WOLFGANG FRIEDRICH BLUHM, PH.D.

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German Citizen, U.S. Permanent Resident

EMPLOYMENT

2001-present: Production Manager, Protein Data Bank, San Diego Supercomputer Center

Managed data distribution and query functionality
Managed development and implementation of new features

2000-2001: Application Developer, Protein Data Bank, San Diego Supercomputer Center

Designed and implemented redundancy filter for Protein Data Bank web interface
Developed Perl modules for parsing mmCIF files (new standard in structural biology)
Derived Swiss-Prot cross-reference consensus for data uniformity at Protein Data Bank

1996-2000: Postgraduate Researcher (Postdoctoral Fellow),
Department of Medicine, University of California, San Diego

Cloned mouse HCN2 and Kv4.2 ion channel promoters
Characterized contractile phenotypes of transgenic mice in isolated papillary muscles
Discovered important component of cardiac force-frequency relationship

1995-1996: Staff Volunteer, Medical Mission and Orphanage of 'Foundation for His Ministry', Vicente Guerrero, Baja California, Mexico

1986-1992: Various Teaching Assistantships

EDUCATION

1995: Ph.D., Bioengineering, University of California, San Diego

Investigated mechanisms of cardiac length-tension relationship
Developed computational models of cardiac contractile function

1990: M.S., Engineering Sciences (Bioengineering), University of California, San Diego

1989: Diplom (similar to M.S.), Physics, University of Siegen, Germany

Designed a Fourier spectrometer for high resolution spectral analysis of faint light sources

AWARDS

1998-2000: National Research Service Award (individual postdoctoral training grant), NIH
1992-1995: American Heart Association, California Affiliate, Predoctoral Research Fellow
1987-1990: German National Scholarship Foundation (supports top 1% of German students)

TECHNIQUES

COMPUTING AND ENGINEERING: Perl, Java, C/C++, Fortran, SQL, relational databases (Sybase, Oracle, MySQL), Unix/Linux, Mac, PC/Windows, bioinformatics, computer modeling of cardiac physiology, data acquisition and analysis, instrumentation design

PHYSIOLOGY: Small animal surgery (rat aortic banding), contractile function of papillary muscles, force measurements in single cardiac myocytes, cell shortening, rapid cooling contractures

CELLULAR AND MOLECULAR BIOLOGY: Myocyte isolation, cell culture, immunocytochemistry, simulated ischemia, library screening, adenoviral gene transfer, DNA preparation and analysis, cloning

OPTICS AND IMAGING: Confocal microscopy, light microscopy, image analysis, spectroscopy, interferometry, micromanipulation

LANGUAGES

Bilingual in English and German, proficient in Spanish, knowledge of French

SELECTED BIBLIOGRAPHY

Westbrook J., Feng Z., Jain S., Bhat T.N., Thanki N., Ravichandran V., Gilliland G.L., Bluhm W., Weissig H., Greer D.S., Bourne P.E., and Berman H.M. The Protein Data Bank: unifying the archive. Nucleic Acids Res. 30: 245-248, 2002.

Bluhm W.F., Kranias E.G., Dillmann W.H., and Meyer M. Phospholamban: a major determinant of the cardiac force-frequency relationship. Am. J. Physiol. 278: H249-H255, 2000.

Bluhm W.F., Meyer M., Sayen M.R., Swanson E.A., and Dillmann W.H. Overexpression of sarcoplasmic reticulum Ca^{2+}-ATPase improves cardiac contractile function in hypothyroid mice. Cardiovasc. Res. 43: 382-388, 1999.

Bluhm W.F., Martin J.L., Mestril R., and Dillmann W.H. Specific heat shock proteins protect microtubules during simulated ischemia in cardiac myocytes. Am. J. Physiol. 275: H2243-H2249, 1998.

Bluhm W.F., Lew W.Y.W., Garfinkel A., and McCulloch A.D. Mechanisms of length history-dependent tension in an ionic model of the cardiac myocyte. Am. J. Physiol. 274: H1032-H1040, 1998.

He H., Giordano F.J., Hilal-Dandan R., Choi D.-J., Rockman H.A., McDonough P.M., Bluhm W.F., Meyer M., Sayen M.R., Swanson E., and Dillmann W.H. Overexpression of the rat sarcoplasmic reticulum Ca^{2+} ATPase gene in the heart of transgenic mice accelerates calcium transients and cardiac relaxation. J. Clin. Invest. 100: 380-389, 1997.