Pierre DOURLEN

Public health and molecular epidemiology of aging-related diseases
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Normalien, Ecole Normale Supérieure (ENS) de Lyon, France, 2000
BSc Cellular and molecular Biology, ENS de Lyon, France, 2001
Agrégation (highest french national lecturer diploma), 2003
Magistere Cellular and molecular Biology, ENS de Lyon, France, 2004
MSc Molecular Biology, University of Lille2, France, 2004
PhD Neurosciences, University of Lille2, 2007

Current Position

Postdoctoral scientist
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Keywords
Neurodegeneration – Alzheimer Disease – Retinal degeneration – Drosophila – genetics – Tau – PIN1 – BIN1 - FATP

Science

I am interested in the mechanisms that underlie neurodegeneration. During my master, I worked on Parkinson's Disease with Dr Guy Chouvet in Pr B Renaud lab (INSERM U512, Lyon, France). Then during my PhD, I worked on Alzheimer Disease (AD) with Dr MC Galas in Dr L Buée goup (INSERM U837, Lille, France). My thesis dealt with the regulation of Tau phosphorylation by Pin1 and Pin1 function in mammalian neuronal cell models. I joined Pr Mollereau group (LBMC UMR5239, ENS de Lyon, France) as a post-doc in 2007 to take advantage of *Drosophila* genetics. I used photoreceptor neurons of the retina as a model. In 2008, I worked in Pr Steller lab (Rockefeller University, New York, United States) to set up a new *in vivo* method of photoreceptor visualization in mosaic retina. Using this method, I performed a screen of recessive lethal mutations and identified genes involved in photoreceptor survival. Back in Lyon, I characterized the degeneration associated with the loss of one of the hits, the *fatp* gene.
In 2012, I joined Dr Bart Dermaut in INSERM U744 (Institut Pasteur de Lille) to set up a fly lab dedicated to the analysis of molecular determinants of AD and related pathologies. We are now functionally testing the genes within novel AD risk loci in *Drosophila* to investigate how they might mechanistically contribute to the AD neurodegenerative process.

Recent Research Projects

Ligue Européenne Contre la Maladie d'Alzheimer (LECMA/ISAO/SAO-FRA) - Pilot Grant
Period: 01.01.2014 – 31.12.2015
Title: 'The BIN1-Tau neurotoxic link in Drosophila'
Role: P.I.

Recent Fellowships

Association Retina France – Bourse d'étude
Period: 2010

Title: 'Lipid metabolism and retinal degeneration: role of the fatp gene in the survival of retinal photoreceptor neurons in Drosophila and mammals'
Role: P.I.

Selected Publications

- Chapuis J, Hansmannel F, Gistelinck M, Mounier A, Van Cauwenberghe C, Van Kolen K, Geller F, Sottejeau Y, Harold D, **Dourlen P**, Grenier-Boley B, Kamatani Y, Delepine B, Demiautte F, Zelenika D, Zommer N, Hamdane M, Bellenguez C, Dartigues JF, Hauw JJ, Letronne F, Ayral AM, Sleegers K, Schellens A, Vanden Broeck L, Engelborghs S, De Deyn PP, Vandenberghe R, O'Donovan M, GERAD consortium, Owen M, Epelbaum J, Mercken M, Karran E, Bantscheff M, Drewes G, Joberty G, Campion D, Octave JN, Berr C, Lathrop M, Callaerts P, Mann D, Williams J, Buée L, Dewachter I, Van Broeckhoven C, Amouyel P, Moechars D, Dermaut B, Lambert JC (2013). Increased Expression of BIN1 Mediates Alzheimer Genetic risk by Modulating Tau Pathology, **Mol Psychiatry,** 18(11):1225-34. IF: 12.9

- Vanden Broeck L., Sanchez MN, Adachi Y, Diaper D, **Dourlen P**, Chapuis J, Kleinberger G, Gistelinck M, Van Broeckhoven C, Lambert JC, Hirth F, Aerts S, Callaerts P, Dermaut B (2013). TDP-43 neurotoxicity due to loss-of-function in steroid receptor-mediated gene program switching in Drosophila. **Cell reports**, 3(1):160-72.

- Ando K, **Dourlen P**, Sambo AV, Bretteville A, Bélarbi K, Vingtdeux V, Eddarkaoui S, Drobecq H, Ghestem A, Bégard S, Demey-Thomas E, Melnyk P, Smet C, Lippens G, Maurage CA, Caillet-Boudin ML, Verdier Y, Vinh J, Landrieu I, Galas MC, Blum D, Hamdane M, Sergeant N, Buée L (2013). Tau pathology modulates Pin1 post-translational modifications and may be relevant as biomarker. **Neurobiol Aging,** 34(3):757-69. IF:5.8

- **Dourlen P***, Bertin B, Chatelain G, Robin M, Napoletano F, Roux MJ, Mollereau B* (2012). Drosophila Fatty Acid transport protein regulates rhodopsin-1 metabolism and is required for photoreceptor neuron survival. **PLoS Genet,** 8(7):e1002833. IF:9.1 * corresponding authors, recommended by Faculty of 1000

- Fouillet A, Levet C, Virgone A, Robin M, **Dourlen P**, Rieusset J, Belaidi E, Ovize M, Touret M, Nataf S, Mollereau B (2012). ER stress inhibits neuronal death by promoting autophagy, **Autophagy**, 8(6):915-26. IF: 6.7

- **Dourlen P***, Gambis A*, Steller H. and Mollereau B (2011). Two-color in vivo imaging of photoreceptor apoptosis and development in Drosophila. **Dev Biol**, 351(1):128-34. IF: 4.4 * co-first authors.

- Mendes C, Levet C, Chatelain G, **Dourlen P**, Fouillet A, Dichtel-Danjoy ML, Gambis A, Ryoo HD, Steller H and Mollereau B (2009). ER stress protects from neurodegeneration in Drosophila. **EMBO Journal**, 28(9):1296-307. IF: 9.6

- Dourlen P, Ando K, Hamdane M, Begard S, Buee L, Galas MC (2007) The peptidyl prolyl cis/trans isomerase Pin1 downregulates the Inhibitor of Apoptosis Protein Survivin. **Biochim Biophys Acta** 1773:1428-1437. IF: 4.9

- Galas MC, **Dourlen P**, Begard S, Ando K, Blum D, Hamdane M, Buee L (2006) The peptidylprolyl cis/trans-isomerase Pin1 modulates stress-induced dephosphorylation of Tau in neurons. Implication in a pathological mechanism related to Alzheimer disease. **J Biol Chem** 281:19296-19304. IF: 5.0

- Hamdane M, **Dourlen P**, Bretteville A, Sambo AV, Ferreira S, Ando K, Kerdraon O, Begard S, Geay L, Lippens G, Sergeant N, Delacourte A, Maurage CA, Galas MC, Buee L (2006) Pin1 allows for differential Tau dephosphorylation in neuronal cells. **Mol Cell Neurosci** 32:155-160. IF: 3.7