

# Prof. dr. ir. Stephen Depuydt

Department of Molecular Biotechnology  
Plant Bioactive Compound Research Center  
Lab of Plant Growth analysis

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## Short Biographies

Stephen Depuydt graduated from Ghent University in 2004 as a Bio-Engineer (Cell and gene biotechnology) magna cum laude. In 2008 he obtained his PhD degree with a dissertation that dealt with the molecular biology of the *Rhodococcus fascians* – plant interaction. After his PhD, he received a Marie Curie Postdoctoral fellowship to work at the Department of Molecular Plant Biology at the University of Lausanne (Switzerland), further specializing in developmental plant biology and plant hormone interactions. In 2012 he subsequently re-joined Ghent University as an FWO (National Research Foundation Flanders) postdoctoral fellow, starting up research towards the mode of action of a novel plant hormone.

Since August 2014 he works as a Professor at Ghent University Global Campus in Korea where he heads the lab of Plant Growth Analysis of the Plant Bioactive Compound Research Centre. There, he started up research towards how novel and sustainable biostimulantia (e.g. derived from algae and sponges) can improve and influence plant growth and yield. To this end he has fruitful and on-going collaborations with several labs and research groups in Korea as well as of the Ghent University home campus, e.g. the department of plant biotechnology and bioinformatics from Ghent University and the department of Plant Systems Biology of the VIB.

## Research Area

Plant Molecular Biology; Plant Biotechnology; Plant Hormone Biology; *Arabidopsis thaliana*, *Oryza sativa*

## Education

- (2004) Ghent University, Belgium: Bio-engineer in cell- and genebiotechnology; magna cum laude (engineering degree)
- (2008) Ghent University, Belgium: PhD in Sciences (Biotechnology), (PhD)

## Experience

- (2008~2010) Marie-curie Outgoing International Post Doctoral Fellow, University of Lausanne (Switzerland)
- (2010~2012) First assistant, University of Lausanne, Switzerland
- (2012~2014) FWO postdoctoral Fellow at Ghent University and Flanders Institute for Biotechnology (Belgium)
- (2014-current) Professor at Ghent University (Belgium) and Ghent University Global Campus (Korea)

## Selected Publications

- Park, J., Yoon, J.H., Depuydt, S., Oh, J.W., Jo, Y.M., Kim, K., Brown, M.T. and Han, T. (2016). The sensitivity of an hydroponic lettuce root elongation bioassay to metals, phenol and wastewaters. *Ecotoxicology and Environmental Safety* (126), 147-153.
- Depuydt, S., Van Praet, S., Nelissen, H., Vanholme, B. and Vereecke, D. (2016). How plant hormones and their interactions affect cell growth. *Molecular Cell Biology of Plants*, CRC press.
- Jiang, L., Matthys, C., Marquez-Garcia, B., De Cuyper, C., Smet, L., De Keyser, A., Boyer, F.D., Beeckman, T., Depuydt, S. (co-last author) and Goormachtig, S. (2016). Strigolactones spatially influence lateral root development through the cytokinin signaling network. *Journal of Experimental Botany* (67), 379-89.
- Stes, E., Depuydt, S. (co-first author), De Keyser, A., Matthys, C., Audenaert, K., Yoneyama, K., Werbrouck, S., Goormachtig, S., and Vereecke, D. (2015). Strigolactones as an auxiliary hormonal defence mechanism against leafy gall syndrome in *Arabidopsis thaliana*. *Journal of Experimental Botany* (66), 5123-34.
- Amiguet-Vercher, A., Santuari, L., Gonzalez-Guzman, M., Depuydt, S., Rodriguez, P.L., and Hardtke, C.S. (2015). The IBO germination quantitative trait locus encodes a phosphatase 2C-related variant with a nonsynonymous amino acid change that interferes with abscisic acid signaling. *New Phytologist* (205): 1076-82.
- Depuydt, S. (2014). Arguments for and against self and non-self root recognition in plants. *Frontiers in Plant Science* (5), 614.



- Rodriguez-Villalon, A., Gujas, B., Kang, Y.H., Breda, A.S., Cattaneo, P., Depuydt, S., and Hardtke, C.S. (2014). A molecular genetic framework for protophloem formation. *Proceedings of the National Academy of Sciences USA* 111(31), 11551-6.
- Motte, H., Vercauteren, A., Depuydt, S., Landschoot, S., Geelen, D., Werbrouck, S., Goormachtig, S., Vuylsteke, M. and Vereecke, D. (2014). Combining linkage and association mapping identifies RECEPTOR-LIKE PROTEIN KINASE1 as an essential Arabidopsis shoot regeneration gene. *Proceedings of the National Academy of Sciences U.S.A.* (111), 8350-10.
- Boyer, F-D., de Saint Germain, A., Pouvreau, J-B., Clavé, G., Pillot, J-P., Roux, A., Rasmussen, A., Depuydt, S., Laressergues, D., Frei dit Frey, N., Heugebaert, T.S.A, Stevens, C.V., Geelen, D., Goormachtig, S. and Rameau, C. (2014). New Strigolactone Analogues as Plant Hormones with Low Activities in the Rhizosphere. *Molecular plant* (7): 675-690.
- Rasmussen, A., Depuydt S. (co-first author), Goormachtig, S. and Geelen, D. (2013). Strigolactones fine tune the root system. *Planta* (238), 615-625.
- Depuydt, S., Rodriguez-Villalon, A., Santuari, L., Wyser-Rmili, C., Ragni, L. and Hardtke C.S. (2013). Suppression of protophloem differentiation and root meristem growth in Arabidopsis by CLE45 requires the receptor-like kinase BAM3. *Proceedings of the National Academy of Sciences U.S.A.* (110): 7074-7079.
- Stes, E., Francis, I., Pertry, I., Dolzblasz, A., Depuydt, S., Vereecke, D. (2013). The leafy gall syndrome induced by *Rhodococcus fascians*. *FEMS Microbiology Letters* (347), 187-194.
- Depuydt, S., Hardtke, C.S. (2011). Hormone signalling crosstalk in plant growth regulation. *Current Biology* (21), R365-73
- Pertry, I., Václavíková, K., Gemrotová, M., Spíchal, L., Galuszka, P., Depuydt, S., Temmerman, W., Stes, E., De Keyser, A., Riefler, M., Biondi, S., Novák, O., Schmölling, T., Strnad, M., Tarkowski, P., Holsters, M. & Vereecke, D. (2010). *Rhodococcus fascians* impacts plant development through the dynamic fas-mediated production of a cytokinin mix. *Molecular Plant-Microbe Interactions* (23), 1164-1174.
- Pertry, I., Václavíková, K., Depuydt, S. (co-first author), Galuszka, P., Spíchal, L., Temmerman, W., Stes, E., Schmölling, T., Kakimoto, T., Van Montagu, M., Strnad, M., Holsters, M., Tarkowski, P. & Vereecke, D. (2009). How *Rhodococcus fascians* reshapes the plant: identification and modus operandi of the bacterial cytokinins. *Proceedings of the National Academy of Sciences* (106), 929-934.
- Depuydt, S., De Veylder, L., Holsters, M. & Vereecke, D. (2009).



Eternal youth: the fate of developing Arabidopsis leaves upon *R. fascians* infection. *Plant Physiology* (149), 1387- 1398.

- Depuydt, S., Trenkamp, S., Fernie, A.R., Elftieh, S., Renou, J.-P., Vuylsteke, M., Holsters, M. & Vereecke, D. (2009). An integrated genomics approach to define niche establishment by *Rhodococcus fascians*. *Plant Physiology* (149), 1366-1386.
- Depuydt, S., Dolezal, K., Van Lijsebettens, M., Moritz, T., Holsters, M. and Vereecke, D. (2008) Modulation of the hormone setting by *Rhodococcus fascians* results in ectopic KNOX gene expression in *Arabidopsis*. *Plant Physiology* (146), 1267-1281.