

Curriculum Vitae

Name: John Monaghan

Address: Pandey lab,
Department of Genetics,
Louisiana State University School of Medicine,
533 Bolivar Street, New Orleans, LA 70112

Phone: (504)568-8193

Interests: 1) Molecular mechanisms of neural pathologies including ALS and SBMA.
2) Evolution and molecular biology of wnt signalling.

Research experience:

2011-present: Postdoctoral fellow
Supervisor: Professor Udai Pandey

2006-2010: Doctoral student
Supervisors: Dr. Stefan Hoppler and Dr. Jonathan Pettitt, Institute of Medical
Sciences, Aberdeen, Scotland, United Kingdom

Education:

2010: PhD, Molecular Biology, University of Aberdeen, Scotland
2004: BA (Mod. Human Genetics), Trinity College, Dublin, Ireland

Professional memberships:

British society of developmental biology

Skills

***Drosophila melanogaster* care and husbandry**

Stock maintenance
Production of combination lines
GAL4-UAS expression system
Geneswitch expression system
Design and undertaking of large genetic screens

Small molecule treatment of *Drosophila melanogaster*

Drug library screening in 96 well plates
In depth characterisation of individual drug interactions

Light microscopy

Visualisation of fluorescent molecules in *Drosophila melanogaster* and *Xenopus* embryos
Photography of *Drosophila melanogaster* adults and *Xenopus* embryos
Time-lapse photography of developing *Xenopus* embryos

Confocal microscopy

Visualisation of fluorescent molecules in *Xenopus* embryos

Cloning

Design of constructs
Restriction digest/ligation approaches
Recombination approaches (gateway system)
Cloning from cDNA
Sub-cloning from previously cloned sequences

PCR

Primer design
Optimisation of conditions
QPCR using SYBR and Taqman
Semi-QPCR using agarose gel visualisation

Western blot and Immuno-precipitation

Preparation of protein extracts
Immuno-precipitation
Acrylamide gel electrophoresis, western blot and detection by immuno-chemistry and immuno-fluorescence
Quantification using image analysis software (ImageJ, Odyssey Licor)

Bio-informatics and computer aided analysis

Flybase interrogation
Analysis of EST, protein, genomic DNA, predicted gene and cDNA databases using Blast and Clustal for the identification of related proteins/nucleic acids
Analysis of sequencing results
SPSS, statistical analysis software
ImageJ, image analysis software
Vector NTI
Geneious
DNA Star
I am familiar with a large range of web-based applications and databases designed for use by molecular scientists

In-situ hybridisation

of whole *Xenopus* embryos

Immuno-cytochemistry

of whole *Xenopus* embryos

Sectioning

- Fixation
- Embedding
- Sectioning and mounting

Micro-dissection

- Preparation and care of live *Xenopus* tissue explants

Micro-injection

- Tissue specific targeted injection of *Xenopus* embryos

In-vitro RNA synthesis

- Capped mRNA for gene expression
- Anti-sense RNA for probe production (in-situ hybridisation and blots)

***Xenopus* handling**

- General maintenance of *Xenopus laevis* and *Xenopus Tropicalis* colonies
- Injection of frogs (both *laevis* and *tropicalis*)
- Setting up natural mating
- Testis collection from males
- Manual egg collection (both *laevis* and *tropicalis*)
- Manual fertilisation (both *laevis* and *tropicalis*)
- Care of embryos
- Staging of embryos

Small molecule treatment of *Xenopus* embryos

- Characterisation of the potential cancer therapeutic carnosate
- Use of the commonly used drugs cyclohexamide, BIO and dexamethazone

***Caenorhabditis elegans* handling**

- Worm picking and population maintenance
- I have a very small amount of experience injecting *C. elegans*