

Bob Asselbergh

Neuromics Support Facility
HiCI: Histology and Cellular Imaging
VIB-UAntwerp Center for Molecular Neurology



Education

BSc Bioscience Engineering, Ghent University, 2000
MSc Bioscience Engineering, Ghent University, 2003
PhD Bioscience Engineering, Ghent University, 2007

Position

Research Associate, Microscopy Expert

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Keywords

light microscopy - electron microscopy – image analysis - neurodegeneration – peripheral neuropathy – dementia

Science and technology

After obtaining my PhD in 2007 I pursued my growing passion for microscopy and obtained expertise in several microscopy-related techniques. I address the challenge of integrating the optimal imaging and analysis techniques in a biological context to answer questions related to complex neurological diseases of the central and peripheral nervous system. An important research goal in the center is to study the pathogenic role of mutations that are identified by genetic approaches. To this end, we employ *Drosophila*, mouse and several cellular model systems to study the molecular and biological mechanisms of how these mutations cause neurological disease. The use of microscopy and the establishment of quantitative imaging assays are providing valuable tools to analyze the complex cell biological disturbances that result from these mutations. In my function, I provide scientific and technological microscopy-related support for the different research projects in our department. Other responsibilities include the maintenance and acquisition of microscopy equipment (light, fluorescence and confocal microscopes), training of researchers on the different microscopy systems and in digital imaging, and establishing networks for microscopy expertise in- and outside VIB and the university.

Expertise

- Microscopy techniques and related disciplines: optics, light, fluorescence, confocal and electron microscopy, fluorescence modulation techniques, detectors, automated microscopy...
- Sample preparation and related disciplines: cell culture, anatomy and neurobiology of model organisms, fixation techniques (LM and EM), histology, immunocyto- and histochemistry, live cell imaging, expansion microscopy...
- Digital imaging and image analysis: filtering, segmentation, morphometry, stereology, automation of image analysis (scripting in ImageJ, R, Matlab, Cellprofiler), high content analysis, complex data analysis, ...

Selected publications

Bouhy,D., Juneja,M., Katona,I., Holmgren,A., **Asselbergh,B.**, De Winter,V., Hochepped,T., Goossens,S., Haigh,J.J., Libert,C., Ceuterick-de Groote,C., Irobi,J., Weis,J., Timmerman,V.: A knock-in/knock-out mouse model of HSPB8-associated distal hereditary motor neuropathy and myopathy reveals toxic gain-of-function of mutant Hspb8. *Acta Neuropathologica* 135(1): 131-148 (2018) Epub: 05-Aug-2017 (PMID: 28780615) (I.F.: 12.213)

Estrada-Cuzcano,A., Martin,S., Chamova,T., Synofzik,M., Timmann,D., Holemans,T., Andreeva,A., Reichbauer,J., Chang,D-I., van Veen,S., Samuel,J., Schöls,L., Pöppel,T., Mollerup Sørensen,D., **Asselbergh,B.**, Klein,C., Züchner,S., Jordanova,A., Vangheluwe,P.*, Tournev,I.*, Schüle,R.* (* equal contribution): Loss-of-function mutations in the ATP13A2/PARK9 gene cause complicated hereditary spastic paraplegia (SPG77). *Brain* 140(Pt 2): 287-305 (2017) Epub: 31-Jan-2017 (PMID: 28137957) (I.F.: 10.292)

Kremer,A., Lippens,S., Bartunkova,S., **Asselbergh,B.**, Blanpain,C., Fendrych,M., Goossens,A., Holt,M., Janssens,S., Krols,M., Larsimont,J-C., McGuire,C., Nowack,M.K., Saelens,X., Schertel,A., Schepens,B., Slezak,M., Timmerman,V., Theunis,C., Van Brempt,R., Visser,Y., Guérin,C.J.: Developing 3D SEM in a broad biological context. *Journal of Microscopy* 259(2): 80-96 (2015) Epub: 26-Jan-2015 (PMID: 25623622) (I.F.: 2.136)

Janssens,K., Goethals,S., Atkinson,D., Ermanoska,B., Fransen,E., Jordanova,A., Auer-Grumbach,M., **Asselbergh,B.**, Timmerman,V.: Human Rab7 mutation mimics features of Charcot-Marie-Tooth neuropathy type 2B in Drosophila. *Neurobiology of Disease* 65: 211-219 (2014) Epub: 09-Feb-2014 (PMID: 24521780) (I.F.: 5.202)

Almeida-Souza,L., **Asselbergh,B.**, d'Ydewalle,C., Moonens,K., Goethals,S., De Winter,V., Azmi,A., Irobi,J., Timmermans,J-P., Gevaert,K., Remaut,H., Van Den Bosch,L., Timmerman,V., Janssens,S.: Small heat-shock protein HSPB1 mutants stabilize microtubules in Charcot-Marie-Tooth neuropathy. *Journal of Neuroscience* 31(43): 15320-15328 (2011) Epub: 26-Oct-2011 (PMID: 22031878) (I.F.: 7.115)

Remijsen,Q., Vanden Berghe,T., Wirawan,E., **Asselbergh,B.**, Parthoens,E., De Rycke,R., Noppen,S., Delforge,M., Willems,J., Vandenabeele,P.: Neutrophil extracellular trap cell death requires both autophagy and superoxide generation., *Cell Research* 21(2):290-304 (2011) Epub: 9-Nov-2010 (PMID: 21060338) (I.F.: 15.606)

Asselbergh,B., Curvers,K., Franca,S.C., Audenaert,K., Vuylsteke,M., Van Breusegem,F., Höfte,M.: Resistance to *Botrytis cinerea* in sitiens, an abscisic acid-deficient tomato mutant, involves timely production of hydrogen peroxide and cell wall modifications in the epidermis. *Plant Physiology* 144(4): 1863-1877 (2007) Epub: 15-Jun-2007 (PMID: 17573540) (I.F.: 7.908)

[All Publications](#)