ANNUAL REPORT
2010/2011

THE HESS B. AND DIANE FINESTONE LABORATORY
IN MEMORY OF
JACOB AND JENNY FINESTONE
http://www.mcgill.ca/finestone

Submitted by: Dr. David S. Rosenblatt

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MEMBERSHIP

PHYSICIANS AND SCIENTISTS
David S. Rosenblatt
David Watkins

ADMINISTRATION
Laura Benner
Danielle Veyre
Sandra Anastasio

CLINICAL SUPPORT STAFF
Maria Galvez
Jocelyne Lavallée

RESEARCH SUPPORT STAFF
Suzanne Dufrasne
Junhui Liu
Maira Moreno
Maria Plesa

GRADUATE STUDENTS
Natascia Anastasio
Laura Dempsey Nuñez
Peg Illson
Jaeseung Kim
Mihaela Pupavac
Isabelle Racine-Miousse
Junhui Liu

SUMMER STUDENTS
Noëlle Lachausée (medical student from France)

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The Hess B. and Diane Finestone Laboratory in Memory of Jacob and Jenny Finestone was established in 1988 to honour the memory of Jacob and Jenny Finestone and the 80th birthday of Mr. Hess B. Finestone by providing a permanent endowment at McGill University devoted to the advancement of medical genetics. The specific objectives of the endowment are to a) fund research projects related to the field of medical genetics; b) fund trainees in the field of medical genetics; and c) publicize the field of medical genetics through the support of special lectures, visiting professorships and other appropriate means. Dr. David S. Rosenblatt has been Director of the laboratory since its inception. This Finestone report will restrict itself to the activities of the Director. Material previously found in this report relating to members of the Department of Human Genetics at McGill and the Departments of Medical Genetics at the McGill University Health Centre and the Jewish General Hospital should be sought in the respective university or hospital annual reports.

RESEARCH

The Hess B. and Diane Finestone Laboratory in Memory of Jacob and Jenny Finestone is located at the Montreal General Hospital Site of the McGill University Health Centre. It is one of two major international referral laboratories for the diagnosis of patients with inherited disorders of folate and vitamin B_{12} transport and metabolism. It is involved in studying the biochemical and molecular bases of these diseases. Since Dr. Rosenblatt directs a certified molecular diagnostic laboratory adjacent to the research laboratory, advances in knowledge from research can be immediate translated to clinical diagnosis.

2010-2011 has seen a number of scientific accomplishments:

1) With the group of Edward Quadros in New York, we described the first mutation in the gene for the trasnscobalamin receptor in an infant identified by newborn screening.

2) With colleagues in Qatar and at the McGill University-Genome Quebec Innovation Centre, we used exome capture and sequencing to find the gene responsible for a rare genetic disease, the Van Den Ende-Gupta Syndrome.

3) With Suzanne Dufrasne, we summarized our fifteen years of experience in Predictive Testing for Huntington Disease in Quebec.

4) With our collaborator James Coulton in the Department of Microbiology and Immunology, we used surface plasma resonance to show that two proteins involved in early steps of intracellular processing of vitamin B_{12} interact.

5) We described a number of novel mutations in patients with the *cblD* form of combined homocystinuria and methylmalonic aciduria.

RESEARCH OPERATING FUNDS

CIHR, Operating Grant, PI – 2009-2014

MEETINGS AND PRESENTATIONS

October 28, 2010
2010-2011 NHGRI Division of Intramural Research Seminar Series
Title:*Novel Biological Insights into Vitamin B_{12} Transport and Metabolism: Lessons from the Clinic*
Bethesda, MD

March 1, 2011
SIMD Annual Meeting
Title: *Clinical characterization of patients with various forms of homocystinuria*
Asilomar, CA

ORIGINAL PUBLICATIONS

Quadros EV, Lai S, Nakayama Y, Sequeira M, Hannibal L, Wang S, Jacobsen DW, Fedesov S, Wright E, Gallagher RC, Anastasio N, Watkins D, **Rosenblatt DS**. Positive newborn screen for methylmalonic aciduria identifies the first mutation in TCblR/CD320, the gene for cellular uptake of transcobalamin-bound vitamin B_{12}. *Hum Mutat* 31:924-929, 2010.

Anastasio N, Ben-Omran T, Teebi A, Ha KCH, Lalonde E, Ali R, Almureikhi M, Der Kaloustian VM, Liu J, **Rosenblatt, DS**, Majewski J, Jerome-Majewska LA. Mutations in SCARF2 are responsible for Van Den Ende-Gupta Syndrome. *Am J Hum Genet* 87: 553–559, 2010.

Plesa M, Kim J, Paquette SG, Gagnon H, Ng-Thow-Hing C, Gibbs BF, Hancock MA, **Rosenblatt DS,** Coulton JW. Interaction between MMACHC and MMADHC, two human proteins participating in intracellular vitamin B_{12} metabolism. *Molec Genet Metab* 102: 139-148, 2010

Dufrasne S, Roy M, Galvez M, **Rosenblatt DS**. Experience over fifteen years with a protocol for predictive testing for Huntington disease. *Molec Genet Metab* 102:494-504, 2011

Watkins D, **Rosenblatt DS**. Inborn errors of cobalamin absorption and metabolism. Am J Med Gen C 157:33-44, 2011.

Miousse IR, Watkins D, **Rosenblatt DS**. Novel splice site mutations and a large deletion in three patients with the *cblF* inborn error of vitamin B_{12} metabolism. Molec Genet Metab 102:505-507, 2011

CHAPTERS

Watkins D and **Rosenblatt DS**. Vitamin B_{12} and folate metabolism. In: Mechanisms in Hematology, 4th Edition, Israels LG and Israels, E.D (eds), Core Health Services. http://wwwmechanismsinhematology.ca/chapter.aspx? Chapter =11,2010

Watkins D and **Rosenblatt DS**. Vitamin B12: disorders of absorption and metabolism. In: Encyclopedia of Life Sciences, John Wiley and Sons, Chichester. Doi:10.1002/9780470015902.a0002267.pub2, 2010.

Rosenblatt DS, Watkins D. Prenatal diagnosis of miscellaneous biochemical disorders. In: Genetics Disorders and the Fetus: Diagnosis, Prevention and Treatment, 6th Edition, A. Milunsky (ed), Wiley-Blackwell, Oxford. 2010, Chapter 19 pp 614-627.

TEACHING

Biology 575

Department:	Biology/Human Genetics
Format:	Lecture
Title:	***Inborn Errors of Folate and Cobalamin Transport and Metabolism***
Role:	Lecturer and Course Coordinator
Level:	Undergraduate/Graduate
Time:	6 hours

Unit 8

Department:	Human Genetics
Format:	Lecture and Small Group Teaching
Role:	Lecturer-2 sessions
Title:	***Introduction to Medical Genetics*** ***Huntington Disease***
Level:	Medical Students
Time:	2 lectures plus 3 2-hour sessions, 8 hours in total

FINANCIAL REPORT – 2010/2011

Starting Balance		$ 97,135
De-capitalized from previous years		$ 39,603
		$136,738
*Salary Support and Benefits	$ 70,195	
Computer Charges	$ 3,957	
Conference, Seminars, & Travel	$ 12,435	
Library & Membership	$ 4,185	
Materials, Supplies, Phones & Pagers	$ 10,517	
Miscellaneous	$ 6,587	
Total Expenses		$107,876
**Balance		**$ 28,862**

Notes

* *Rosenblatt, Dufrasne, Veyre, Leslie, Benner, Anastasio, Lachaussée, Liu, Moreno*