

ROBERT M FLIGHT, PH.D.

CURRICULUM VITAE

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EDUCATION

Ph.D., Chemistry, Dalhousie University, Halifax, NS, 2004-2009.

Research Supervisor: Dr. P.D. Wentzell. Thesis title: *A Workflow for the Analysis of DNA Microarray Time-Course Data*

M.Sc., Chemistry, University of New Brunswick, Fredericton, NB, 2002-2004.

Research Supervisors: Dr. G Deslongchamps & Dr. L.A. Calhoun. Thesis title: *Development and Testing of SPLASH Docking with Acetylcholinesterase*.

B.Sc., Biology – Chemistry, University of New Brunswick, Fredericton, NB, 1997-2002.

RESEARCH INTERESTS

My primary research interests are in the areas where biology, chemistry, and computers intersect. This has ranged from using molecular docking tools to examine the interactions of ligands with an individual protein, to applying and refining tools used in the analysis of serial DNA microarray data. Both of these areas require an understanding of the basic chemistry involved, the biological systems, and an understanding how the software / algorithms worked. I believe that in order to analyze *omics data, there is a need to understand the data from a measurement perspective in order to develop effective methods of mining the data for useful information.

PROFESSIONAL EXPERIENCE

PERIOD	POSITION	LOCATION
2010-Present	PostDoctoral Associate	University of Louisville
2009-2010	Research Assistant	Dalhousie University
2004-2009	Graduate Research/Teaching Assistant	Dalhousie University
2007 (08-12)	Research Assistant ¹	Institute of Marine Biosciences – National Research Council
2002-2004	Graduate Research/Teaching Assistant	University of New Brunswick
1999-2002	Teaching Assistant	University of New Brunswick

Notes

1. This work was performed as part of a MITACS Internship awarded to RM Flight.

HONORS AND AWARDS

Dalhousie University, Kenneth T. Leffek Prize for best PhD thesis in Chemistry, 2010

University of New Brunswick, Faculty of Science Dean's List, 2002

University of New Brunswick, Department of Chemistry Analytical Chemistry Award, 2001

University of New Brunswick, Dr. Willard Miles Jenkins Scholarship, 1997

PROFESSIONAL AFFILIATIONS

International Society for Computational Biology
Canadian Society for Systems Biology

PROFESSIONAL ACTIVITIES

Dalhousie University CGSS Graduate Student Seminar Evaluation Committee, 2006-2007.
Organizing committee member of the CIC-APICS Student Chemistry Conference, 2000.

RESEARCH GRANTS AND CONTRACTS

AGENCY	TYPE	AMOUNT (\$ CDN)	PERIOD	TITLE
MITACS ¹	Internship	15,000	2007 (08-12)	“DNA Microarray Studies of the Effect of Diet on Halibut”

Notes

1. Mathematics of Information Technology and Complex Systems (Canadian NCE). Industrial partner was the Institute of Marine Biosciences of the National Research Council at Halifax, NS.

RESEARCH PUBLICATIONS AND PRESENTATIONS

S. MANUSCRIPTS SUBMITTED FOR PUBLICATION

- S1. R.M. Flight, J. Boutilier, P.D. Wentzell, “Reproducibility of gridding and flagging in microarray image processing”, Submitted to Bioinformatics, February 2010

J. REFEREED JOURNAL PUBLICATIONS

- J8. T.K. Karakach, R.M. Flight, S.E. Douglas, P.D. Wentzell, “An introduction to DNA microarrays for gene expression analysis”, Accepted to special issue of Chemometrics and Intelligent Laboratory Systems, April 2010
- J7. H.M. Murray, S.P. Lall, R. Rajaselvam, L.A. Boutilier, B. Blanchard, R.M. Flight, S. Colombo, and S.E. Douglas, “A nutrigenomic analysis of intestinal response to partial soybean meal replacement in diets for juvenile Atlantic halibut, *Hippoglossus hippoglossus*, L.”, *Aquaculture*, 2010, **298**(3-4):282-293 [doi:10.1016/j.aquaculture.2009.11.001](https://doi.org/10.1016/j.aquaculture.2009.11.001)
- J6. R.M. Flight and P.D. Wentzell, “Preliminary Exploration of Time-Course DNA Microarray Data with Correlation Maps”, *OMICS: A Journal of Integrative Biology*, February 2010, **14**(1):99-107 [doi:10.1089/omi.2009.0096](https://doi.org/10.1089/omi.2009.0096)
- J5. R. Tauler, M. Viana, X. Querol, A. Alastuey, R.M. Flight, P.D. Wentzell, and P.K. Hopke, “Comparison of the results obtained by four receptor modeling methods in aerosol source apportionment studies”, *Atmospheric Environment*, 2009, **43**(26):3989-3997 [doi:10.1016/j.atmosenv.2009.05.018](https://doi.org/10.1016/j.atmosenv.2009.05.018)
- J4. H.M. Murray, S.P. Lall, R. Rajaselvam, L.A. Boutilier, R.M. Flight, B. Blanchard, S. Colombo, V. Mohindra, M. Yufera, and S.E. Douglas, “Effect of early introduction of microencapsulated diet to larval Atlantic Halibut, *Hippoglossus hippoglossus*, L. assessed by microarray analysis”, *Marine Biotechnology*, 2009 [doi:10.1007/s10126-009-9211-4](https://doi.org/10.1007/s10126-009-9211-4)
- J3. R.M. Flight and P.D. Wentzell, “Potential Bias in GO::TermFinder”, *Briefings in Bioinformatics*, 2009, **10**(3):289-294 [doi:10.1093/bib/bbn054](https://doi.org/10.1093/bib/bbn054)
- J2. S.E. Douglas, L.C. Knickle, J. Williams, R.M. Flight and M.E. Reith, “A First Generation Atlantic Halibut *Hippoglossus hippoglossus* (L.) Microarray: Application to Developmental Studies”, *Journal of Fish Biology*, 2008, **72**(9):2391-2406 [doi:10.1111/j.1095-8649.2008.01861.x](https://doi.org/10.1111/j.1095-8649.2008.01861.x)

- J1. T.K. Karakach, R.M. Flight, and P.D. Wentzell, "Bootstrap Method for the Estimation of Measurement Uncertainty in Spotted Dual-Color DNA Microarrays", *Analytical and Bioanalytical Chemistry*, 2007, **389**:2125-2141 [doi:10.1007/s00216-007-1617-0](https://doi.org/10.1007/s00216-007-1617-0)

P. PRESENTATIONS

(* = presenting author, § = poster)

- P12. R.M. Flight*, T.K. Karakach and P.D. Wentzell, "Sequential Normalization of Time-Course DNA Microarray Data", Atlantic Computational Life Sciences Challenges Workshop, Sackville, NB, Canada, November 14, 2009
- P11. R.M. Flight*, T.K. Karakach and P.D. Wentzell, "Normalization Methods for Time-Course DNA Microarray Data", Robert Cedergren Colloquium in Bioinformatics, Universite de Montreal, Montreal, QC, Canada, November 5-6, 2009
- §P10. R.M. Flight*, T.K. Karakach and P.D. Wentzell, "Normalization Methods for Time-Course DNA Microarray Data", Robert Cedergren Colloquium in Bioinformatics, Universite de Montreal, Montreal, QC, Canada, November 5-6, 2009
- §P9. R.M. Flight* and P.D. Wentzell, "What's in a Workflow? Understanding Time Course DNA Microarray Data Using Multivariate Curve Resolution", Atlantic OMICS Symposium and Expo, Moncton, NB, Canada, August 19-20, 2008
- §P8. B. Wielens*, R.M. Flight, and P.D. Wentzell, "The Gene Machine — Software for Gene Expression Analysis", Poster Presentation, Atlantic OMICS Symposium and Expo, Moncton, NB, Canada, August 19-20, 2008
- §P7. J. Onochie*, R.M. Flight, and P.D. Wentzell, "Investigation of Gene Expression Profiles in *Saccharomyces Cerevisiae* Exiting Stationary Phase", Poster Presentation, Atlantic OMICS Symposium and Expo, Moncton, NB, Canada, August 19-20, 2008
- P6. P.D. Wentzell*, R.M. Flight, J. Boutillier, B. Wielens, and J. Onochie, "From Measurement to Knowledge: A Workflow for Multivariate Curve Resolution of DNA Microarray Time Course Data", CAC 2008, 11th Conference on Chemometrics in Analytical Chemistry, Montpellier, France, June 30 - July 4, 2008
- §P5. J. Boutillier*, R. Flight, and P. Wentzell, "Gridding Reproducibility in Spotted DNA Microarrays", Atlantic OMICS Symposium and Expo, Moncton, NB, Canada, August 2007
- P4. R.M. Flight* and P.D. Wentzell, "Deciphering the Transcription Patterns of a Malaria Parasite Using Multivariate Curve Resolution", CAC 2006, 10th International Conference on Chemometrics in Analytical Chemistry, Aguas de Lindoia, Brazil, September 10-15, 2006
- §P3. R.M. Flight* and P.D. Wentzell, "Deciphering the Transcription Patterns of a Malaria Parasite Using Multivariate Curve Resolution", Atlantic Microarray Symposium and Exposition, Moncton, NB, August 24-25, 2006
- §P2. R.M. Flight*, L.A. Calhoun, and G. Deslongchamps, "SPLASH Docking" 36th American Chemical Society Central Regional Meeting, Indianapolis, June 2-4, 2004
- P1. R.M. Flight* and L.A. Calhoun, "Molecular Docking of Acetylcholine and Butyrylcholine to Acetylcholinesterase and Butyrylcholinesterase: Using Probe Fragments to Screen for the Correct Binding Orientation", CIC-APICS Atlantic Student Chemistry Conference, Corner Brook, NF, May 2002