

## Curriculum vitae

### Jens Nielsen

Department of Chemical and Biological Engineering, Chalmers University of Technology,  
Kemigården 4, SE-412 96 Gothenburg, Sweden

Tel: +46 (0) 31 772 3804; Fax: +46 (0) 31 772 3801; E-mail: [nielsenj@chalmers.se](mailto:nielsenj@chalmers.se)

#### General information

Date of Birth: November 17, 1962 in Horsens, Denmark

Citizenship: Danish

#### Education and degrees

1986 M.Sc. in Chemical Engineering, DTU, Denmark

1989 Ph.D. in Biochemical Engineering, Department of Biotechnology, DTU, Denmark

1995 dr.techn., DTU, Denmark

#### Positions

1986 **Research Assistant**, School of Engineering, University of Western Ontario, Canada

1987-1989 **PhD student**, Department of Biotechnology, DTU, Denmark

1989 **Post doc**, Institut für Technische Chemie, Universität Hannover, Germany

1990-1995 **Associate Research Professor**, Department of Biotechnology, DTU, Denmark

1995-1996 **Visiting Professor**, Department of Chemical Engineering, MIT, USA

1996-1998 **Associate Professor**, Department of Biotechnology, DTU, Denmark

1998-2008 **Professor**, BioCentrum, DTU, Denmark

2005-2011 **Adjunct Professor**, Department of Biotechnology, NTNU, Norway

2008- **Professor**, Department of Chemical and Biological Engineering, Chalmers

2011- **Professor**, Novo Nordisk Foundation Centre for Biosustainability, DTU, Denmark

#### Academic Experience

1994-1999 **Founding Chairman**, Danish Biotechnological Forum, Denmark

1995-2000 **Deputy Director**, Center for Process Biotechnology, DTU, Denmark

1995-1998 **Co-ordinator**, Physiological Engineering, Nordic Industrial Fund

1998-2002 **Co-ordinator**, NordPhys, Nordic Industrial Fund

2001-2003 **Director**, Center for Process Biotechnology, DTU, Denmark

2001-2003 **Board Member**, Center for BioProcess Technology, KTH, Sweden

2002-2007 **SAB Member**, Kluywer Center for Genomics of Industrial Fermentations, TU Delft, The Netherlands

2002-2008 **SAB Member**, Max-Planck Institute for Dynamic of Complex Technical Systems, Germany

2003 **Guest Professor**, Tianjin University, China

2004-2007 **Founding Director**, Center for Microbial Biotechnology, DTU, Denmark

2004-2007 **Member of Integrative and Systems Biology Panel**, BBSRC, UK (50 million GPD)

2004- **Advisory Board**, Society for Biological Engineering, USA

2005 **Chairman of Evaluation Committee**, HepatoSys, Germany

2005-2008 **Co-ordinator**, Yeast Systems Biology Network, EU Framework VI

2006-2007 **Founder and Board Member**, Danish Biotechnological Society, Denmark

2008- **Member of Review Panel of SystemsX.ch**, Switzerland (100 million CHF)

2008- **Co-ordinator**, Systems Biology as a Driver for Industrial Biotechnology, EU Framework VII

2009- **SAB Member**, Netherlands Institute for Systems Biology, The Netherlands

2010- **Director Area of Advance Life Science**, Chalmers University of Technology, Sweden

2010- **Member of World Council for Industrial Biotechnology**, World Economic Forum

2011- **Member of Industrial Biotechnology and Bioenergy Strategy Advisory Panel**, BBSRC, UK

2011 **Presidential appointed evaluator of Humbolt University**, Germany

- 2011 **Member of DoE Evaluation Panel for Joint Bioenergy Institute, USA**  
 2011- **Swedish Delegate in International Commission of Yeast (ICY)**

### **Society Memberships**

- 1986- **The Danish Society for Engineers, Denmark**  
 1996- **Member of American Association for the Advancement of Science, USA**  
 2001- **Society for Industrial Microbiology, USA**  
 2004- **American Chemical Society, USA**  
 2004- **Society for Biological Engineering, USA**  
 2006- **American Society for Microbiology, USA**

### **Publications, Patents & Presentations**

*H-factor of 50 and more than 9,500 citations (about 1,400 citations in 2010)*

- 351 **Peer Reviewed Papers**  
 38 **Book Contributions**  
 3 **Text books:** Bioreaction Engineering (1994,2003,2011) (English & Chinese), Metabolic Engineering (1998) (English, Chinese & Japanese), Metabolome Analysis (2007)  
 1 **Monograph**  
 3 **Edited books**  
 32 **Issued patents (12 patent families)**  
 20 **Patent applications**  
 124 **Invited oral presentations at international conferences**  
 70 **Invited seminars at universities and companies**

### **Key Grants**

- 1993-1996 **Nordic Project on Physiological Engineering, Nordic Industrial Fund (>20 MDKK)**  
 1995-2002 **4 Projects, EU Framework VI (about 8 MDKK)**  
 1996-1999 **Center for Process Biotechnology, Danish Technical Research Council (20 MDKK)**  
 1997-2000 **Nordic network NordPhys, Nordic Industrial Fund (4 MDKK)**  
 1999-2003 **DABIC, Danish Technical Research Council (18 MDKK)**  
 2000-2007 **6 Projects, EU Framework V (about 15 MDKK)**  
 2003-2007 **Heterologous production of polyketides, Danish Technical Research Council (2.8 MDKK)**  
 2004-2008 **Center for Microbial Biotechnology, Danish Technical Research Council (36 MDKK)**  
 2005-2009 **3 Projects, EU Framework VI (about 8.5 MDKK)**  
 2005-2008 **Genome sequencing of *A. balhamycina*, Lundbeck Foundation (1.2 MDKK)**  
 2005-2008 **Yeast Systems Biology Network, EU Framework VI (1.3 MEUR)**  
 2006-2008 **Yeast in No Gravity, European Space Agency (2.7 MDKK)**  
 2007-2009 **Systems Biology: From model organisms to application, NORDFORSK (0.8 MNOK)**  
 2008-2011 **Systems Biology as a Driver for Industrial Biotechnology, EU Framework VII (1 MEUR)**  
 2008-2013 **UNICELLSYS, EU Framework VII (5.4 MSEK)**  
 2009-2011 **Regulation of lipid metabolism in eukaryotic cells, Vetenskapsrådet (3 MSEK)**  
 2010-2014 **Industrial Systems Biology, European Research Council (2.5 MEUR)**  
 2010-2013 **Systems Biology of Metabolism, NORDFORSK (0.6 MNOK)**  
 2011-2015 **Wallenberg Scholar, Knut and Alice Wallenberg Foundation (15 MSEK)**  
 2011-2020 **NNF Center for Biosustainability, Novo Nordisk Foundation (700 MDKK)**  
 2012-2015 **Engineering of Acetyl-CoA Metabolism in Yeast, Vetenskapsrådet (6.4 MSEK)**  
 2012-2016 **Excellence Center for Metabolic Engineering, FORMAS (25 MSEK)**

### **Awards and Honours**

- 1989 **Direktør Gorm Petersen's Mindelegat, Denmark**  
 1994 **Ulrik Brinch og Hustru Marie Brinch's legat, Denmark**  
 1995 **Fulbright Fellow, USA**  
 1996 **STVFs Jubilæumspris, Denmark**

|      |  |
|------|--|
| 2001 | <b>Aksel Tovborg Jensens Legat/Bjerrum-Brøndsted-Lang Lecture, Denmark</b> |
| 2002 | <b>Villum Kann Rasmussen's Årslegat, Denmark</b>                           |
| 2002 | <b>Sunner Memorial Lecture, Lund University, Sweden</b>                    |
| 2004 | <b>Merck Award for Metabolic Engineering, USA</b>                          |
| 2004 | <b>Hough Memorial Lecture, Birmingham University, UK</b>                   |
| 2010 | <b>Appointed as Wallenberg Scholar, Sweden</b>                             |
| 2011 | <b>Amgen Biochemical Engineering Award, USA</b>                            |

### Member of Scientific Academies

|      |   |
|------|---|
| 1997 | <b>Member of the Academy of Technical Sciences, Denmark</b>                                 |
| 2010 | <b>Foreign Associate of the National Academy of Engineering, USA</b>                        |
| 2010 | <b>Member of the Royal Danish Academy of Science and Letters, Denmark</b>                   |
| 2010 | <b>Member of the Royal Swedish Academy of Engineering Sciences, Sweden</b>                  |
| 2011 | <b>College of Fellows of American Institute for Medical and Biological Engineering, USA</b> |
| 2012 | <b>Member of Royal Society of Arts and Sciences in Gothenburg, Sweden</b>                   |
| 2012 | <b>Fellow of the American Academy of Microbiology, USA</b>                                  |

### Editorial Activities

|       |  |
|-------|--|
| 1996  | <b>Chemical Engineering Science, Guest editor of special volume</b>  |
| 1999- | <b>Metabolic Engineering</b> <ul style="list-style-type: none"> <li>• Editorial Board (1999-2002)</li> <li>• Associate Editor (2003-)</li> </ul>                                     |
| 1999- | <b>Applied Microbiology and Biotechnology, Editorial Board</b>   |
| 2000- | <b>Bioprocess and Biosystems Engineering</b> <ul style="list-style-type: none"> <li>• Associate Editor (2000-2007)</li> <li>• Editorial Board (2007-)</li> </ul>                     |
| 2001- | <b>Biotechnology and Bioengineering, Associate Editor</b>  |
| 2001- | <b>FEMS Yeast Research</b> <ul style="list-style-type: none"> <li>• Editorial Board (2001-2007)</li> <li>• Associate Editor (2007-2010)</li> <li>• Editor-in-Chief (2011-</li> </ul> |
| 2004- | <b>Journal of Industrial Microbiology and Biotechnology</b> <ul style="list-style-type: none"> <li>• Editorial Board (2004-2010)</li> <li>• Senior Editor (2010-)</li> </ul>         |
| 2004- | <b>Advances in Biochemical Engineering/Biotechnology, Editorial Board</b>  |
| 2008- | <b>Microbial Cell Factories, Advisory Board</b>  |
| 2009- | <b>Microbial Biotechnology, Editorial Board</b>  |
| 2010- | <b>Biotechnology Journal, Editorial Board</b>  |

### Teaching

Has organized more than 15 advanced courses on metabolic engineering and systems biology in Denmark, Sweden, Thailand, China and Chile

Has been teaching in several different courses at all levels in the area of biotechnology, fermentation technology, bioreaction engineering, metabolic engineering and systems biology.

Have extensive experience with setting up, organizing and running new courses.

Have been actively involved in the design of new teaching programs at both the BSc and MSc level in the field of biotechnology and systems biology.

### Mentoring

|   |    |
|---|----|
| Main supervisor of graduated PhD students | 50 |
| Co-supervisor of graduated PhD students   | 22 |
| Current main supervisor of PhD students   | 22 |
| Current co-supervisor of PhD students     | 5  |

|                              |    |
|------------------------------|----|
| Former affiliated post docs  | 39 |
| Current affiliated post docs | 14 |

### Business Experience

|           |   |
|-----------|---|
| 1992-     | <b>Collaboration with industry</b> , has collaborated with more than 15 different companies in Denmark, Germany, The Netherlands, Austria and USA   |
| 1996-     | <b>Consultant</b> for several internationally leading biotech and pharmaceutical companies  |
| 1997      | <b>GeneCare ApS</b> , Denmark, Founder  |
| 1997-2001 | <b>N&amp;N Biotechn ApS</b> , Denmark, Founder and CEO (acquired by Fluxome A/S)  |
| 2001-2004 | <b>Symbion Venture Capital</b> , Denmark, Member of Scientific Advisory Board   |
| 2002-     | <b>Fluxome A/S</b> , Denmark, Founder (has raised more than 25 MEUR in capital) <ul style="list-style-type: none"> <li>• CEO (2002-2004)</li> <li>• CSO (2002-2008)</li> <li>• Member of BoD,</li> <li>• Chairman of SAB (2008-)</li> </ul> |
| 2002-2007 | <b>Gothia Yeast Solutions</b> , Sweden, Member of SAB   |
| 2006-     | <b>MycoTeQ A/S</b> , Denmark, Founder and Chairman of BOD (has raised about 1 MEUR in capital, one novel antibiotics identified)  |
| 2008-2010 | <b>GlycoFi, Inc.</b> , USA, Member of SAB   |
| 2008-     | <b>Genomatica, Inc.</b> , USA, Member of SAB  |
| 2011-     | <b>MetaboGen AB</b> , Sweden, Founder and Member of BoD   |

### Organization of Conferences

|       |  |
|-------|--|
| 1990- | Member of organizing and scientific committee of more than 35 conferences                        |
| 2000  | <b>ESBES3</b> , Denmark, Chairman (~300 delegates)   |
| 2002  | <b>Analysis of Microbial Cells at the Single Cell Level</b> , Denmark, Co-Chair (~100 delegates) |
| 2002  | <b>Metabolic Engineering IV</b> , Italy, Chairman (~250 delegates)                               |
| 2004  | <b>European Conference on Fungal Genetics VI</b> , Denmark, Co-Chair (~800 delegates)            |
| 2005  | <b>ECB12</b> , Denmark, Chairman of Scientific Committee (~1200 delegates)                       |
| 2008  | <b>ICSB2008</b> , Sweden, Member of Organizing Committee (~2000 delegates)                       |
| 2010  | <b>FEBS2010</b> , Sweden, Member of Organizing Committee (~2000 delegates)                       |
| 2010  | <b>Industrial Systems Biology 2010</b> , Sweden, Chairman (~200 delegates)                       |
| 2011  | <b>Key Symposium on Systems Medicine</b> , Sweden, Chairman (~100 delegates)                     |

### 10 Key Papers

- (1) S. Ostergaard; L. Olsson; M. Johnston; **J. Nielsen** (2000) Increasing galactose consumption by *Saccharomyces cerevisiae* through metabolic engineering of the *GAL* gene regulatory network. *Nature Biotechnol.* **18**:1283-1286
- (2) J. Förster; I. Famili; P. Fu; B. Ø. Palsson; **J. Nielsen** (2003) Genome-scale reconstruction of the *Saccharomyces cerevisiae* metabolic network. *Genome Res.* **13**:244-253
- (3) K. R. Patil, **J. Nielsen** (2005) Uncovering transcriptional regulation of metabolism by using metabolic network topology. *Proc. Nat. Acad. Sci.* **102**:2685-2689
- (4) T. Cakir; K. R. Patil; Z. I. Önsan; K. Ö. Ülgen; B. Kirdar; **J. Nielsen** (2006) Integration of metabolome data with metabolic networks reveals reporter reactions. *Mol. Systems Biol.* **2**:50
- (5) M. R. Andersen; W. Vongsangnak; G. Panagiotou; M. P. Salazar; L. Lehmann; **J. Nielsen** (2008) A trispecies *Aspergillus* microarray: Comparative transcriptomics of three *Aspergillus* species. *Proc. Nat. Acad. Sci.* **105**:4387-4392
- (6) M. J. Herrgård; N. et al.; **J. Nielsen**; D. B. Kell (2008) A consensus yeast metabolic network obtained from a community approach to systems biology. *Nature Biotechnol.* **26**:1155-1160
- (7) S. Bordel; R. Agren; **J. Nielsen** (2010) Sampling the solution space in genome-scale metabolic networks reveals transcriptional regulation in key enzymes. *PLoS Comp. Biol.* **6**:e1000859

- (8) I. Nookaew; B. G. Gabrielsson; A. Holmäng; A.-S. Sandberg; **J. Nielsen** (2010) Identifying molecular effects of diet through systems biology: Influence of herring diet on sterol metabolism and protein turnover in mice. *PLoS One* **5**:e12361
- (9) K.-K. Hong; W. Vongsangnak; G.N. Vemuri; **J. Nielsen** (2011) Unravelling evolutionary strategies of yeast for improving galactose utilization through integrated systems level analysis. *Proc. Nat. Acad. Sci. USA* **108**:12179-12184
- (10) J. Zhang; S. Vaga; P. Chumnapuen; R. Kumar; G.N. Vemuri; R. Aebershold; **J. Nielsen** (2011) Mapping the interaction of Snf1 with Tor1 in *Saccharomyces cerevisiae*. *Mol. Systems Biol.* **7**:545