

BIOGRAPHICAL SKETCH

NAME Emma Heart		POSITION TITLE Assistant Research Scientist	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
Charles University, Prague	M.S.	1991	Chemical Sciences
University of Southern California, Los Angeles	Ph.D.	2002	Physiology & Biophysics

A. Professional Experience**Postdoctoral Training**

2005 – present Assistant Research Scientist, Marine Biological Laboratory, Woods Hole, MA

2002 –2005 Research Fellow, Obesity Research Center, Boston University, Boston, MA

Professional Positions and Visiting Appointments

2005 Consultant (Beta cell function experimental approaches), Tufts University School of Medicine

2004 -2005 Invited Visiting Scientist, BioCurrents NIH Resource Center, Marine Biological Laboratory, Woods Hole, MA

2004 (summer) Grass Fellow, Marine Biological Laboratory, Woods Hole, MA

Teaching Experience

2004 – 2005 New England School of Acupuncture, Boston, MA, Lecturer: undergraduate Courses (Physics)

2000 – 2002 Samra University, Los Angeles, CA, Lecturer: undergraduate courses (Biology, Biochemistry, Physics, General Chemistry, Pharmacology)

1999 – 2001 Emperor's College, Los Angeles, CA, Lecturer: undergraduate courses (Biology, Biochemistry, Physics, General Chemistry)

2001 University of Southern California, Los Angeles, CA, Mentor (Magnet Science Program, Bravo Francisco High School)

Research Experience

2005 - present Research Assistant Scientist, BioCurrents Research Center, Marine Biological Laboratory, Woods Hole, MA. Research Project: Anaplerotic fluxes and insulin secretion

2002 – 2005 Research Fellow, Department of Medicine, Boston University, Boston, MA. Research Project: Mitochondrial metabolism in pancreatic beta-cells

1995 – 2002 PhD candidate, Department of Physiology & Biophysics, University of Southern California, Los Angeles, CA. Research Project: Molecular mechanisms of insulin resistance

1994 – 1995 Research Assistant, Department of Physiology & Biophysics, University of Southern California, Los Angeles, CA. Research Project: Structural analysis of Na K-ATP-ase

1992 – 1993 Research Assistant, Institute of Physiology, Czech Academy of Sciences, Prague, Czech Republic. Research project: Thyroid hormones metabolism in brown adipose tissue

B. Academic Honors

2004 Grass Foundation Fellowship

2002 – 2005 NRSA Post-doctoral Fellowship (Basic Science Cardiovascular Training Program), Boston University School of Medicine, Boston, MA

C. Selected Peer-Reviewed Publications

E. Heart, formerly E. Krejcová

1. **Heart E***, Smith PJ. Rhythm of the beta-cell oscillator is not governed by a single regulator: multiple systems contribute to oscillatory behavior. *Am J Physiol Endocrinol Metab.* 292(5):E1295-300, 2007
2. **Heart E**, Yaney GC, Corkey RF, Schultz V, Luc E, Liu L, Deeney JT, Shirihai O, Tornheim K, Smith PJ, Corkey BE Ca^{2+} , NAD(P)H and membrane potential changes in pancreatic beta-cells by methyl succinate: comparison with glucose. *Biochem J* 403(1):197-205, 2007
3. **Heart E**, Corkey RF, Wikstrom JD, Shirihai OS, Corkey BE: Glucose-dependent increase in mitochondrial membrane potential, but not cytoplasmic calcium, correlates with insulin secretion in single islet cells. *Am J Physiol Endocrinol Metab.* 2006 Jan;290(1):E143-E148.
4. **Heart E**, Sung CK: Insulin-like and non-insulin-like selenium actions in 3T3-L1 adipocytes. *J Cell Biochem* 88(4): 719-731, 2003
5. **Heart E**, Sung CK: Glucose transport by osmotic shock and vanadate is impaired by glucosamine. *Biochem Biophys Res Com* 292: 308 –11, 2002
6. Scalia PL, **Heart E**, Comai L, Vigneri R, Sung CK: Regulation of the Akt/Glycogen synthase kinase-3 axis by Insulin-like Growth Factor-II via activation of the human Insulin receptor Isoform-A. *Am J Cell Biochem* 82(4): 610-618, 2001
7. Kang J, **Heart E**, Sung CK: Effects of cellular ATP depletion on glucose transport and insulin signaling in 3T3-L1 adipocytes. *Am J Physiol Endocrinol Metab* 280 (3): E428-35, 2001
8. Kang J, **Heart E**, Sung CK: Effects of cellular ATP depletion on glucose transport and insulin signaling in 3T3-L1 adipocytes. *Am J Physiol Endocrinol Metab* 280 (3): E428-35, 2001
9. **Heart E**, Choi WS, Sung CK: Glucosamine-induced insulin resistance in 3T3-L1 adipocytes. *Am J Physiol Endocrinol Metab* 278: E103-112, 2000
10. Farley RA, **Heart E**, Kabalin M, Putnam D, Wang K, Kasho VN, Faller LD: Site-directed mutagenesis of the sodium pump: analysis of mutations to amino acids in the proposed nucleotide binding site by stable oxygen isotope exchange. *Biochemistry* 36:941-951, 1997
11. Houstek J, Vizek K, Pavelka S, Kopecky J, **Krejcová E**, Hermanska J, Cermakova M: Type II iodothyronine 5'-deiodinase and uncoupling protein in brown adipose tissue of human newborns. *J Clin Endocrinol Metab* 77:382-387, 1993