

André du Toit



personal information

32 years old
South African

contact

+27 72 352 4893 (ZA)
+46 76 115 0376 (SWE)

andre.du.toit@gu.se

Landala,
Gothenburg, Sweden

languages

Afrikaans (mother tongue),
English

software

Python, Latex, Blender, Adobe,
Moodle

laboratory techniques/experience

general laboratory and cell culture techniques, Western blot analysis, micro-patterning, PCR, research & development, fluorescent (confocal & super-resolution) and electron microscopy, proteomics

about me

My curiosity in biochemistry can be traced back to my childhood interest in nature; diversity among animals and how they function in the natural world. Later years the concept of how molecular functions of proteins in organisms define the smallest bacterium to the largest whale intrigued me, which is why I pursued a degree in biochemistry. I am very knowledgeable about biochemical analysis and microscopy techniques, and have a clear, logical mind with a practical approach to problem-solving and a drive to see things through to completion. I am an energetic, ambitious person that approaches any task, or situation, responsibly and I work well with others to achieve objectives on time.

experience

- 2016–present **Paraveterinarian services** Stellenbosch University, South Africa
Department of physiological sciences
Providing support with animal studies, including animal husbandry, and technical assistance with various techniques employed in animal research, sample collection, storage and processing.
- 2014–2019 **Teaching assistant** Stellenbosch University, South Africa
Department of physiological sciences
Preparing and supporting practicals/tutorial sessions and teaching/demonstrating technical skills at undergraduate level. Proficient with teaching software and web based teaching platforms (LabTutor, PowerLab, LabChart and SUNLearn).
- 2018–present **Laboratory assistant manager** Stellenbosch University, South Africa
Central analytic facility (CAF), Stellenbosch
Help out.
- 2014–present **Laboratory assistant manager** Stellenbosch University, South Africa
Department of physiological sciences
Maintaining laboratory equipment and administrating equipment and stock.

education

- 2016–2019 **Doctor of Philosophy in Biochemistry** Science Faculty, Stellenbosch University
Graduated: April 2019
Dissertation: *Measuring and modelling autophagy*. NRF Funded. Supervisors: Prof Jan-Hendrik Hofmeyr and Prof Ben Loos.
- 2014–2016 **Master of Science in Biochemistry** Science Faculty, Stellenbosch University
Mark: 78% Cum Laude
Thesis: *Measuring and modelling autophagy*. NRF Funded. Supervisors: Prof Jan-Hendrik Hofmeyr and Prof Ben Loos.
- 2013–2014 **Honours (BSc) in Biochemistry** Science Faculty, Stellenbosch University
Mark: 73%
Advance protein separation (cum Laude), system biology (cum Laude), energy metabolism in sport, cytochemistry of p450 hydroxylase, and research project.
- 2010–2013 **Bachelors in Sciences** Science Faculty, Stellenbosch University
Molecular Biology and Biotechnology. Cum Laude in mathematics, physics and chemistry.

cover images



Progress in Neurobiology,
Vol:153, 2017



Autophagy, Vol:14, 6, 2018

google scholar metrics

h-index: 7
i10-index: 7

publications

Chapters

du Toit, A., Hofmeyr, J-H. S. and Loos, B. (2022) Measuring Autophagosome Flux. Imaging and Quantifying Neuronal Autophagy. *Neuromethods*, vol 171 (Editor; Loos B. and Wong E). Page: 67 – 78

du Toit, A., Hofmeyr, J-H. S. and Loos, B. (2020) Supply and Demand Analysis of Autophagy. *Metabolic Flux Analysis in Eukaryotic Cells* (Editor; Nagrath, D.). Page: 345 – 357

Swart, C., **du Toit, A.** and Loos, B. (2017) Cross-talk between autophagy and cell death pathways – towards understanding a system. *Autophagy and Signaling* (Editor; Wong, E.). Page: 45 – 51

du Toit, A., Hofmeyr, J-H. S. and Loos, B. (2017) Methods for measuring autophagosome flux – impact and relevance. *Autophagy: Cancer, Other Pathologies, Inflammation, Immunity, Infection, and Aging* (Editor; Hayat, M.A.). Page: 91 – 104

Articles

Kimania, S., Chakrabortya, S., Irene, I., de la Mare, J., Edkins, A., **du Toit, A.**, Loos, B., Blanckenberg, A., van Niekerk, A., Costa-Lotufo, L.V., ArulJothi, K.N., Mapolie, S. and Princea, S. (2021) The palladacycle, BTC2, exhibits anti-breast cancer and breast cancer stem cell activity. *Biochemical Pharmacology*, 190, 114598. <https://doi.org/10.1016/j.bcp.2021.114598>

Willot, Q., **du Toit, A.**, Terblanche, J. and Loos, B. (2021) Rapamycin induces autophagy and increases heat tolerance in *Drosophila melanogaster*. [Preprint]. <https://doi.org/10.1101/2021.12.09.471892>

de Wet, S., **du Toit, A.** and Loos, B. (2021) Spermidine and Rapamycin reveal distinct autophagy flux response and cargo receptor clearance profile. *Cells*, 10(1), 95; <https://doi.org/10.3390/cells10010095>

Theart, R.P., Kriel, J., **du Toit, A.**, Loos, B. and Thomas R. Niesler, T.R. (2020) Mitochondrial event localiser (MEL) to quantitatively describe fission, fusion and depolarisation in the three-dimensional space. *PLOS ONE* 16(3): e0249162. <https://doi.org/10.1371/journal.pone.0249162>

Viviers, C., **du Toit, A.**, Perold, W., Loos, B. and Hofmeyr, J-H. S. (2020) A Resistive Biosensor for the Detection of LC3 Protein in Autophagy. *IEEE Sensors Journal*. DOI: 10.1109/JSEN.2020.2970479

Loos, B., Klionsky, D.J., **du Toit, A.** and Hofmeyr, J-H. S. (2019) On the relevance of precision autophagy flux control in vivo – Points of departure for clinical translation. *Autophagy*, 11, 1 – 13. DOI: 10.1080/15548627.2019.1687211

Bleloch, J. S., **du Toit, A.**, Gibhard, L., Kimani, S., Ballim, R. D., Lee, M., Blanckenberg, A., Mapolie, S., Wiesner, L., Ben Loos, B. and Prince, S. (2019) The palladacycle complex AJ-5 induces apoptotic cell death while reducing autophagic flux in rhabdomyosarcoma cells *Cell Death Discovery*, 5(60), DOI:10.1038/s41420-019-0139-9

du Toit, A., De Wet, S., Hofmeyr, J-H. S., Müller-Nedebock, K. K. and Loos, B. (2018) The Precision Control of Autophagic Flux and Vesicle Dynamics – A Micropattern Approach. *Cells*, 7(8), 94. DOI:10.3390/cells7080094

du Toit, A., Hofmeyr, J-H. S., Gniadek, T. J. and Loos, B. (2018) Measuring autophagosome flux. *Autophagy*, 14(6), 1060 – 1071. DOI: 10.1080/15548627.2018.1469590

van Niekerk, G., **du Toit, A.**, Loos, B. and Engelbrecht, A-M. (2018) Nutrient excess and autophagic deficiency: explaining metabolic diseases in obesity. *Metabolism: Clinical and Experimental*, 82, 14 – 21. DOI: 10.1016/j.metabol.2017.12.007

Ntsapi, C., Lumkwana, D., Swart, C., **du Toit, A.** and Loos, B. (2018) New insights into autophagy dysfunction related to Amyloid beta toxicity and neuropathology in Alzheimer's disease. *International Review of Cell and Molecular Biology*, 336, 321 – 361. DOI: 10.1016/bs.ircmb.2017.07.002

publications

- Articles
- Lumkwana, D., **du Toit, A.**, Kinnear, C. and Loos, B. (2017) Autophagic flux control in neurodegeneration: Progress and precision targeting—Where do we stand? *Progress in Neurobiology*, 153, 64 – 85. DOI: 10.1016/j.pneurobio.2017.03.006
- Klionsky, D.J., Abdelmohsen, K., Abe, A., ... , **du Toit, A.**, ... , Zughailer, S. M. (2015) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy*, 12(1) 1 – 222. DOI: 10.1080/15548627.2015.1100356
- Loos, B., **du Toit, A.** and Hofmeyr, J-H. S. (2014) Defining and measuring autophagosome flux - concept and reality. *Autophagy*, 10, 2086 – 2096. DOI: 10.4161/15548627.2014.973338
- Patents
- Method to determining autophagosome flux: Patent is a utility patent, application no: 2016/03101
- Biomarkers of autophagosome flux: Filling in progress

conferences

2018	18th conference of the International Study Group for Systems Biology (ISGSB) <i>Oral presentation</i>	Tromso, Norway
2016	44rd meeting of the Physiology Society of Southern Africa (PSSA) <i>Poster presentation</i>	Pretoria, South Africa
2015	43rd meeting of the Physiology Society of Southern Africa (PSSA) <i>Poster presentation</i>	Cape Town, South Africa
2015	Single Cell Analysis <i>Poster presentation</i>	Cold Spring Harbour, USA
2014	20th conference of the The International Cell Death Society <i>Poster presentation</i>	Stellenbosch University, South Africa
2014	Analytic Facility Student Symposium <i>Poster presentation</i>	Stellenbosch University, South Africa

workshops

2019	Rutherford Appleton Laboratories <i>Building a lightsheet microscope</i>	Rutherford, United Kingdom
2019	University of Pretoria and University of Cambridge <i>Low cost viral diagnostics</i>	Pretoria, South Africa
2017	WhiteScientific <i>Fluorescence microscopy</i>	Pretoria, South Africa
2017	Stanford University <i>CLARITY</i>	Stanford, USA
2016	Nelson Mandela Metropolitan University <i>ImageXpress</i>	Port Elizabeth, South Africa
2014–2016	Stellenbosch University Analytic Facility (CAF) <i>LC-MS</i> <i>Fluorescence microscopy</i> <i>Confocal and Super-resolution microscopy</i> <i>Proteomics</i>	Stellenbosch, South Africa
2014	Council for Scientific and Industrial Research (CSIR) <i>Stem Cell</i>	Pretoria, South Africa

references

2016–present	Prof Jan-Hendrik S. Hofmeyr Supervisor Hons(BSc) – PhD email: jhsh@sun.ac.za, tel: +27 21 808 2704	Department of biochemistry, Stellenbosch University
2014–2016	Prof Ben Loos Supervisor Hons(BSc) – PhD Founder of Phagoflux email: bloos@sun.ac.za, tel: +27 21 808 9196	Department of physiological sciences, Stellenbosch University
2013–2014	Prof Resia Pretorius Co-supervisor Founder of Biocode email: resiap@sun.ac.za, tel: +27 82 929 5041	Department of physiological sciences, Stellenbosch University
2013–2014	Prof Karin Jacobs Laboratory assistant email: kj@sun.ac.za, tel: +27 21 808 5806	Department of microbiology, Stellenbosch University
2010–2013	Dr Annedie Krygsman Laboratory assistant manager email: krygsman@sun.ac.za, tel: +27 21 808 4744	Department of physiological sciences, Stellenbosch University