

MAHMOUD M ALY, PHD

Faculty of Medicine
Department of Biochemistry, Microbiology and
Immunology University of Ottawa
Ottawa, ON, K1H 8M5
maly@uottawa.ca
Tel: (613) 562-5800 ext. 8627
4127 - 451 Smyth Rd.

CURRENT POSITION

Nov 2009 - Present **Postdoctoral fellow**
Faculty of Medicine Department of Biochemistry, Microbiology and
Immunology University of Ottawa
Responsible for developing new molecular biology techniques including
(rt-PCR, quantitative real-time PCR, multiplex PCR, sequencing,
cloning and tissue culture) to concentrate, isolate, detect and quantify
viruses

WORK EXPERIENCE

2008 – Oct 2009 **Research Associate**
Faculty of Medicine Department of Biochemistry, Microbiology and
Immunology University of Ottawa
Responsible for developing molecular biology techniques including (rt-
PCR, quantitative real-time PCR, microarrays, cloning and tissue
culture) to detect and quantify viruses in different environmental
samples.

2002 - 2007 **Research Assistant** – University of Ottawa
Department of Biochemistry, Microbiology and Immunology
Performed tasks in genetic analysis, phenotyping analysis in the mouse
model, molecular cloning, marker design, tissue culture, fluorescence
microscopy, image analysis, Matlab and R coding environment,
genotyping by PCR, histopathology, QTL project design, and new
phenotypic traits developing.

2001 - 2002 **Research Assistant**
Centre for Research on Environmental Microbiology (CREM)
Responsible for developing microbiology techniques, tissue culture,
water film analysis, and *Legionella* PCR testing.

2000 - 2001 **Field Team Supervisor**
Ospapharm, Egypt

1996 - 1999 **Clinical biochemistry specialist**

1993 – 1996 **Clinical biochemist**
Ain Shams educational Hospital, Cairo, Egypt

1991 - 1992

Summer StudentU.S. Naval Medical Research Unit No. 3 (NAMRO 3)**ACHIEVEMENTS**

- 1- RNA and DNA virus concentration, isolation, detection, quantification and sequencing in wastewater, groundwater and endoscopy.
- 2- mapping new Quantitative trait loci and underline genes
<http://www.informatics.jax.org/javawi2/servlet/WIFetch?page=markerDetail&key=309224>
http://www.informatics.jax.org/searches/mapdata_report
- 3- designing new chromosomal genetic markers
http://www.informatics.jax.org/searches/marker_report
- 4- establishing mouse model with new Genetic background for quantifying human disease
- 5- developing new quantifiable Phenotypes
http://www.informatics.jax.org/searches/allele_report.cgi? Refs_key=122665

EDUCATION

2002 - 2009

Ph.D. in BiochemistryUniversity of Ottawa, Faculty of Medicine**Thesis – Host Susceptibility to Coxsackievirus B3-mediated myocarditis is under the control of mouse ch 3, ch 4, and ch 1 loci.**

1993 - 1996

M. Sc. in BiochemistryAin-Shams University, Cairo, Egypt**Thesis project– Effects of Percoll, freezability, swim up and swim down techniques on semen characteristics and artificial insemination outcomes**

1988 - 1992

B. Sc. in BiochemistryAin-Shams University, Cairo, Egypt**PUBLICATIONS IN PEER-REVIEWED JOURNALS**

Mahmoud Aly, Sinisa Vidovic, Susan Springthorpe, Syed A Sattar, Shawn Trimper and Kent Novakowski. Human enteric virus serotypes occurring in the fractured bedrock aquifers (in preparation).

Mahmoud Aly, Susan Springthorpe, Sinisa Vidovic, Syed A. Sattar Concentration, Isolation and Enumeration of Viruses from Biosolids at Two Ontario Water Treatment Plants (in preparation).

Sinisa Vidovic¹, **Mahmoud Aly**, Susan Springthorpe and Syed A. Sattar
Genetic analysis of infectious human adenovirus in wastewater of two major Canadian cities revealed the presence of potentially highly virulent adenovirus Ad3a16/18 genome types. *J Clin Microbiol.* (in preparation).

Aly M, Wiltshire S, Chahrour G, Osti JC, Vidal SM. Complex genetic control of host susceptibility to coxsackievirus B3-induced myocarditis. *Nature Genes Immun* 2007; 8(3):193-204.

SYMPOSIUMS

Mahmoud Aly, Sinisa Vidovic, Susan Springthorpe, Syed A Sattar, Shawn Trimper and Kent Novakowski#
“Detection of human enteric viruses in the fractured bedrock aquifers”
25th Eastern Canadian Symposium of the CAWQ on Water Pollution Research, Ottawa, ON, October, 2009

Aly M and Vidal S. “**Genetic analysis for host susceptibility to cardio virulent Coxsackie virus B3 infection.**” poster presentation for 17th International Mouse Genome Conference, Braunschweig, Germany, November 2003

Aly M and Vidal SM. “**QTL analysis for host susceptibility to cardio virulent Coxsackie virus B3 infection.**” poster presentation for the 46th Canadian Federation of Biological Societies (CFBS) annual meeting, Ottawa, Canada, June 2003

CONTINUING EDUCATION AND TRAINING

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|---------------|--|
| October 2009 | 25th EASTERN Canadian Symposium on Water Quality Research
<u>University of Ottawa, Ottawa Ontario</u> |
| December 2008 | EPA Symposium on Groundwater-Borne Infectious Disease, Etiologic Agents and Indicators
<u>The U.S. Environmental Protection Agency (EPA), Washington, DC</u> |
| April 2007 | CHEO Genetics Week
<u>The Children's Hospital of Eastern Ontario, Ottawa, Canada</u> |
| April 2005 | Cardiac Histopathology training
<u>Heart and Stroke/Richard Lewar Centre of Excellence, Toronto, Canada</u>
Completed one week of training in Dr. Peter Liu's lab (Centre Director) at the Toronto General Hospital |
| Nov 2003 | 17th International Mouse Genome Conference , Braunschweig, Germany, |

- June 2003 **46th Canadian Federation of Biological Societies (CFBS)** annual meeting, Ottawa, Canada
- Jan 2001 **French language program**
Carrefour du Gatineau, Québec

BURSARIES AND AWARD

- 2009- Present Postdoctoral fellowship form Faculty of Medicine University of Ottawa
- 2002-2006 PhD scholarship award from grant supported by CIHR Canadian Institutes of Health Research and University of Ottawa (total of \$78,500 cdn)
- 2003 Graduate student bursary form Faculty of Medicine department of Biochemistry, Microbiology and Immunology University of Ottawa (total of \$3,000 cdn)

STUDENTS AND TECHNICIANS I CO-SUPERVISED

- 2010 Youxia Huo, Volunteer
- 2007 Sean Wiltshire, M.Sc. in Human Genetics
- 2006 Ghada Chahrour, Technician
- 2005 Sean Wiltshire, summer student, M.Sc. in Human Genetics
- 2004 Bangmi Kim, Technician
- 2002-2004 Rim Mrad, M.Sc. in Microbiology
- 2002 Beecee Louie, Honours project

HANDS ON TEQUINCOES**Molecular biology:**

- 1- DNA and RNA isolation and extraction
- 2- sequencing and molecular cloning.
- 3- quantitative Real-time , nested conventional, reverse-transcription and multiplex PCR
- 4- BGM karyotyping and some cytogenetic analysis

Genetics

- 6- genotyping using MIT and SNP markers and mapping Quantitative trait loci
- 7- designing and testing chromosomal markers
- 8- linkage analysis

Animal models

- 1- genetic breeding (intercross and backcross)
- 2- maintain mouse colonies
- 3- prepare medications and infectious agents and administer them using different routes

- 4- dissecting animals with/without anaesthesia techniques
- 5- preparing mice for MEF stem cell isolation
- 6- trained on in vivo micro imaging platform for real-time small animal imaging

Histopathology and Microscopy

- 1- developing new histopathological semi-quantitative scoring methods
http://www.informatics.jax.org/searches/allele_report.cgi? Refs_key=122665
- 2- collecting tissues and preparing for sectioning
- 3- cryopreservation and cryosections
- 4- fluorescence and H&E staining (in situ-hyperdization and immunohistochemistry)
- 5- fluorescence and light microscopy
- 6- trained on Laser-MicroBeam and confocal microscopy
- 7- developing new Image analysis algorithm

Tissue culture

- 1- growing, maintain, splitting and freezing different cell lines (HeLa PLC, MA104, Frhk, Vero, BGM and MEF)
- 2- viral assays including: Plaque assay and Cytopathology

Microbiology

- 1- viruses concentration, isolation, detection and quantification :
RNA viruses: Coxsackie, Hepatitis A, entero and Noro
DNA viruses: Adeno and TTV
- 2- preparing competent cells for cloning
- 3- viral and bacterial stock preparation
- 4- preparation of different media and plates

Clinical chemistry

- 1- developing new clinical markers
- 2- chemical analyses of blood, urine and cerebro-spinal fluids
- 3- CBC and blood group, compatibility and typing
- 4- Glucose tolerance test
- 5- antibiotic resistant and bed sores cultures

INSTRUMENTS WITH EXTENSIVE EXPERINCE

Molecular biology and Genetics:

- 1- ABI 377 DNA Sequencer
- 2- ABI 7300,7500 Real-Time PCR Systems
- 3- Rotor-gene 3000
- 4- Different spectrophotometers for DNA&RNA quantification
- 5- Visual sonic Vevo 770 in vivo micro imaging platform
- 6- Zeiss LCM PALM MicroBeam

- 7- Zeiss axioscope II
- 8- Zeiss LSM 700
- 9- Leica CM3050
- 10- Leica DME

SOFTWARE WITH HANDS ON EXPERINCE

- 1- Molecular biology and bioinformatics packages (Primer3, DNAMAN, ClustalW, Blast and using different bioinformatics databases NCBI, etc..)
- 2- statistical and data analysis packages(Systat, R statistical tool box)
- 3- genetics packages (ABI Genotyper, GenScan, Rqtl- QTL Cartographer, Qtx etc..)
- 4- image analysis packages (MATLAB image processing toolbox, AxioVision, Image-Pro Plus, ImageJ)
- 5- illustration packages (Adobe Illustrator, prism, etc...)

Reference:

Available upon request