

BIOGRAPHICAL SKETCH

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NAME Douglas R. Pfeiffer		POSITION TITLE Professor of Molecular and Cellular Biochemistry	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Coe College, Cedar Rapids IA	B.A.	1968	Chemistry, Biol., Physics
Wayne State University, Detroit, MI	Ph.D.	1973	Biochemistry
Wayne State University, Detroit, MI	Post doc	1973	Biochemistry
University of Wisconsin, Madison, WI	Post doc	1973-1976	Biochemistry

Professional Experience:

1968-1972 Research Assistant, Wayne State University, Detroit, MI
 1973-1976 Project Associate, The Enzyme Institute, University of Wisconsin, Madison WI
 1976-1977 Research Assistant Professor, The Enzyme Institute, University of Wisconsin, Madison WI
 1977-1981 Assistant Professor, Hormel Institute, Univ. of Minnesota, Austin, MN
 1981-1985 Associate Professor, Hormel Institute, Univ. of Minnesota, Austin, MN
 1986-1992 Professor, The Hormel Institute, University of Minnesota, Austin, MN
 1993-present Professor, Ohio State University, Department of Molecular and Cellular Biochemistry, Cols. OH

Honors, Memberships and Other Activities: Editorial advisory board, *Journal of Biological Chemistry*, 2001-2006. Editorial board, *Chemistry and Physics of Lipids*, 1984-1996. NIH Neurosciences 2 Study Section, 1997-2001. American Heart Association Cell Transport & Metabolism Research Study Committee, 1992-1995. Department of Veterans Affairs Merit Review Board for Basic Science, 1992-1995. Numerous special study section review assignments/chairmanships for Federal and private agencies. Phi Lambda Epsilon Honorary Society; Noeller Fellowship in Chemistry, 1971-1972; Graduate School Fellowship, Univ. of Wisconsin, 1974. Member of Amer. Society of Biol. Chemists, Amer. Chemical Soc., Amer. Assoc. Advancement of Sci., Biophys. Soc., Ohio State University Senate.

Publications (selected from a total of 102):

- U. Igbavboa and D.R. Pfeiffer. EGTA inhibits reverse uniport-dependent Ca^{2+} release from uncoupled mitochondria. Possible regulation of the Ca^{2+} uniporter by a Ca^{2+} binding site on the cytoplasmic side of the inner membrane. *J. Biol. Chem.* 263, 1405-1412 (1988).
- K.M. Broekemeier, M.E. Dempsey and D.R. Pfeiffer. Cyclosporin A is a potent inhibitor of the inner membrane permeability transition in liver mitochondria. *J. Biol. Chem.* 264, 7826-7830 (1989).
- T.E. Gunter and D.R. Pfeiffer. Invited Review: The mechanism by which mitochondria transport calcium. *Am. J. Physiol.* 258 (Cell Physiology 27), C755-C786 (1990).
- U. Igbavboa and D.R. Pfeiffer. Regulation of reverse uniport activity in mitochondria by extramitochondrial divalent cations. Dependence on a soluble intermembrane space component. *J. Biol. Chem.* 266, 4283-4287 (1991).
- M.K. Stiles, M.E. Craig, S.L.N. Gunnell, D.R. Pfeiffer and R.W. Taylor. The formation constants of ionomycin with divalent cations in 80% methanol-water. *J. Biol. Chem.* 266, 8336-9342 (1991).
- U. Igbavboa and D.R. Pfeiffer. Transient induction of the mitochondrial permeability transition by uncoupler plus EGTA. *Biochim. Biophys. Acta* 1059, 339-347 (1991).
- K.M. Broekemeier, P.C. Schmid, M.E. Dempsey and D.R. Pfeiffer. Generation of the mitochondrial permeability transition does not involve inhibition of lysophospholipid acylation. Acyl-Coenzyme A: 1-acyllysophospholipid acyltransferase activity is not found in rat liver mitochondria. *J. Biol. Chem.* 266, 20700-20708 (1991).
- K.M. Broekemeier, L. Carpenter-Deyo, D.J. Reed and D.R. Pfeiffer. Cyclosporin A protects hepatocytes subjected to high Ca^{2+} and oxidative stress. *FEBS Lett.* 304, 192-194 (1992).
- W.L. Erdahl, C.J. Chapman, R.W. Taylor and D.R. Pfeiffer. Ca^{2+} transport properties of ionophores A23187, Ionomycin, and 4-BrA23187 in a well defined model system. *Biophys. J.* 66, 1678-1693 (1994).
- J.A. Gordon, K.M. Broekemeier, A.A. Spector and D.R. Pfeiffer. Mitochondrial metabolism of hydroxyecosatetraenoic acids. *J. Lipid Res.* 35, 698-708 (1994).

- T.I. Gudz, S.A. Novgorodov, G.P. Brierley and D.R. Pfeiffer. Magnesium ion modulates the sensitivity of the mitochondrial permeability transition pore to cyclosporin A and ADP. *Arch. Biochem. Biophys.* 311, 219-228 (1994).
- K.M. Broekemeier, R.J. Krebsbach and D.R. Pfeiffer. Inhibition of the mitochondrial Ca^{2+} uniporter by pure and impure ruthenium red. *Molecular and Cellular Biochem.* 139, 33-40 (1994).
- P. Bernardi, K.M. Broekemeier, and D.R. Pfeiffer: Invited Review. Recent progress on regulation of the mitochondrial permeability transition; a cyclosporin sensitive pore in the inner mitochondrial membrane. *J. Bioenerg. Biomembr.* 26, 509-517 (1994).
- D.R. Pfeiffer, T.I. Gudz, S.A. Novgorodov and W.L. Erdahl. The peptide mastoparan is a potent facilitator of the mitochondrial permeability transition. *J. Biol. Chem.* 270, 4923-4932 (1995).
- W.L. Erdahl, C.J. Chapman, R.W. Taylor and D.R. Pfeiffer. The effect of pH conditions on Ca^{2+} transport catalyzed by Ca^{2+} ionophores A23187, 4-BrA23187 and ionomycin suggest problems with common applications of these compounds in biological systems. *Biophysical J.* 69, 2350-2363 (1995).
- K.M. Broekemeier and D.R. Pfeiffer. Inhibition of the mitochondrial permeability transition by cyclosporin A during long time frame experiments - a relationship between pore opening and the activity of mitochondrial phospholipases. *Biochemistry* 34, 16440-16449 (1995).
- D.W. Jung, C.J. Chapman, K. Baysal, D.R. Pfeiffer and G.P. Brierley. On the use of fluorescent probes to estimate free Mg^{2+} in the matrix of heart mitochondria. *Arch. Biochem. Biophys.* 332, 19-29 (1996).
- W.L. Erdahl, C.J. Chapman, E. Wang, R.W. Taylor, and D.R. Pfeiffer. Ionophore 4-BrA23187 transports Zn^{2+} and Mn^{2+} with high selectivity over Ca^{2+} . *Biochemistry* 35, 13817-13825 (1996).
- D.W. Jung, P.C. Bradshaw, and D.R. Pfeiffer. Characterization of a permeability transition pore in yeast mitochondria. *J. Biol. Chem.* 272, 21104-21112 (1997).
- M.L. Litsky and D.R. Pfeiffer. Regulation of the mitochondrial Ca^{2+} uniporter by external adenine nucleotides: The uniporter behaves like a gated channel which is regulated by nucleotides and divalent cations. *Biochemistry* 36, 7071-7080 (1997).
- E. Wang, R.W. Taylor and D.R. Pfeiffer. Mechanism and Specificity of Lanthanide Series Cation Transport by Ionophores A23187, 4-BrA23187 and Ionomycin. *Biophys. J.* 75, 1244-1254 (1998).
- K.M. Broekemeier, and D.R. Pfeiffer. Proton Selective Substate of the Mitochondrial Permeability Transition Pore: Regulation by the Redox State of the Electron Transport Chain. *Biochemistry* 37, 13059-13065 (1998).
- W.L. Erdahl, C.J. Chapman, R.W. Taylor and D.R. Pfeiffer. Ionomycin, a Carboxylic Acid Ionophore, Transports Pb^{2+} With high Selectivity. *J Biol. Chem.* 275, 7071-7079 (2000).
- E. Wang, W.L. Erdahl, S.A. Hamidinia, C.J. Chapman, R.W. Taylor and D.R. Pfeiffer. Transport Properties of the Ca^{2+} Ionophore ETH 129. *Biophys. J.* 81, 3275-3284 (2001).
- C.A. Mannella, D.R. Pfeiffer, P.C. Bradshaw, I.I. Moraru, B. Slepchenko, L.M. Loew, C.-E. Hsieh, K. Buttle and M. Marko. Topology of the Mitochondrial Inner Membrane: Dynamics and Bioenergetic Implications. *IUBMB Life* 52, 93-100 (2001).
- P.C. Bradshaw, D.W. Jung, and D.R. Pfeiffer. Free Fatty Acids Activate a Vigorous $\text{Ca}^{2+}:\text{2H}^{+}$ Antiport Activity in Yeast Mitochondria. *J. Biol. Chem.* 276, 40502-40509 (2001).
- D.R. Pfeiffer, T.E. Gunter, R. Eliseev, K.M. Broekemeier and K.K. Gunter. Release of Ca^{2+} from Mitochondria via the Saturable Mechanisms and the Permeability Transition. *IUBMB Life* 52, 205-212 (2001).
- E.D. Crouser, M.W. Julian D.V. Blaho and D.R. Pfeiffer. Endotoxin-Induced Mitochondrial Damage Correlates with Impaired Respiratory Activity. *Crit. Care Med.* 30, 276-284 (2002).
- K.M. Broekemeier, J.R. Iben, E. A. LeVan, E.D. Crouser and D. R. Pfeiffer. Pore formation and Uncoupling Initiate a Ca^{2+} -Independent Degradation of Mitochondrial Phospholipids. *Biochemistry* 41, 7771-7780 (2002).
- E.D. Crouser, M.W. Julian, M.S. Joshi, J.A. Bauer, M.D. Wewers, J.M. Hurt and D.R. Pfeiffer. Cyclosporin A Ameliorates Mitochondrial Ultrastructural Injury in the Ileum during Acute Endotoxemia. *Crit. Care Med.* 30, 2722-2728 (2002).
- S.A. Hamidinia, O.I. Shimelis, B.Tan, W.L. Erdahl, C.J. Chapman, G.D. Renkes, R.W. Taylor and D.R. Pfeiffer. Monensin Mediates a Rapid and Highly Selective Transport of Pb^{2+} : Possible Application of Monensin for the Treatment of Pb^{2+} Intoxication. *J. Biol. Chem.* 277, 38111-38120 (2002).
- E.D. Crouser, M.D. Gadd, M.W. Julian, J.E.Huff, K.M. Broekemeier, K.A. Robbins, and D.R. Pfeiffer. Quantitation of Cytochrome c Release from Rat Liver Mitochondria. *Anal. Biochem.* 317, 67-75 (2003).
- E.D. Crouser, M.W. Julian, J.E. Huff, M.S. Joshi, J.A. Bauer, M.E. Gadd, M.D. Wewers, and D.R. Pfeiffer: "Abnormal Permeability of Inner and Outer Mitochondrial Membranes Contribute to Mitochondrial Dysfunction in the Liver During Acute Endotoxemia" (2004) *Crit. Care Med.* 32, 478-488.
- D.W. Jung, P.C. Bradshaw, M.K. Litsky and D.R. Pfeiffer. ' Ca^{2+} Transport in Mitochondria from Yeast Expressing Recombinant Aequorin' (2004) *Anal. Biochem.* 324, 258-268.