatre, BCCRC

Genomic Studies of the Normal and Malignant Neural Crest

Abstract:

Neuroblastoma (NBL) is an enigmatic pediatric tumor of the sympathetic nervous system that is lethal in most children diagnosed over 18 months of age with metastatic disease. NBL is thought to originate from a differentiation arrest of the neural crest, a vertebrate-specific cell lineage with one of the most diverse developmental potentials. Genomic studies of NBL have contributed to the development of new diagnostic and prognostic markers. In addition, somatic and germline mutations in the *ALK* oncogene have been identified and are being targeted clinically. Based on this prior work, two hypotheses were developed and addressed in this thesis: (1) characterization of NBL with higher resolution genomic technologies will lead to the identification of novel loci that contribute to the disease and (2) analysis of the transcriptome of normal neural crest cells will help identify loci of relevance to NBL. To address these hypotheses I used several datasets generated from microarrays as well as RNA and DNA sequencing experiments. Two key results have emerged from this analysis including the putative role of the BRCA1/BARD1 pathway in the development of NBL, and the heterogeneity of the genetic landscape of primary NBL tumors. Potential translational avenues for the results reported in this thesis are the exploration of AURKB and MAPK inhibitors as treatment agents for NBL.

Supervisor: Dr. Marco A. Marra, Department of Medical Genetics, University of British Columbia