

Elijah Aronoff-Spencer, MD PhD

Medical Education Partnership Initiative, Informatics Coordinator

UCSD Division of Infectious Diseases, CallIT2, La Jolla, California

GOALS

Develop informatics and diagnostic solutions to support medical care in resource-limited settings. My background in Infectious Diseases and Physical and Computational science informs my perspective and provides me with a unique skill set for tackling global health issues. I have clinical experience working in both South America and Southern Africa and this has driven my research toward "need-based" solutions with concrete goals for facilitating healthcare. I am now working within a collaborative effort between the divisions of Bioinformatics and Infectious Diseases to implement electronic health records, medical content and decision support systems in the developing world, with special emphasis on Maputo, Mozambique. Our efforts are aimed at building sustainable resources for content as well as multinational collaborations that foster education and building in resource poor settings. In addition, I am leading a collaborative effort between the UCSD Center for Aids Research and the UCSD CallIT2 to produce cell-based biosensors which may provide cost-effective and renewable diagnostic modalities for use at the point of care.

EDUCATION

1993-1994 College of Marin

1995-1998 University California Santa Cruz (BS)

1997-1999 Research Associate, UCSC/UCSF

1999-2006 Albert Einstein College of Medicine (MD/PhD)

2005-2006 International Health Internship: South Africa, Venezuela

2006-Pres. Physician Scientist Training Program, UCSD

2006-2008 Internship/Residency, Internal Medicine, UCSD

2008-2009 Fellow, Clinical Infectious disease, UCSD

2009-Fellow, Research in Infectious Disease and Global Health Informatics and Decision Making, UCSD

2011-Present, Faculty UCSD Division Infectious Diseases

HOSPITAL AFFILIATIONS

2011-present VA San Diego, Staff Physician Infectious Diseases, Special ID (HIV)

SELECTED COURSE WORK

Biophysics and Biochemistry: Biophysical Properties of Membranes, Fundamentals of Magnetic Resonance, Quantum Mechanics, Statistical Mechanics, Thermodynamics, Signal Transduction, Molecular Pharmacology and Drug design, Biochemistry, Molecular Physiology, Molecular genetics, Eukaryotic Molecular Biology, Cell biology

Medical: Core Medical Curricula including: Anatomy, Pulmonary, Renal, Cardiovascular and Gastrointestinal Physiology and Pathophysiology, Pharmacology, Rheumatic disease, Parasitology and Infectious disease, Neurology/Neuroscience

TEACHING

Teaching Assistantships

1997 Chemistry III, Physics I,II

1998 Chemistry II

1998 Biochemistry, Physical Chemistry, Physics III

2001 Neurology

2002 Neurology, Cardiovascular Physiology, Pharmacology

Lectures:

2002-3 Biophysical Properties of Macromolecules
2009-10 Topics in Global Health, UCSD SOM.

SKILLS

MODALITIES:

Biological

Cell Culture, Protein expression, immunochemistry, *in situ* modification and analysis
Peptide Synthesis, Native Chemical Ligation, Organic Synthesis

Imaging

EPR, NMR SAXs, XAFS, CD, Fluorescence, Mass Spectrometry, X-ray Foot-printing

Computational /Modeling: *Ab Initio:* Charm, Amber; Constraint based: CNS

/EXPLOR; Homology: MODELLER; Docking: HADDOCK; Mathematical: Matlab;

General: Unix/Linux, PEARL, Python, iOS, HTML

SELECTED PRESENTATIONS

1999 Fairchild Prion Meeting, San Francisco, Ca
2001 Biophysical Society Meeting, Boston, Ma
2002 Biophysical Society Meeting, San Francisco, Ca
2002 Int'l Meeting on Copper Physiology, Ischia, Italy
2003 Keystone Meeting on Prions, Breckinridge, Co
2004 Julius Marmur Award Symposium, NY

PERSONAL

Honors & Awards

Deans Award for Distinction in Economics, College of Marin Highest Honors, Biochemistry UC Santa Cruz College Honors, Cowell College, UCSC Julius Marmur Award for Excellence in Graduate Research Dean's Award for Excellence in Clinical Medicine, AECOM

Language Experience

Intermediate French, Intermediate Spanish, Medical Spanish, Basic Portuguese, Italian

CONSULTING:

Parity Computing 2009-2011, Teleomed Inc 2009-present, Lybba foundation 2012

ADVISORY:

Scientific Advisor to DHAPP/NHRC, Scientific Advisor UCSD Center for AIDS Research International Unit.

LINKS

distributedhealth.org

doknosis.org

mepimoz.org

id.ucsd.edu

BIBLIOGRAPHY & REFERENCES

Publications

- Golomb B, Aronoff-Spencer E, Steadman M, Wu W, Yan A. A ray of sunshine for the vitamin D-heart hypothesis. Arch Intern Med. 2009 Feb 23;169(4):416-7
- Aronoff-Spencer, E, Fiser, A; A new method for modeling non-canonical side-chain structure and dynamics in mutant proteins using the MODELER environment . (manuscript in preparation)
- Chattopadhyay, M.; Walter, E. D.; Newell, D. J.; Jackson, P. J.; Aronoff-Spencer, E.; Peisach, J.; Gerfen, G. J.; Bennett, B.; Antholine, W. E.; Millhauser, G. L.; The Octarepeat Domain of the Prion Protein Binds Cu(II) with Three Distinct Coordination Modes at pH 7.4 J. Am. Chem. Soc.; (Article); 2005; 127(36); 12647-12656.
- Fu Z, Aronoff-Spencer E, Wu H, Gerfen GJ, Backer JM. The iSH2 domain of PI 3-kinase is a rigid tether for p110 and not a conformational switch. Arch Biochem Biophys. 2004 Dec 15;432(2):244-51.

- Dodatko T, Fedorov AA, Grynberg M, Patskovsky Y, Rozwarski DA, Jaroszewski L, Aronoff-Spencer E, Kondraskina E, Irving T, Godzik A, Almo SC. Crystal structure of the actin binding domain of the cyclase- associated protein. *Biochemistry*. 2004 Aug 24;43(33):10628-41.
- Aronoff-Spencer E *, Burns CS *, Legname G, Prusiner SB, Antholine WE, Gerfen GJ, Peisach J, Millhauser GL. Copper coordination in the full-length, recombinant prion protein. *Biochemistry*. 2003 Jun 10;42(22):6794-803.
- Aronoff-Spencer E *, Fu Z *, Backer JM, Gerfen GJ. The structure of the inter-SH2 domain of class IA phosphoinositide 3- kinase determined by site-directed spin labeling EPR and homology modeling, *Proc Natl Acad Sci U S A*. 2003 Mar 18;100(6):3275-80. Epub 2003 Mar 10.
- Aronoff-Spencer E *, Burns CS *, Dunham CM *, Lario P, Avdievich NI, Antholine WE, Olmstead MM, Vrielink A, Gerfen GJ, Peisach J, Scott WG, Millhauser GL. Molecular features of the copper binding sites in the octarepeat domain of the prion protein. *Biochemistry*. 2002 Mar 26;41(12):3991-4001.
- Aronoff-Spencer E *, Burns CS *, Avdievich NI, Gerfen GJ, Peisach J, Antholine WE, Ball HL, Cohen FE, Prusiner SB, Millhauser GL. Identification of the Cu²⁺ binding sites in the N-terminal domain of the prion protein by EPR and CD spectroscopy. *Biochemistry*. 2000 Nov 14;39(45):13760-71.

REFERENCES

UC Santa Cruz:

Glenn Millhauser PhD: gmillhaus@chemistry.ucsd.edu; Al Zahler PhD: azahler@darwin.ucsd.edu; Jim Kent PhD: kent@soe.ucsc.edu

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almo@medusa.aecom.yu.edu; Jon Backer MD:

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Cornell: Scott Blanchard PhD: scb2005@med.cornell.edu; David Eliezer PhD: dae2005@med.cornell.edu

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