

## CURRICULUM VITAE

### JAN ZARZYCKI

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#### PERSONAL INFORMATION:

Date of birth: February 24, 1980  
Place of birth: Frankfurt (Oder), Germany  
Citizenship: German

#### EDUCATION:

**since 07/2013:** **Post-doctoral research fellow** at the DOE-Plant Research Laboratory of the Michigan State University.  
*Principal Invenstigator: Prof. Dr. Cheryl A. Kerfeld*

**01/2011 – 07/2013:** **Post-doctoral research fellow** in the Structural Genomics Group at the DOE-Joint Genome Institute.  
*Principal Invenstigator: Prof. Dr. Cheryl A. Kerfeld*

**01/2011:** **Graduation as Doctor rerum naturalium** (magna cum laude)

**02/2008 - 11/2010:** **Doctoral Thesis** at the University of Freiburg.  
Studies concerning the 3-hydroxypropionate cycle and the distribution of its enzymes among other organisms.  
*Advisor: Prof. Dr. Georg Fuchs*

**01/2008:** **Graduation as Biologist (Diploma)** (grade 1.4)

**01/2007 - 01/2008:** **Diploma Thesis** "Umwandlung von C<sub>5</sub>-Dicarbonsäure-CoA-Thioestern im 3-Hydroxypropionat-Zyklus von *Chloroflexus aurantiacus*" (Interconversions of C<sub>5</sub>-dicarboxylic acid CoA

thioesters in the 3-hydroxypropionate cycle of *Chloroflexus aurantiacus*) at the University of Freiburg.  
*Advisor: Prof. Dr. Georg Fuchs*

**10/2000 - 12/2006:** **Study of Biology** at the University of Freiburg, Germany.  
Subjects: Microbiology, Biochemistry, Cell Biology, Virology

**01/2000 - 10/2000:** Civilian service in Intensive Care Unit at the Hospital of Frankfurt (Oder)

**1999:** **Final secondary-school examinations** at the Mathematics - Nature sciences - Technology - Gymnasium Carl-Friedrich-Gauss, Frankfurt (Oder), Germany (grade 1.8).

#### PROFESSIONAL AFFILIATIONS:

German Society for General and Applied Microbiology (VAAM), 2007 – present.

#### PUBLICATIONS (\*corresponding author):

Gaudana, S.B., **Zarzycki, J.**, Moparathi, V.K., and Kerfeld, C.A.\* **2014**. Bioinformatic Analysis of the Distribution of Inorganic Carbon Transporters and Prospective Targets for Bioengineering to Increase Ci uptake by Cyanobacteria. *Photosynth. res.* submitted

Shih, P.M., **Zarzycki J.**, Niyogi, K.K.\*, and Kerfeld, C.A.\* **2014**. Introduction of a Synthetic CO<sub>2</sub> Fixing Photorespiratory Bypass into a Cyanobacterium. *J. Biol. Chem.* Feb 20. [Epub ahead of print]

**Zarzycki J.** and Kerfeld, C.A.\* **2013**. The Crystal Structures of the tri-functional *Chloroflexus aurantiacus* and bi-functional *Rhodobacter sphaeroides* Malyl-CoA Lyases and Comparison with CitE-like Superfamily Enzymes and Malate Synthases. *BMC Struct. Biol.* **13**:28

**Zarzycki, J.**, Axen, S.D., Kinney, J.N., and Kerfeld, C.A.\* **2013**. Cyanobacterial-based approaches to improving photosynthesis in plants. *J. Exp. Bot.* **64**:787-798

Kleiner, M., Wentrup, C., Lott, C., Teeling, H., Wetzels, S., Young, J., Chang, Y.J., Shah, M., VerBerkmoes, N.C., **Zarzycki, J.**, Fuchs, G., Markert, S., Hempel, K., Voigt, B., Becher, D., Liebeke, M., Lalk, M., Albrecht, D., Hecker, M., Schweder, T., and Dubilier, N.\* **2012**. Metaproteomics of a gutless marine worm and its symbiotic microbial community reveal unusual pathways for carbon and energy use. *Proc. Natl. Acad. Sci. U.S.A.* **109**:E1173-E1182

**Zarzycki, J.** and Fuchs, G.\* **2011**. Co-assimilation of organic substrates via the autotrophic 3-hydroxypropionate bi-cycle in *Chloroflexus aurantiacus*. *Appl. Environ. Microbiol.* **77**:6181-6188

Kroeger, J.K., **Zarzycki, J.**, and Fuchs, G.\* **2011**. A spectrophotometric assay for measuring acetyl-coenzyme A carboxylase. *Anal. Biochem.* **411**:100-105

Berg, I.A., Kockelkorn, D., Ramos-Vera, W.H., Say, R.F., **Zarzycki, J.**, Hügler, M., Alber, B. E., and Fuchs, G.\* **2010**. Autotrophic carbon fixation in archaea. *Nat. Rev. Microbiol.* **8**:447-460.

Berg, I.A., Kockelkorn, D., Ramos-Vera, W.H., Say, R.F., **Zarzycki, J.**, and Fuchs, G.\* **2010**. Autotrophic Carbon Fixation in Biology: Pathways, Rules, and Speculations. In M. Aresta (ed.), Carbon Dioxide as Chemical Feedstock. Wiley-VCH, Weinheim, Germany.

**Zarzycki, J.**, Brecht, V., Müller, M., and Fuchs, G.\* **2009**. Identifying the missing steps of the autotrophic 3-hydroxypropionate CO<sub>2</sub> fixation cycle in *Chloroflexus aurantiacus*. *Proc. Natl. Acad. Sci. U.S.A.* **106**:21317–21322

**Zarzycki, J.**, Schlichting, A. Strychalsky, N., Müller, M., Alber, B.E., and Fuchs, G.\* **2008**. Mesoconyl-coenzyme A hydratase, a new enzyme of two central carbon metabolic pathways in bacteria. *J. Bacteriol.* **190**:1366-1374.

## PRESENTATIONS:

**Zarzycki, J.**, Shih, P.M., and Kerfeld, C.A. **2013**. Engineering a synthetic CO<sub>2</sub>-fixing photorespiratory Bypass in Cyanobacteria. 13<sup>th</sup> Workshop on Cyanobacteria, St. Louis, MO. (**poster & oral presentation**)

**Zarzycki, J.**, Shih P.M., and Kerfeld, C.A. **2012**. Engineering a Bypass to Overcome the Loss of CO<sub>2</sub> due to Photorespiration in Cyanobacteria and Plants. Gordon Research Conference on Molecular Basis of One-Carbon Metabolism, Lewiston, ME, USA. (**talk & poster**)

**Zarzycki, J.** and Fuchs, G. **2010**. The 3-hydroxypropionate bi-cycle and its relation to marine aerobic anoxygenic phototrophs. Hirschegg Summer-Meeting, Hirschegg, Austria.  
Organizers: W. Buckel/J. Heider. (**talk**)

**Zarzycki, J.**, Fuchs, B.M., and Fuchs, G. **2010**. The 3-Hydroxypropionate bi-cycle of *Chloroflexus aurantiacus* and the Distribution of its Key Enzymes among other Bacteria. Gordon Research Conference on Molecular Basis of One-Carbon Metabolism, Lewiston, ME, USA. (**poster**)

**Zarzycki, J.**, Fuchs, B.M., and Fuchs, G. **2010**. The 3-Hydroxypropionate bi-cycle of *Chloroflexus aurantiacus* and the Distribution of its Key Enzymes among other Bacteria.

3rd Joint Conference of the German Society for Hygiene and Microbiology (DGHM) and the Association for General and Applied Microbiology (VAAM), Hannover, Germany. (**poster**)

**Zarzycki, J.** and Fuchs, G. **2009.** The complete 3-hydroxypropionate cycle in *Chloroflexus aurantiacus* and distribution of its enzymes in other bacteria. Hirschegg Summer-Meeting, Hirschegg, Austria. Organizers: W. Buckel/G. Fuchs. (**talk**)

**Zarzycki, J.** and Fuchs, G. **2009.** Autotrophic 3-hydroxypropionate cycle in *Chloroflexus aurantiacus*: finally completed. General Meeting of the German Society for Microbiology (VAAM), Bochum, Germany. (**poster**)

**Zarzycki, J.**, Schlichting, A., and Fuchs, G. **2008.** Missing Steps in the Autotrophic 3-Hydroxypropionate Cycle of *Chloroflexus aurantiacus*. General Meeting of the German Society for Microbiology (VAAM), Frankfurt/Main, Germany. (**poster**)