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DOB: 05/05/1974
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Education:

Ph.D., Jagiellonian University, Krakow, Poland, Developmental Biology, 2002
M.Sc., Jagiellonian University, Krakow, Poland, Developmental Biology, 1998

Professional Experience:

- 2006 – Assistant Research Scientist, Whitman Laboratory, Department of Microbiology, University of Georgia
- 2002 - 2005, Post-Doctoral Associate, Wiegel Laboratory, Department of Microbiology, College of Arts and Sciences, University of Georgia, Athens, GA, USA
- 2002, Research Fellow, Department of Microbiology (Head Dr. J. Potempa), Faculty of Biotechnology, Jagiellonian University, Krakow, Poland

Publications:

1. Anderson I, Ulrich LE, **Lupa B**, Susanti D, Porat I, Hooper SD, Lykidis A, Sieprawska-Lupa M, Dharmarajan L, Goltsman E, Lapidus A, Saunders E, Han CS, Land ML, Lucas S, Mukhopadhyay B, Whitman WB, Woese C, Bristow J and Kyrpides NC. Genomic Characterization of Methanomicrobiales Reveals Three Classes of Methanogens. PLoSONE, In press
2. Pikuta EV, Hoover RB, Marsic D, Whitman W B, **Lupa B**, Tang J and Krader P. *Proteocatella sphenisci* gen. nov., sp. nov., a novel psychrotolerant, spore-forming anaerobe isolated from Magellanic penguin guano in Patagonia, Chile. Int J Syst Evol Microbiol, In press
3. **Lupa B**. Functional genomics of methanogens. In: Ed. Timmis K. et al. Microbiology of Hydrocarbons, Oils, Lipids, and Derived Compounds, In press
4. **Lupa B** and Wiegel J. Genus Desulfitobacterium. Bergey's Manual of Systematic Bacteriology, Volume 3 The *Firmicutes*, in press
5. **Lupa B**, Hendrickson EL, Leigh JA and Whitman WB. **2008**. Formate-dependent H₂ Production by the Mesophilic Methanogen *Methanococcus maripaludis*. Applied Environmental Microbiology, 74: 6584-6590
6. **Lupa B**, Lyon D, Shaw L, Sieprawska-Lupa M and Wiegel J. **2008**. Properties of the reversible non-oxidative vanillate / 4-hydroxybenzoate decarboxylase from *Bacillus subtilis*. Can J Microbiol, 54: 75-8

7. **Lupa B**, Lyon D, Gibbs MD, Reeves RA, and Wiegel J. **2005**. Distribution of genes encoding the microbial non-oxidative reversible hydroxyarylic acid decarboxylases/phenol carboxylases. *Genomics*, 86: 342-351
8. Sieprawska-Lupa M, Mydel P, Krawczyk K, Wójcik K, Puklo M, **Lupa B**, Suder P, Silberring J, Reed M, Pohl J, Shafer W, McAleese F, Foster T, Travis J, and Potempa J. **2004**. Degradation of Human Antimicrobial Peptide LL-37 by *Staphylococcus aureus*-Derived Proteinases. *Antimicrobial Agents and Chemotherapy*. 48(12): 4673-4679
9. **Lupa B**, and Bilinski SM. **2002**. The ovaries of Cicadomorpha: distribution of microfilaments and microtubules in terminal filament cells. *Folia Histochemica Et Cytobiologica / Polish Academy of Sciences, Polish Histochemical and Cytochemical Society*. 40(2): 225-6,
10. **Lupa B**, Kim J-K, and Bilinski SM. **1999**. The Ovary of *Neotituria kongosana* (Hemiptera, Cicadomorpha: Ledridae). Ultrastructure of the Tropharium and Terminal Filament. *Folia biologica (Kraków)*. 47(3-4): 123-130

Research interest and studied projects

My research interests encompass various aspects of physiology, biochemistry and molecular biology of the anaerobic microorganisms. Currently I am involved in the elucidation of the physiological importance of different hydrogenases in hydrogenotrophic methanogens. Of special interest are the cytoplasmic Ni-Fe hydrogenases and their involvement in energy conservation in concert with the heterodisulfide reductase. In addition, the studies to understand the physiological role of the multisubunit, membrane bound, energy converting hydrogenase Eha are undertaken. This includes the attempts to generate the in-frame deletion of the internal part of the *eha* operon. These studies are done in a marine, mesophilic *Methanococcus maripaludis*. Features, such as relatively fast growth as for methanogens, liquid cultures are obtained overnight and colonies appear usually after 2-4 days, the sequenced genome of the strain S2 and several other strains that allow comparative genomic analyses, the genetic tools are feasible and microarray chips and proteomics methods are available, make *M. maripaludis* an ideal model microorganism.

One previous project concerned the characterization of the non-oxidative, hydroxyaryl

acid decarboxylases. These enzymes can be found in strict and facultative anaerobes as well as in some aerobic species. The postulated physiological role of these enzymes is to carboxylate hydroxylated phenolic compounds for the further steps of degradation of aromatic acids. These enzymes could also function as detoxification proteins with the potential importance in detoxifying aromatic acids present in the environment. We proposed that these decarboxylases are ancient, co-factor-independent carboxylating enzymes as well as decarboxylases that are involved in the degradation and detoxification of aromatic compounds.

During the graduate studies my research concerned the development of insects and some aspects of their cell biology. I studied the morphology of the insect ovaries with special emphasis on the organization of the cytoskeletal elements in the various types of cells that constitute the ovary. This included both somatic and germ-line cells, such as trophocytes and oocytes. For this project I have received the extensive training in the microscopy techniques including electron microscopy.

Membership Information:

American Society for Microbiology

Meetings:

1. Sieprawska-Lupa M, **Lupa B**, Suresh K, Whitman WB. A novel obligately anaerobic, coccoid spirochete isolated from river sediments. 109th General Meeting of American Society for Microbiology, Philadelphia, PA, May **2009**
2. **Lupa B**, Whitman WB. Hydrogen production from formate by the mesophilic methanogen *Methanococcus maripaludis*. Gordon Research Conference on Archaea: Ecology, Metabolism & Molecular Biology, Andover, NH, August **2007**
3. **Lupa B**, Whitman WB. Formate-dependent Hydrogen Gas Production by the Mesophilic Methanogen *Methanococcus maripaludis*. Incredible Anaerobes: From physiology to genomics to fuels. Athens, GA, March **2007**
4. **Lupa B**, Sieprawska-Lupa M, Wiegel J. Nonoxidative Hydroxyarylic Acid Reversible Decarboxylases: A novel Gene/Enzyme Family. 105th General Meeting of American Society for Microbiology, Atlanta, GA, June **2005**
5. **Lupa B**, Wiegel J. Bacterial Nonoxidative Hydroxyarylic Acid Reversible Decarboxylases. Southeastern Ecology and Evolution Conference, Athens, GA, March **2005**
6. **Lupa B**, Lyon D, Shaw L, Sieprawska-Lupa M, Wiegel J. A Novel Non-oxidative *Bacillus subtilis* Vanillate Decarboxylase. 104th General Meeting of American Society for Microbiology, New Orleans, LA, May **2004**
7. **Lupa B**, Shaw L, Sieprawska-Lupa M, Wiegel J. Antisense RNA inactivation of *Bacillus subtilis* BsdB (YclB). Annual Meeting of Southeastern Branch of American Society for Microbiology, Athens, USA, October/November **2003**
8. **Lupa B**. Structure of the terminal filaments in the ovaries of Cicadomorpha with special reference to distribution of the cytoskeleton. 25th Polish Meeting on Embryology, Wrocław, Poland, Zool Pol 47 (Suppl.) 47, May **2002**
10. **Lupa B**, Biliński SM. The ovaries of Cicadomorpha: distribution of microfilaments and microtubules in terminal filament cells. Folia Histochemica et Cytobiologica, Vol. 39, Suppl. 3. 37th Symposium of Polish Society of Histochemistry and Cytochemistry, Kraków, Poland, September **2001**
11. **Lupa B**. Ultrastructure of terminal filaments of Cicadomorpha (Insecta). Symposium of Electron Microscopy, Poznań, Poland, December **2000**
12. **Lupa B**. Terminal Filaments in Cicadomorpha: Ultrastructural Studies. Acta Biologica Cracoviensia Series Botanica. Vol. 42 suppl. 1. 2000. 24th Polish Meeting on Embryology, Podlesice, Poland, May **2000**
13. **Lupa B**, Kim J-K, Biliński SM. The Ovary of Cicadomorpha. Structure of the Terminal Filament and Tropharium with Special Reference to the Cytoskeleton. Folia Histochemica et Cytobiologica, Vol. 37 suppl. 1. 1999. 7th Polish Meeting on Cell Biology, Kraków, Poland, September **1999**

Title of Doctorate Dissertation: “Structure of the terminal filaments in the ovaries of Cicadomorpha” (English translation)

Title of Master Thesis: “Oogenesis and distribution of cytoskeletal elements in the ovarioles of snow scorpionfly, *Boreus hyemalis* (Mecoptera: Boreidae)” (English translation)