BIOGRAPHICAL SKETCH

NAME Deborah K. Hanson	POSITION TITLE Biochemist
eRA COMMONS USER NAME dkhanson	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Drury College, Springfield, MO	A.B.	1973	Chemistry
Indiana University, Bloomington, IN	Ph.D.	1982	Biological Chemistry
Cornell University, Ithaca, NY	NIH postdoctoral	1982-1985	Biochemistry

A. Positions and Honors

Positions and Employment

1993- date Biochemist, Biosciences Division, Argonne National Laboratory
1986-1993 Assistant Biochemist, Center for Mechanistic Biology and Biotechnology, Argonne
1985-1986 Senior Research Biologist, Monsanto Company, St. Louis, MO

Honors

1999 Outstanding Women Leaders Award -- Science and Medicine, YWCA of DuPage County
1996 Exceptional Performance Award, Argonne National Laboratory
1990 Laboratory Director's Award, Argonne National Laboratory
1990 Named one of the "100 Women Making a Difference in the 1990s", *Today's Chicago Woman*
1989 Pacesetter Award, Argonne National Laboratory
1982-1985 NIH Postdoctoral Fellowship, Cornell University
1976-1977 Procter and Gamble Predoctoral Fellowship, Indiana University
1973 Cum laude graduate of Drury College
1969-1973 Academic scholarship, Drury College

B. Selected peer-reviewed publications (from 76):

1. Kee, H. L., J. A. Bautista, P. D. Laible, **D. K. Hanson**, D. Holten, and C. Kirmaier. Determination of the rate and yield of B-side $P^+H_B^- \rightarrow P^+Q_B^-$ electron transfer in *R. capsulatus* reaction centers. Biochemistry, 45: 7314-7322 (2006).
2. Kirmaier, C., J. A. Bautista, P. D. Laible, **D. K. Hanson**, and D. Holten. Probing the contribution of electronic coupling to the directionality of electron transfer in photosynthetic reaction centers. Journal of Physical Chemistry B *109*: 24160-24172 (2005).
3. Laible PD, AN Hata, AE Crawford, **DK Hanson**. Incorporation of selenomethionine into induced intracytoplasmic membrane proteins of *Rhodobacter* species. J Structural and Functional Genomics 6: 95-102 (2005).
4. Laible PD, DL Mielke, **DK Hanson**. Membrane protein production: A bacterial “factory” in *Rhodobacter*. Screening 02/2005: 30-32 (2005).
5. Kirmaier C, PD Laible, **DK Hanson**, D Holten. B-side electron transfer to form $P^+H_B^-$ in reaction centers from the F(L181)Y/Y(M208)F mutant of *Rhodobacter capsulatus*. J Phys Chem B 108: 11827-11832 (2004).
6. Pokkuluri PR, PD Laible, AE Crawford, JF Mayfield, MA Yousef, SL Ginell, **DK Hanson**, M Schiffer. Temperature and cryoprotectant influence secondary quinone binding position in bacterial reaction centers. FEBS Lett 570: 171-174 (2004).
7. Laible PD, HN Scott, L Henry, **DK Hanson**. Towards higher-throughput membrane protein production for structural genomics initiatives. J Structural and Functional Genomics 5: 167-174 (2004).

8. Kirmaier C, PD Laible, E Hindin, **DK Hanson**, D Holten. Detergent effects on primary charge separation in wild-type and mutant *Rhodobacter capsulatus* reaction centers. Chem Phys 294: 305-318 (2003).
9. Morris ZS, **DK Hanson**, PR Pokkuluri, DG Mets, AN Hata, OG Poluektov, MC Thurnauer, M Schiffer, PD Laible. Lysine substitutions near photoactive cofactors in the bacterial photosynthetic reaction center have opposite effects on the rate of triplet energy transfer. Chem Phys 294: 329-346 (2003).
10. Laible PD, ZS Morris, MC Thurnauer, M Schiffer, **DK Hanson**. Inter- and intraspecific variation in excited-state triplet energy transfer rates in reaction centers of photosynthetic bacteria. Photochem Photobiol 78: 114-123 (2003).
11. Scott, HN, PD Laible, **DK Hanson**. Sequences of versatile, broad-host-range vectors of the RK2 family. Plasmid 50: 74-79 (2003).
12. Laible PD, C Kirmaier, CSM Udawatte, SJ Hofman, D Holten, **DK Hanson**. Quinone reduction via secondary B-branch electron transfer in mutant bacterial reaction centers. Biochem 42:1718-1730 (2003).
13. Pokkuluri PR, PD Laible, Y-L Deng, TN Wong, **DK Hanson**, M Schiffer. The structure of a mutant photosynthetic reaction center shows unexpected changes in main chain orientations and quinone position. Biochemistry 41: 5998-6007 (2002).
14. Tandori J, L Baciou, E Alexov, P Maróti, M Schiffer, **DK Hanson**, P Sebban. Revealing the involvement of extended hydrogen-bond networks in the cooperative function between distant sites in bacterial reaction centers. J Biol Chem 276, 45513-45515 (2001).
15. Nabedryk E, J Breton, HM Joshi, **DK Hanson**. Fourier Transform Infrared evidence of proton uptake by Glutamate L212 upon reduction of the secondary quinone Q_B in the photosynthetic reaction center from *Rhodobacter capsulatus*. Biochemistry 39, 14654-14663 (2000).
16. Miksovska J, M Schiffer, **DK Hanson**, P Sebban. Proton uptake by bacterial reaction centers: The protein complex responds in a similar manner to the reduction of either quinone acceptor. Proc Natl Acad Sci USA 96, 14348-14353 (1999).
17. Valerio-Lepiniec M, J Miksovska, M Schiffer**, DK Hanson**, P Sebban. Mutations in the environment of the primary quinone facilitate proton delivery to the secondary quinone in bacterial photosynthetic reaction centers. Biochemistry 38: 390-398 (1999).
18. Laible PD, V Chynwat, MC Thurnauer, M Schiffer, **DK Hanson**, HA Frank. Protein modifications affecting triplet energy transfer efficiency to the carotenoid in bacterial photosynthetic reaction centers. Biophys J 74, 2623-2637 (1998).
19. Miksovska J, M Valerio-Lepiniec, M Schiffer, **DK Hanson**, P Sebban. In bacterial reaction centers, a key residue suppresses mutational blockage of two different proton transfer steps. Biochemistry 37: 2077-2083 (1998).
20. Miksovska J, L Kálmán, M Schiffer, P Maróti, P Sebban, **DK Hanson**. In bacterial reaction centers rapid delivery of the second proton to Q_B can be achieved in the absence of L212Glu, Biochemistry 36, 12216-12226 (1997).
21. Valerio-Lepiniec M, J-D Delcroix, M Schiffer, **DK Hanson**, P Sebban. A native electrostatic environment near Q_B is not sufficient to ensure rapid proton delivery in photosynthetic reaction centers. FEBS Lett 407, 159-163 (1997).
22. Miksovska J, P Maróti, J Tandori, M Schiffer, **DK Hanson**, P Sebban. Distant electrostatic interactions modulate the free energy level of Q_A by in the photosynthetic reaction center. Biochemistry 35, 15411-15417 (1996).
23. Maróti P, **DK Hanson**, M Schiffer, P Sebban. Long range electrostatic interaction in the bacterial photosynthetic reaction centre. Nature Struct Biol 2, 1057-1059 (1995).
24. Sebban P, P Maróti, M Schiffer, **DK Hanson**. Electrostatic dominoes: Long distance propagation of mutational effects in photosynthetic reaction centers of *Rhodobacter capsulatus*. Biochemistry 34, 8390-8397 (1995).
25. Sebban P, P Maróti, **DK Hanson**. Electron and proton transfer to the quinones in bacterial photosynthetic reaction centers: Insight from combined approaches of molecular genetics and biophysics. Biochimie 77, 677-694 (1995).
26. **Hanson DK**, DM Tiede, SL Nance, C-H Chang, M Schiffer. Site-specific and compensatory mutations imply unexpected pathways for proton delivery to the Q_B binding site of the photosynthetic reaction center. Proc Nat Acad Sci USA 90, 8929-8933 (1993).