

Frédéric Deschoenmaeker, Ph.D. in Biology

- Date of birth: 1989/04/07
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SUMMARY

Highly motivated biologist with extensive expertise in interdisciplinary characterization of bacteria with experience in research laboratories, knowledge of biochemistry and industrial applications of bacteria. Rigorous, energetic and results-oriented with analytical and problem-solving skills. Autonomous, team player and open-minded. Willing to learn, progress and develop. Excellent communication and team-working skills.

PROFESSIONAL EXPERIENCE

Tokyo Institute of Technology, Yokohama, Japan **Nov. 2016 – March 2019**

Postdoc. Res. Fellow in the Laboratory for Chemistry and Life Science (Advisor: Prof. Hisabori Toru)

- Conducted a research project to characterize the thioredoxin pathway in cyanobacteria
- Autonomously and proactively examined bacteria cultivated under a broad range of conditions through multidisciplinary approach at cellular to molecular level
- Collaborated with interdisciplinary scientists from Tokyo Institute of Technology, Saitama and Osaka Universities
- Original research with interdisciplinary collaboration published in international peer-reviewed journals and popularization of research data during international conferences and lecture

University of Mons, Mons, Belgium **Sep. 2012 – Sep. 2016**

Graduate researcher in the Dep. of Proteomic and Microbiology (Advisor: Prof. Wattiez Ruddy)

- Conducted a research project to investigate the nitrogen metabolism and survival abilities of cyanobacteria
- Collaborated with interdisciplinary scientists from University of Mons and SCK-CEN
- Trained and supervised undergraduates students to help with lab procedures
- Supervision of master theses; supervised and results-oriented optimizations, elaborations, realizations of experiments, and scientific communications
 - Characterized nitrogen metabolism within *Arthrospira* sp. cultivated in flask in order to optimize continuous growth in photo-bioreactor for space fly
 - Elaborated a method to isolate single and viable cells from filaments and characterize a new type of cells within *Arthrospira* colonies
- Original research published in international peer-reviewed journals
- Original book chapter published in Modern topics in the Phototrophic Prokaryotes: Metabolism, Bioenergetics and Omics, Dr. Hallenbeck (ed.), Springer
- Popularization of research data for large audience and interfaculty audience during international conferences (posters and oral presentations)
- Contributed to the Exhibition “Explorer l’invisible” as scientific guide and participant

Collaboration with the ESA for the MELiSSA project **Sep. 2012 – Sep. 2016**

- Establishment, improvement of an artificial closed ecosystem for manned-term space flight
- Point out and by-pass constraints for space fly of photosynthetic bacteria
- International collaboration with scientists from universities, space industries & others

TECHNICAL EXPERTISE

- **Microbiology:** handling, monitoring and characterization of cyanobacteria in batch and continuous mode (photo-bioreactors, flasks) under aseptic conditions; mutation by homologous recombination, PCR

- **Microscopy:** Morphological characterization by confocal, epifluorescence, optical & transmission electron microscopy (intermediate expertise in scanning electron, phase contrast)
- **Immunocytochemistry:** Immunolocalization of proteins by electron microscopy, Western Blot, co-immunoprecipitation
- **Compound Assay:** monitored the level of pigments (phycocyanin, allophycocyanin, chlorophyll), urea, nitrate, ammonium ions, exopolysaccharides (uronic acid, total carbohydrates), polyhydroxyalkanoates, cyanophycin & protein assays
- **Non-lethal enzymolysis of cells:** spheroplasting, protoplasting & permeabilizing
- **Chromatography:** UPLC, HPLC, nanoLC
- **Genomics:** PCR, RTqPCR, homologous recombination, mRNA & DNA extraction & purification, microchip, retrotranscription
- **Proteomics and Mass spectrometry:** Protein extraction (sonication, FrenchPress), NanoESI-TripleTOF[®] 5600 (ABSciex), Maldi TOF, DDA and DIA acquisitions; ProteinPilot[™], PeakView[®], MarkerView[™], Progenesis[™] QI & Skyline (softwares for MS and MS/MS analysis)

EDUCATION

- **Ph.D. degree in Biology, University of Mons, Mons, Belgium** **2012 – 2016**
Proteomic and Microbiology Department (FRIA fellowship, 4 years)
- **MS in Biochemistry, Molecular and Cell Biology, UMons, Mons, Belgium** **2010 – 2012**
Graduated magna cum laude
- **BS in Biology, University of Mons, Mons, Belgium** **2007 – 2010**
Graduated cum laude

OTHER SKILLS AND QUALIFICATIONS

- **Languages:** English (advanced), French (native language), Dutch (basic), Japanese (basic)
- **Computer skills:** Microsoft Office (Word, Power Point, Excel), Adobe Photoshop, Mendeley Desktop, GraphPad Prism, R & Komodo R editor
- **Membership:** Federation of European Microbiologist Societies (FEMS); Belgian Biophysical Society (BBS), Plant & Cell Physiology (PCP)

FELLOWSHIPS AND AWARDS

- **Plant and Cell Physiology: Editor's choice** **Dec. 2018**
- **Postdoctoral Fellowship** **Nov. 2016 – Nov. 2018**
Japan Society for the Promotion of Science
- **Ph.D. FRIA Fellowship** **Sep. 2012 – Sep. 2016**
Fund for research Training in Industry and Agriculture
- **Initiation Research fellowship** **Aug. 2015**
Supervision and initiation of young students in Research
- **Best Master Thesis in Biology Section (Science Faculty)** **June 2012**

REFEREES

- **Prof. Toru Hisabori**

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