

CURRICULUM VITAE
Björn Fredrik Johansson
2013

PERSONAL INFORMATION

Name: Björn Fredrik Johansson

Date of Birth: 1970-03-19

Place of Birth: Örebro, Sweden

Nationality: Swedish

Office address: Department of Biology, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal

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EDUCATION

Postgraduate:

Ph.D. at the University of Lund, Sweden, 2001. Thesis entitled "Metabolic engineering of the pentose phosphate pathway of xylose fermenting *Saccharomyces cerevisiae*". Department of Applied Microbiology, Supervisor: Prof. Bärbel Hahn-Hägerdal.

Graduate

Masters degree in Chemical Engineering/Biotechnology (16/20). University of Lund, Sweden, 1995.

PRESENT SITUATION

Assistant Professor at the Biology Department, University of Minho (since 2004).

FELLOWSHIPS

Post-Doctoral fellowship (SFRH/BPD/7154/2001), at the Biology Department, University of Minho. 2002-2004. Supervisor Professor Manuela Côrte-Real.

FCT short-term fellowship for a 2 months stay at the group of Professor Mark Ramsdale, Institute of Medical Sciences, University of Aberdeen, Scotland, 2 months, 2004.

FEBS fellowship to attend the Advanced course "Transcriptome analyses: experimental design, microarray production and data analyses", 12-23 July, 2004, Paris, France.

FEBS fellowship to attend the Advanced course Basic Methods in Yeast Genetics and Molecular Biology, 12-23 July, 1999, Strasbourg, France.

LANGUAGES

Swedish, English and Portuguese).

PROFESSIONAL EXPERIENCE

Assistant Professor at the Biology Department, University of Minho, since November 2004.

Post-Doctoral fellow at the Biology Department, University of Minho. 2002-2004. Supervisor Professor Manuela Côrte-Real.

PUBLICATIONS

In Scientific Reviews

(17) Bessa D, Pereira F, Moreira R, **Johansson B***, Queirós O*. (2012). Improved gap repair cloning in yeast: treatment of the gapped vector with Taq DNA polymerase avoids vector self-ligation. *Yeast*. 29(10):419-23. *These authors contributed equally to this work.

(16) Marques F, Azevedo F, **Johansson B**, et al. 2011. Stimulation of DNA repair in *Saccharomyces cerevisiae* by Ginkgo biloba leaf extract. *Food Chem. Toxicol.*, 49: 1361–1366. (Accessed March 29, 2012).

(15) Azevedo F, Marques F, Fokt H, Oliveira R, **Johansson B**. (2011). Measuring oxidative DNA damage and DNA repair using the Yeast Comet Assay. *Yeast*. **28**: 55-61.

(14) Vieira N, Pereira F, Casal M, Brown AJ, Paiva S and **Johansson B**. (2010). Plasmids for in vivo construction of integrative *Candida albicans* vectors in *Saccharomyces cerevisiae*. *Yeast*. 27: 933-9.

(13) Vieira N, Casal M, **Johansson B**, Maccallum DM, Brown AJ and Paiva S. (2010). Functional specialization and differential regulation of short chain carboxylic acid transporters in the pathogen *Candida albicans* *Mol Microbiol* **75**: 1337-54.

(12) Pereira C, Silva RD, Saraiva L, **Johansson B**, Sousa MJ and Côrte-Real M. (2008). Mitochondria dependent apoptosis in yeast. *Biochim Biophys Acta*. **1783**: 1286-302. .

(11) Ribeiro GF, Corte-Real M and **Johansson B**. (2006). Characterization of DNA Damage in Yeast Apoptosis Induced by Hydrogen Peroxide, Acetic Acid, and Hyperosmotic Shock. (2006) *Mol Biol Cell* **17**:4584-4591.

(10) Silva RD, Sotoca R, **Johansson B**, Ludovico P, Sansonetty F, Silva MT, Peinado JM and Côrte-Real M. (2005). Hyperosmotic stress induces metacaspase- and mitochondria-dependent apoptosis in *Saccharomyces cerevisiae*. RDS and RS contributed equally to the work. *Mol Microbiol* **58**: 824-834.

(9) Davidsson R, **Johansson B**, Passoth V, Bengtsson M, Laurell T, Emnéus JA. (2004). Microfluidic system for monitoring the dynamics of cellular events: time separated production of glucose and ethanol by yeast cells immobilized on silicon microchips, using immobilized enzyme microchip catalyzed chemiluminescence detection. *Lab on a chip* **4**(5): 488-494.

(8) Jeppson M, Träff K, **Johansson B**, Hahn-Hägerdal B and Gorwa-Grauslund MF. (2003). Effect of enhanced xylose reductase activity on xylose consumption and product distribution in xylose-fermenting recombinant *Saccharomyces cerevisiae*. *FEMS Yeast research* **3**: 167-175.

- (7) Jeppson M, **Johansson B**, Jensen PR, Hahn-Hägerdal B and Gorwa-Grauslund MF. (2003). Reduced by-product formation from xylose by modulation of the glucose 6-phosphate dehydrogenase gene of *Saccharomyces cerevisiae*. *Yeast* **20**: 1263-1272.
- (6) Zaldivar J, Borges A, **Johansson B**, Smits HP, Villas-Bôas SG, Nielsen J and Olsson L. (2002). Fermentation performance and intracellular metabolite patterns in laboratory and industrial xylose fermenting *Saccharomyces cerevisiae*. *Applied Microbiology and Biotechnology* **59**: 436-442.
- (5) **Johansson B** and Hahn-Hägerdal B. (2002). The non-oxidative pentose phosphate pathway controls the fermentation rate of xylulose but not of xylose in *Saccharomyces cerevisiae* TMB3001. *FEMS Yeast research* **2**: 277-282.
- (4) Jeppson M*, **Johansson B***, Hahn-Hägerdal B and Gorwa-Grauslund MF (2002). Reduced Oxidative Pentose Phosphate Pathway Flux in Recombinant Xylose Utilising *Saccharomyces cerevisiae* strains improves the ethanol formation from xylose. *Applied and Environmental Microbiology* **68**: 1604-1609 *MJ and BJ contributed equally to this paper.
- (3) **Johansson B.** and Hahn-Hägerdal B. (2002). Over-expression of the pentose phosphate pathway using a new CRE/loxP expression vector for repeated genomic integration in *Saccharomyces cerevisiae*. *Yeast* **19**: 225-231.
- (2) **Johansson B**, Christensson C, Hobley T and Hahn-Hägerdal B. (2001). Xylulokinase overexpression in two strains of *Saccharomyces cerevisiae* also expressing xylose reductase and xylitol dehydrogenase and its effect on fermentation of xylose and ligno-cellulosic hydrolysate. *Applied and Environmental Microbiology* **67**: 4249-4255.
- (1) Eliasson A, Boles E, **Johansson B**, Österberg M, Thevelein J M, Spencer-Martins I, Juhnke H and Hahn-Hägerdal B. (2000). Xylulose fermentation by mutant and wild-type strains of *Zygosaccharomyces* and *Saccharomyces cerevisiae*. *Applied Microbiology and Biotechnology* **53**: 376-382.

Book Chapters

- (1) Oliveira R and **Johansson B**. Quantitative DNA Damage and Repair Measurement with the Yeast Comet Assay. In *DNA Repair Protocols*,. <http://www.springer.com/biomed/human+genetics/book/978-1-61779-997-6> (Accessed March 29, 2012). Invited chapter, editor Lotte Bjergbaek.
- (2) **Johansson B**, Saraiva L and Corte-Real M. Chapter "Nutrição e crescimento microbiano" in "Microbiologia Geral" (Vol. I, p.N/A), Lisboa: Editora Lidel. ISBN: 978-972-757-024-9.
- (3) **Johansson B** and Hahn-Hägerdal B. (2004). Multiple gene expression by chromosomal integration and CRE-loxP mediated marker recycling in *Saccharomyces cerevisiae*, 287-296 . In P. Balbas and A. Lorence (ed.), *Recombinant Gene Expression: Reviews and Protocols*, 2 ed. Humana Press. ISBN: 1-58829-262-2.
- (4) Koebmann BJ, Tornø J, **Johansson B** and Jensen PR. (2003). Experimental modulation of gene expression, p. 155-179. In B. N. Kholodenko and H. V. Westerhoff (ed.), *Metabolic Engineering in the Post Genomic Era*. Horizon Scientific Press. ISBN: 0-9545232-2-9.

Abstracts in Proceedings

Vieira N, Pereira F, **Paiva S**, Casal M, Brown A and **Johansson B**. Plasmids for *in vivo* construction of integrative *Candida albicans* vectors in *Saccharomyces cerevisiae*. 25th International Conference on Yeast Genetics and Molecular biology. Olsztyn, Poland. 11-16 July 2011. *Yeast* Vol 28, Supp 1.

Azevedo F, Oliveira R, **Johansson B**. (2009). Studies of DNA repair and toxicity after an oxidative challenge by hydrogen peroxide in *Saccharomyces cerevisiae*. *YEAST*, Volume 26 Issue S1, Pages S19 - S259. Supplement: Abstracts of the 24th International Conference on Yeast Genetics and Molecular Biology, Manchester, UK. July 2009.

Vieira N, Casal M, **Johansson B**, MacCallum D, Odds F, Brown A and Paiva S. (2009). Functional specialization and differential regulation of short chain carboxylic acid transporters in the pathogen *Candida albicans*. *YEAST*, Volume 26 Issue S1, Pages S19 - S259. Supplement: Abstracts of the 24th International Conference on Yeast Genetics and Molecular Biology, Manchester, UK. July 2009.

Johansson B and Côte-Real M. (2003). A new two-hybrid technique for screening of cytochrome C-protein interactions. *Yeast*, 20. Book of abstracts of the XXI International Conference on Yeast Genetics and Molecular Biology, Göteborg, Sweden.

Jeppsson M, **Johansson B**, Träff K, Hahn-Hägerdal B and Gorwa-Grauslund MF. (2003). Use of metabolic engineering to enhance xylose consumption rate yield in recombinant *Saccharomyces cerevisiae*. *Yeast*, 20. Book of abstracts of the XXI International Conference on Yeast Genetics and Molecular Biology, Göteborg, Sweden.

Davidsson R, Bengtsson M, **Johansson B**, Passoth V, Laurell T, Emnéus J. (2001). A micro total analysis system (μ TAS) for monitoring immobilized yeast cells using an enzymatic chemiluminescent detection system. In *Micro Total Analysis Systems*, pp 287-288, Eds. Michael Ramsey & Albert van den Berg, Kluwer Academic Publishers, Dordrecht 2001. The μ TAS 2001 Symposium, Monterey, CA, USA, 21-25 October 2001.

Johansson B, Piskur J, Hahn-Hägerdal B and Jensen PR. (1999). Artificial promoters for metabolic optimization of *Saccharomyces cerevisiae*. *Current Genetics*, 35 Book of Abstracts of the XIX International Conference on Yeast Genetics and Molecular Biology, Rimini, Italy.

PROJECTS

Ongoing Projects

Principal Investigator of the project "MycFat: Metabolic engineering of yeast fatty acids synthesis for biodiesel production". Project financed by FCT, PTDC/AAC-AMB/120940/2010.

Concluded projects:

Lead partner in Work Package 2 - Ethanol Production of the New Improvements for Ligno-cellulosic Ethanol (NILE) Integrated Project carried out within the 6th Framework Program of the European Union. 2008-2009
<http://www.nile-bioethanol.org>

Member of the research project PTDC/BIA-BCM/69448/2006 “Elucidação da apoptose induzida pela ceramida: modulação das isoformas da cínase C de proteína”. Projecto coordinated by Professor Manuela Côrte-Real (2008-2010).

Member of the research project NaturPlas – Novos materiais com base em recursos naturais da euro-região: aplicações na indústria automóvel. Project financed by the program INTERREG III A, from 2004-2005, and coordinated by Professor António Cunha.

Participation in research projects as a PhD student at the Department of Applied Microbiology, University of Lund, Sweden.

ORGANIZATION OF SCIENTIFIC MEETINGS AND ADVANCED COURSES

Member of the organizing Committee of:

International Advanced course on "Bioinformatics in Health Sciences", December 2009 and December 2010. University of Minho, Portugal.

National Congress “XXXV Jornadas Portuguesas de Genética”, 31 May-2 June 2010, Braga, Portugal.

International Congress: “26th Small Meeting on Yeast Transport and Energetics”, 6-9 September 2008, Braga, Portugal.

National Congress MICRO'07-BIOTEC'07, December 2007, Lisbon.

National Congress MICRO'05-BIOTEC'05, 30 November-3 December, 2005, Póvoa de Varzim.

RELEVANT COURSES

Effective Teaching, by Richard Felder and Rebecca Brent, 9-10 May 2005, University of Minho.

FEBS Advanced course “Transcriptome analyses: experimental design, microarray production and data analyses”, 12-23 July, 2004, Paris, France.

Light Microscopy and Advanced Imaging Principles and Good Practice. 26-30 May, 2003, University of Minho, Braga, Portugal.

FEBS Advanced course Basic Methods in Yeast Genetics and Molecular Biology, 12-23 July, 1999, Strasbourg, France.

Advanced course on Metabolic Engineering, 6-13 June, 1998, Lyngby, Denmark.

Advanced Microbiology course. 1997, Department of Applied Microbiology, Lund University, Sweden.

RESEARCH MENTORING

Post-Doctoral Fellows

César Fonseca. Universidade Nova de Lisboa. 2008-2009.

PhD Students

Supervisor of the PhD thesis of Gabriela Ribeiro (FCT grant SFRH/BD/42565/2007). University of Minho. Ongoing.

Supervisor of the PhD thesis of Filipa Pereira. Metabolic engineering of transport and core pentose metabolism in *Saccharomyces cerevisiae*. University of Minho. Ongoing.

Supervisor of the PhD thesis of Flávio Azevedo. Metabolic engineering of fatty acid and high value wax ester production in *Saccharomyces cerevisiae*. University of Minho. Ongoing.

Master Students

Supervisor of the Master thesis of Ângela Carvalho. Thesis entitled "The MX4Blaster cassette - a tool for multiple gene disruptions in *Saccharomyces cerevisiae*". Master in Molecular Genetics. University of Minho. December 2012.

Supervisor of the Master thesis of João Miguel Lopes. Thesis entitled "Metabolic Engineering of *Saccharomyces cerevisiae* for citric acid and fatty acids production". Master in Molecular Genetics. University of Minho. January 2012.

Supervisor of the Master thesis of Filipe Nuno Lopes de Vasconcelos. Thesis entitled "Degradação de corantes de aplicação têxtil por levedura e engenharia metabólica de *Saccharomyces cerevisiae* para biodegradação de corantes azo". Master in Molecular Genetics. University of Minho, 29 January 2010.

Supervisor of the Master thesis of Filipe Marques. Thesis entitled "Evaluation of prevention of DNA damage and induction of DNA repair by natural compounds". Master in Plants Molecular Physiology. University of Minho, 17 December 2009.

Supervisor of João Ricardo Madeira Simões. Work entitled "Using Yeast DEL Assay to study DNA damage repair ability in *Saccharomyces cerevisiae* cells upon oxidative shock". Master in Molecular Genetics. University of Minho. 2006.

Supervisor of the the Master thesis of Gabriela Ribeiro. Thesis entitled "Characterization of DNA lesions in apoptotic *Saccharomyces cerevisiae*". Master in Molecular Genetics. University of Minho, 2005.

Other Supervisions

Supervisor of an Erasmus student from the Faculty of Medicine, University of Leiden, Holland: van der Wal, R. (2004). Development of molecular tools to study cytochrome c release during yeast apoptosis. Department of Biology, University of Minho, Portugal.

Supervisor of the following degree theses:

Marques, F. (2008). "Avaliação da prevenção de danos de DNA e indução da reparação de danos de DNA por compostos naturais". 2008. Applied Biology, University of Minho.

Rego, A. (2008). "Caracterização de danos de DNA em células apoptóticas de *Saccharomyces cerevisiae*". Applied Biology, University of Minho.

Azevedo, F. (2007). Studies of DNA repair after an oxidative challenge and its induction by natural compounds. Applied Biology, University of Minho.

Vieira, S. (2006). "Sistemas Redox da Membrana Plasmática, Melhoramento da estirpe *Saccharomyces cerevisiae* CEN.PK113 – 7D para degradação de corantes azo". Applied Biology, University of Minho.

Deltort, N. (1999). Cloning of xylulokinase from *Pichia stipitis* by functional complementation. Department of Applied Microbiology, University of Lund, Sweden.

Besenmatter, W. (1999). Purification characterization and cloning of xylulokinase from *Pachysolen tannophilus*. Department of Applied Microbiology, University of Lund, Sweden.

Nählstedt, P. (1997). Cloning of a putative xylulokinase from *Pichia stipitis*. Department of Applied Microbiology, University of Lund, Sweden.