**PERSONAL INFORMATION**

**Name**: Björn Fredrik Johansson

**Date of Birth:** 1970-03-19

**Place of Birth:** Örebro, Sweden

**Nationality:** Swedish

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

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**Google Scholar:** <http://scholar.google.pt/citations?hl=en&user=7AiEuJ4AAAAJ>

**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 with final grade 4/5. University of Lund, Sweden, 1995.

**PRESENT SITUATION**

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

**Awards**

American-Swedish Fulbright Grant. Visiting Scholar at the Lawrence Berkeley National Laboratory, Berkeley, USA, August 2014-January 2015.

**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**

Fluent Swedish and English, well-versed in 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.

**TEACHING ACTIVITIES**

**Last 6 years**

**Graduate**

- Genetics and Molecular Biotechnology, **Coordinator** (Masters in Molecular Genetics) (Fall 2008/2009; 2013/2014) Co-Instructor (Fall 2010/2011)

- Cellular Biophysics, **Coordinator**, (Integrated Masters in Biophysics and Bionano Systems) (Spring 2010/2011; 2011/2012; 2012/2013)

- Molecular Biophysics, Co-Instructor, (Integrated Masters in Biophysics and Bionano Systems) (Spring 2010/2011; 2011/2012; 2012/2013)

- International Advanced course on “Bioinformatics in Health Sciences”, **Coordinator** (December 2009, 2010, 2011), University of Minho.

- International Advanced course on " Mammalian and Yeast as Complementary Cell Models in Programmed Cell Death”, Course Instructor, (May 2010), University of Minho.

- Microbiology, 4 lectures, (Master of Science in Chemical Engineering), (May 2010), University of Lund, Sweden, in the scope of the Erasmus Program.

- Signaling, Genetic Expression and post-transcriptional regulation, Co-Instructor (Masters in Molecular Genetics) (Fall 2007/2008.

**Undergraduate**

- Molecular Genetics and Bioinformatics, **Coordinator** (Applied Biology Course) (Fall 2008/2009; 2009/2010; 2010/2011 Spring 2011/2012; 2012/2013)

- Bioinformatics Co-Instructor (Integrated Masters in Biomedical Engineering) (Fall 2007/2008; 2008/2009; 2009/2010; 2010/2011; 2011/2012; 2012/2013; 2013/2014)

- Microbiology, Co-Instructor (Biology and Geology Course) Fall 2009/2010

- Integrated Laboratories of Biology, Co-Instructor (Integrated Masters in Biological Engineering) Fall 2009/2010

**PUBLICATIONS**

**In Scientific peer-reviewed journals:**

(25) Barroca M, Santos G, **Johansson B**, Gillotin F, Feller G, Collins T. (2017). [Deciphering the factors defining the pH-dependence of a commercial glycoside hydrolase family 8 enzyme.](https://www.ncbi.nlm.nih.gov/pubmed/27871378) Enzyme Microb Technol. 96:163-169. doi: 10.1016/j.enzmictec.2016.10.011.

(24) Costa CE, Romaní A, Cunha JT, **Johansson B**, Domingues L. (2017). I[ntegrated approach for selecting efficient Saccharomyces cerevisiae for industrial lignocellulosic fermentations: Importance of yeast chassis linked to process conditions.](https://www.ncbi.nlm.nih.gov/pubmed/28013133) Bioresour Technol. 227:24-34. doi: 10.1016/j.biortech.2016.12.016. [Epub ahead of print].

(23) Pereira F, Azevedo F, Parachin NS, Hahn-Hägerdal B, Gorwa-Grauslund MF, **Johansson B** (2016). [Yeast Pathway Kit: A Method for Metabolic Pathway Assembly with Automatically Simulated Executable Documentation.](https://www.ncbi.nlm.nih.gov/pubmed/26916955) ACS Synth Biol 5(5):386-94. doi: 10.1021/acssynbio.5b00250.

(22) Carvalho DO, Oliveira R, **Johansson B**, Guido LF. (2016). Dose-Dependent Protective and Inductive Effects of Xanthohumol on Oxidative DNA Damage in Saccharomyces cerevisiae. Food Technol Biotechnol. 54(1):60-69.

(21) Pereira F, Azevedo F, Carvalho A, Ribeiro GF, Budde MW, **Johansson B**. (2015). Pydna: a simulation and documentation tool for DNA assembly strategies using python. BMC Bioinformatics. 2;16:142. doi: 10.1186/s12859-015-0544-x.

(20) Romaní A, Pereira F, **Johansson B** and Domingues L. (2015). Metabolic engineering of Saccharomyces cerevisiae ethanol strains PE-2 and CAT-1 for efficient lignocellulosic fermentation. Bioresour Technol. 179C, 150–158.

(19) Carmello JC, Pavarina AC, Oliveira R, **Johansson B**. (2015). Genotoxic effect of photodynamic therapy mediated by curcumin on Candida albicans. FEMS Yeast Res. 15(4):fov018. doi: 10.1093/femsyr/fov018. Epub 2015 Apr 2.

(18) Carvalho A, Pereira F and **Johansson B**.(2013). The MX4blaster cassette: repeated and clean *Saccharomyces cerevisiae*  genome modification using the genome‐wide deletion collection FEMS Yeast Research 13 (8), 711-719.

(17) Bessa D, Pereira F, Moreira R, **Johansson B**• and 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 and **Johansson B**. (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 cervisiae* 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**

(4) Oliveira R and **Johansson B**. Quantitative DNA Damage and Repair Measurement with the Yeast Comet Assay. In DNA Repair Protocols. Methods in molecular biology (Clifton, NJ) 920, 101 Invited chapter, editor Lotte Bjergbaek.

(3) **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.

(2) **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.

(1) 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.

**Educational Research:**

(1) Azevedo M, Duarte S, Paiva S and Johansson B. (2013). Implementation of a laboratory teaching module on human physiology to Portuguese students in regular Biology classes. Education Research Journal 3(7): 180- 191.

**Abstracts in Proceedings**

(7) 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.

(6) 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.

(5) 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.

(4) **Johansson B** and Côrte-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.

(3) 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.

(2) Davidsson R, Bengtsson M, **Johansson B**, Passoth V, Laurell T and Emnéus J. (2001). A micro total analysis system (μTAS) 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 μTAS 2001 Symposium, Monterey, CA, USA, 21-25 October 2001.

(1) **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:**

Member of the research project EcoAgriFood: Innovative green products and processes to promote Agri-Food BioEconomy. Ref.: NORTE-01-0145-FEDER-000009. Starting Date: 01/06/2016. Closing Date: 31/05/2019. Total Budget: 1.289.747,00€.

**Concluded projects:**

Principal Investigator of the project “MycoFat: Metabolic engineering of yeast fatty acids synthesis for biodiesel production”. Project financed by FCT, PTDC/AAC-AMB/120940/2010. Budget 110.920,00€.

Member of the project "Unravelling the determinants of xylanase function and stability and enhancing the biotechnological value of a highly active Antarctic xylanase." Project financed by FCT, EXPL/BBB-BIO/1772/2013 PI James Anthony, Collins Universidade do Minho Project will start in April 2014. Budget 43.590,00€.

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”. PI 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 the Advanced Course “Advances in Microbial Genomics and Bioinformatics”. Department of Biology, University of Minho, 7-19 July 2014.

Member of the organizing Committee of the national conference XXXIX Jornadas Portuguesas da Genética. 25 – 27 May 2015, Braga, Portugal.

Member of the organizing Committee of the "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:**

Mário Barroca. University of Minho. Ongoing.

Flávio Azevedo. Thesis entitled Metabolic engineering of fatty acid and high value wax ester production in *Saccharomyces cerevisiae*. University of Minho. Ongoing.

Gabriela Ribeiro (FCT grant SFRH/BD/42565/2007). University of Minho. Concluded 25 June 2015.

Filipa Pereira. Thesis entitled “Engineering of core Pentose Metabolism in *Saccharomyces cerevisiae* for Bio-ethanol Production”. University of Minho. Concluded 19 December 2013.

**Master Students:**

Humberto Henrique Gonçalves Pereira Bioquímica Aplicada: Biomedicina. Metabolic pathway engineering of multi-subunit acetyl-CoA carboxylase in Saccharomyces cerevisiae for complex polyketide biosynthesis. Supervisor Björn Johansson. Ongoing.

Miguel Pacheco. Development of CRISPR-CAS9 gene silencing in S. cerevisae for second generation biofuel production". Supervisor Björn Johansson. Ongoing.

Paulo Silva. "Yeast DEL assay with dominant genetic markers". Supervisor Björn Johansson. Ongoing.

Gustavo de Almeida Santos. Thesis entitled “Engineering a commercial cold-adapted xylanase for improved low pH stability”. Master in Molecular Genetics. University of Minho. Concluded December 2015. Supervisores: Anthony Collins and Björn Johansson.

Diogo André Ribeiro Silva. Thesis entitled “Understanding adaptation to pH in na industrially relevant glycoside hydrolase family 8 xylanase”. Master in Molecular Genetics. Concluded December 2015. Supervisores: Anthony Collins and Björn Johansson.

Sara Isabel Leite Baptista. Thesis entitled “Engineering novel metabolic pathways for cheese whey valorization”. Master in Bioengeneering. Concluded 7 December 2015. Supervisores: Lucília Domingues and Björn Johansson.

Angela Carvalho. Thesis entitled "The MX4Blaster cassette - a tool for multiple gene disruptions in Saccharomyces cerevisiae". Master in Molecular Genetics. University of Minho. Concluded December 2012.

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

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

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.

João Ricardo Madeira Simões. Thesis 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.

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

**Other Supervisions:**

Supervisor of Juliana Cabrini Carmello, PhD student in Oral Rehabilitation, *Universidade Estadual Paulista Júlio de Mesquita Filho* (UNESP), São Paulo, Brasil, in the scope of the CAPES program. 1 June -31 October 2013, University of Minho, Portugal.

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.