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Education

Spring 2009	*Expected Ph.D.*
March 2008	**Ph.D. Candidate**
November 2007	**M. Sc. Bioinformatics**
Since September 2005	**Ph.D. Student in Bioinformatics**
	University of California, San Diego
October 2004 – August 2005	**Visiting Research Scholar**
	Systems Biology Group, University of California, San Diego
September 2004	**Diplom-Biotechnologe/Ingénieur en Biotechnologie** (British equivalent: M.Sc. in Biotechnology), and **DEA Cellular and Molecular Biology** (M.Sc. Cellular and Molecular Biology)
	ESBS (Ecole Supérieure de Biotechnologie de Strasbourg), Strasbourg, France
January 2004 – August 2004	Diploma thesis **"Candidate metabolic network states in human mitochondria: Impact of diabetes, ischemia, and diet"**
	Systems Biology Group, University of California, San Diego
September 2001 - September 2004	**Studies of Biotechnology**
	ESBS (Ecole Supérieure de Biotechnologie de Strasbourg), Strasbourg, France
July 2001	**German Vordiplom in Technical Biology** (British equivalent: Bachelor-degree)
	University of Stuttgart, Germany
October 1999 - July 2001	**Studies of Technical Biology**
	University of Stuttgart, Germany

Awards + Honors

Bourse d'Alsace (2004) – Scholarship of Alsace (France)

Member of AAE (Association des Anciens Eleves de l'Ecole Superieure de Biotechnologie)

Baden-Württemberg-STIPENDIUM Scholarship (2001-2003)

Member of Association for Women in Science (since 2008)

Peer-Reviewed Publications

15. **Thiele, I.,** Fleming, M.T., Bordbar, A., Palsson, B.O., "Functional Characterization of multiple equivalent states of *E. coli*'s transcriptional and translational machinery." (*In preparation*).

14. Zhang, Y. , **Thiele, I.,** Weekes, D., Li, Z., Jaroszewski, L., Ginalski, K., Deacon, A.M., Wooley, J., Lesley, S.A., Wilson, I.A., Palsson, B.O., Osterman, A., Godzik, A., "Structural genomics of the *Thermotoga maritima* sets the stage for the molecular level analysis of its metabolic network." (*In preparation*).

13. **Thiele, I.** and Palsson, B. Ø., "2D genome annotation jamborees: A community effort in systems biology". *Submitted.*

12. Fleming, R.M.T., **Thiele, I.,** Provan , G., Palsson, B. Ø., H.P. Nasheuer. "Integrated stoichiometric, thermodynamic and kinetic modeling of steady state metabolism." *Submitted.*

11. Feist , A.M., Herrgard , M., **Thiele , I**., Reed , J.L., Palsson, B. Ø. "Reconstruction of Biochemical Networks in Microbial Organisms." *In press (2009).*

10. **Thiele, I.**, Jamshidi, N., Fleming, R. M.T., Palsson, B. Ø." Genome-Scale Reconstruction of the transcriptional and translational machinery in *Escherichia coli*: A knowledge-database and its mathematical formulation", *In press* (2009).

9. Li, F., **Thiele, I**., Jamshidi, N., Palsson, B. Ø. "Functional assessment of the TLR receptor network." *In press (2009).*

8. Nogales, J., Palsson, B. Ø., **Thiele, I.** "A genome-scale metabolic reconstruction for P. putida KT2440: *i*JN746 as cell factory.**"** BMC Syst Biol*, 2:79.doi:10.1186/1752-0509-2-79 (2008).*

7. Yeung, M., **Thiele, I.**, Palsson, B. Ø., "Estimation of the Number of Extreme Pathways for Metabolic Networks", *BMC Bioinf,* 8**:**363 (2007).

6. Duarte, N.C., Becker, S.A., Jamshidi, N., **Thiele, I.**, Mo, M.L., Vo, T.D., Srivas, R., and Palsson, B. Ø. "Global Reconstruction of the Human Metabolic Network based on Genomic and Bibliomic Data," *PNAS,* 104(6):1777-82 (2007).

5. Price, N.D., **Thiele, I.**, and Palsson, B.Ø., "Candidate states of Helicobacter pylori's genome-scale metabolic network upon application of "loop law" thermodynamic constraints", *Biophys. J.*, 90(11): 3919-28 (2006).

4. Reed, J.L., Famili, I., **Thiele, I.**, and Palsson, B. Ø., "Towards Multidimensional Genome Annotation", *Nat. Rev. Genet.*, **7**: 130-141 (2006).

3. Overbeek, R., Begley, T., Butler, R.M., Choudhuri, J.V., Chuang, H-Y., Cohoon, M., de Crécy-Lagard, V., Diaz, N., Disz, T., Edwards, R., Fonstein, M., Frank, E.D., Gerdes, S., Glass, E.M., Goesmann, A., Hanson, A., Iwata-Reuyl, D., Jensen, R., Jamshidi, N., Krause, L., Kubal, M., Larsen, N., Linke, B., McHardy, A.C., Meyer, F., Neuweger, H., Olsen, G., Olson, R., Ostermann, A., Portnoy, V., Pusch, G.D., Rodionov, D.A., Rückert, C., Steiner, J., Stevens, R., **Thiele, I.**, Vassieva, O., Ye, Y., Zagnitko, O., and Vonstein, V., "The Subsystems Approach to Genome Annotation and its Use in the Project to Annotate 1000 Genomes", *Nucl. Ac. Res.*, 33(17):5691-5702 (2005)..

2. **Thiele, I.**, Vo, T.D., Price, N.D. and Palsson, B.Ø., "An Expanded Metabolic Reconstruction of Helicobacter pylori (*i*IT341 GSM/GPR): An *in silico* genome-scale characterization of single and double deletion mutants", *Journal of Bacteriology*,187(16): 5818-5830 (2005).

1. **Thiele, I.**, Price, N.D., Vo, T.D. and Palsson, B.Ø., "Candidate metabolic network states in human mitochondria: Impact of diabetes, ischemia, and diet", *Journal of Biological Chemistry*, 280(12):11683-11695 (2005).

Book Chapter

3.　"Genome-scale reconstruction, modeling, and simulation of E. coli's metabolic network", Feist A.M., **Thiele, I.,** Palsson, B.Ø., in Systems biology and biotechnology of E. coli Eds: Lee, S.Y., Springer, *to appear* (2008)

2.　"Metabolic Systems Biology: a constraint-based approach", N.E. Lewis, N. Jamshidi, **I. Thiele**, B.Ø. Palsson, "Encyclopedia of Complexity and System Science", Springer (Accepted).

1.　1"Bringing Genomes to Life: The Use of Genome-Scale *in silico* Models", Chapter 2, **I. Thiele** and B. Ø. Palsson, "Introduction to Systems Biology", Humana Press (2007)

Invited Talks

6.　"Systems Biology Research Group", **Bioinformatics Prospect Weekend**, San Diego, March 2008

5.　"Genome-scale Reconstruction of Metabolism of *Thermotoga maritima*", **Thermotoga 2007 Workshop**, San Diego, July 2007

4.　"Towards a whole cell model of *E. coli*", **Bioinformatics Prospect Weekend**, San Diego, March 2007

3.　"The transcriptional and translational machinery of *E. coli*", **2007 UCSD All-Grad Research Symposium** - San Diego, CA, February 2007

2.　"Constraint-based Modeling of Genome-scale Metabolic Networks: An Unbiased Assessment of Candidate Metabolic Network States"
Interface 2006 - 38th Symposium on the interface of statistics, computing science, and applications - Pasadena, CA, May 2006

1.　"Metabolic capabilities *in silico* of the human pathogen *Helicobacter pylori*"
2006 UCSD All-Grad Research Symposium - San Diego, CA, February 2006

Poster Presentations

10.　"Genome-Scale reconstruction of the transcriptional and translational machinery in Escherichia coli: A knowledge-database and its mathematical formulation",
16th Annual International Conference on Microbial Genomes – Lake Arrowhead, CA, September 2008, Ines Thiele, Neema Jamshidi, Ronan M.T. Fleming, and Bernhard Ø. Palsson

9.　"From Network to Function: Systematic annotation of gene function using metabolic network reconstructions.", Workshop on the Biological Annotation of Novel Proteins, San Diego, March 2008

8.　"Genome-Scale reconstruction of the transcriptional and translational machinery in Escherichia coli: A knowledge-database and its mathematical formulation",
ICSB 2007 – Long Beach, October 2007, Ines Thiele, Neema Jamshidi, Ronan M.T. Fleming, and Bernhard Ø. Palsson

"Extending the predictive potential of metabolic genome-scale reconstructions by accounting for the transcriptional and translational network", **ICSB 2007** – Long Beach, October 2007, Aarash Bordbar, Ines Thiele, and Bernhard Ø. Palsson

7.　"Genome-scale reconstruction of the transcriptional and translational machinery of *E. coli*: The "Dogma Matrix"", **Algorithmic Biology 2006 -** San Diego, November 2006, Ines Thiele, Neema Jamshidi, Matthew Yeung, and Bernhard Ø. Palsson

6. "Genome-scale reconstruction of the transcriptional and translational machinery of *E. coli*: The "Dogma Matrix"", **The 3rd International E. coli Alliance Conference on Systems Biology 2006 -** Jeju Island, Republic of Korea, November 2006, Ines Thiele, Neema Jamshidi, Matthew Yeung, and Bernhard Ø. Palsson

5. "Homo sapiens Build 1: A genome-scale reconstruction of human cellular metabolism." **Satellite Session of the International Society for Applied Cardiovascular Biology** - San Diego, CA, March 2006, Natalie Duarte, Scott Becker, Neema Jamshidi, Monica Mo, Ines Thiele, Thuy Vo, Bernhard Ø. Palsson - presented by Ines Thiele

4. "Homo sapiens Build 1: A genome-scale reconstruction of human cellular metabolism." **UCSD Jacobs School of Engineering 25th Annual Research Expo** - San Diego, CA, February 2006, Natalie Duarte, Scott Becker, Neema Jamshidi, Monica Mo, Ines Thiele, Thuy Vo, Bernhard Ø. Palsson - presented by Ines Thiele

3. "Metabolic capabilities in silico of the human pathogen *Helicobacter pylori*" **Systems to Synthesis - First Annual Symposium on the Study and Understanding of Complex Biological Systems** - San Diego, CA, January 2006, Ines Thiele, Nathan D. Price, Thuy D. Vo, Bernhard Ø. Palsson

2. "Metabolic capabilities *in silico* of the human pathogen *Helicobacter pylori*" **The First Annual RECOMB Satellite Workshop on Systems Biology, The Second Annual RECOMB Satellite Workshop on Regulatory Genomics -** San Diego, CA, December 2005, Ines Thiele, Nathan D. Price, Thuy D. Vo, Bernhard Ø. Palsson

    "Metabolic capabilities *in silico* of the human pathogen *Helicobacter pylori*"

1. **13th Annual International Conference on Microbial Genomes -** Madison, WI, September 2005, Ines Thiele, Nathan D. Price, Thuy D. Vo, Bernhard Ø. Palsson

Workshop participation

2.   March 08, PNNL, Richland, WA "Systems Microbiology and Extremophiles"

        March 08, Calit2, San Diego, CA. "Workshop on the Biological Annotation of Novel
1.   Proteins". (organized by Helen Berman and John Wooley, hosted by the Joint Center for Structural Genomics (JCSG))

Teaching Experience

September 2008	**Co-organizer and co-instructor** for the 5-day short course on systems biology, University of Iceland, Reykjavik, Iceland
October 2007	**Co-instructor** for a 3-day short course on systems biology, University of Iceland, Reykjavik, Iceland
Spring 2007	**Teaching Assistant** BENG 213 "Systems Biology & Bioengineering III: Building and simulating large-scale in silico models", UCSD
Winter 2007	**Teaching Assistant** BENG 212 "Biology & Bioengineering II: Network Reconstruction", UCSD
January 11th-13th, 2006	**Co-instructor and lecturer** on "Unbiased assessment of Network Capabilities", "Reconstruction of Metabolic Networks" and accompanying **workshops**
	Short Course "Systems Biology", UCSD Extension, San Diego.
July 6th-8th, 2005	**Co-instructor and lecturer** on "Unbiased assessment of Network

Capabilities" and accompanying **workshops**

Short Course "Systems Biology", UCSD Extension, San Diego.

October 2002 - July 2003	**Tutoring, Studienkreis, Kehl (Germany)**
	for mathematics
October 2000 - February 2001	**Scientific assistant (Institute for Zoology, University of Stuttgart, Germany)**
	for the course: structure and function of cells and organs, Zoology
October 2000 - July 2001	**Tutoring, Studienkreis, Bad Cannstadt (Germany)**
	for mathematics, physics, chemistry, biology, languages
October 1997 - July 1999	**Tutoring, Studienkreis, Eisenhuettenstadt (Germany)**
	for mathematics, chemistry, languages

Computer skills

Operating systems:	- MS Windows, MS Office, Apple Mac OS, UNIX, Linux
Programming languages:	- HTML, Matlab, Mathematica, Perl, Python, Java and JavaScript
Applications of bioinformatics:	- for molecular Modeling (CHARMM, Procheck, VMD)
	- for Genomics (GCG, PHRED/PHRAP/CONSED, Sequin)
	- SimPheny, SimuLink

Coursework

Biology:	Biochemistry, Molecular Biology, Genetics, Cell Biology, Microbiology, Neurobiology, Immunology, Virology, Human Physiology, Toxicology and Pharmacology.
Chemistry:	General Chemistry, Organic Chemistry, and Physical Chemistry.
Engineering:	Systems Biology, Genetic Engineering, Process Engineering, Metabolic Engineering, Bioinformatics, Electronics and Biophysics, Algorithm Design

Practical training

October 2004 – August 2005	**Research Scholar (Systems Biology Research Group, University of California, San Diego)**
January - August 2004	**Master thesis - Sampling of Biological Networks (Systems Biology Research Group, University of California, San Diego)**
	Large-scale sampling of metabolic networks such as mitochondria diploma thesis in the Systems Biology Research of Professor Bernhard Ø. Palsson. [8 months]
December 2003	**"Life Cell Imaging: Analysis of current microscopy techniques for rapid 4D imaging of Mal3 and TIP1in Fission yeast" (Equipe "Microtubules et Morphogenèse", Prof. Jan De Mey, ESBS, France)**

	In colaboration with Damien Brunner (EMBL, Heidelberg), Timo Zimmermann (EMBL, Heidelberg). [4 weeks]
June 2003	**Protein Purification and Cell Culture (ESBS, France)**
May 2003	**Process engineering (University of Karlsruhe, Germany)**
February/March 2003	**Molecular Biology of Plants (University of Freiburg, Germany)**
September 2002	**Microbial Genomics (University of Basel, Biocentre, Switzerland)**
July 2002	**Pharmacology (University of Salamanca, Spain)**
	New approaches to therapy of type 1 diabetes: insulin secratogues (imidazolines) and insulinmimetics (SSAO sensitive amines). [4 weeks]
April 2002	**Genetics (ESBS, France)**
March 2002	**Microbiology (University of Basel, Biocentre, Switzerland)**
January/February 2002	**Biophysics, Biochemistry und Enzymology (ESBS, France)**
July 2001	**Bacterial and viral Infectology (University of Stuttgart, Germany)**

Practical training at the University of Stuttgart (undergraduate):
microbiology, bioenergetics, physical-technical methods in biology, physics, inorganic chemistry, organic chemistry

Language skills

German :	native language
English:	fluent
French:	fluent
Spanish:	good knowledge
	3 week language training in Salamanca, Spain (Summer 2001)

December 2008