

## **RAJESH RAMACHANDRAN**

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### **EDUCATION AND EXPERIENCE**

- 2009 to present** Assistant Professor (Tenure-track), Dept. of Physiology & Biophysics, Case Western Reserve University School of Medicine, Cleveland, OH
- 2008 to 2009** Scientist, Life Technologies Inc. (formerly Invitrogen Corporation), CA;  
Assistant Professor (Adjunct), The Scripps Research Institute, CA
- 2004 to 2008** Postdoctoral Research Associate, The Scripps Research Institute, CA  
Mentor: Sandra Schmid, Professor and Chair, Dept. of Cell Biology
- 1999 to 2004** Ph.D. (Biochemistry), Texas A&M University, College Station, TX  
Mentor: Arthur Johnson, Professor and Wehner-Welch Chair,  
Depts. of Biochemistry, Chemistry and Molecular & Cellular Medicine.
- 1996 to 1998** M. Sc. (Molecular Biology), University of Madras, Chennai, INDIA  
Mentor: Vasantha Pattabhi, Professor, Dept. of Crystallography  
and Biophysics.
- 1993 to 1996** B. Sc. (Zoology), University of Madras, Chennai, INDIA  
University of Madras, Chennai, INDIA

### **AWARDS AND HONORS**

- 2008 to 2012** Leukemia and Lymphoma Society Special Fellow (Career Development Award). Award Amount: \$195,000. Project Title: Dissecting the mechanism of dynamin function in clathrin-mediated endocytosis.
- 2006 to 2008** American Heart Association Fellow.  
Award Amount: \$81,000. Project Title: "Structural bases of dynamin-mediated membrane fission" (AHA-0625090Y). Percentile rank: 2.78.
- 2007** Honorable Mention. Top 10 highest scoring exhibits at the American Heart Association Young Investigators Forum 2007.
- 2006** Finalist. Life Sciences Research Foundation Postdoctoral Fellowship Award. One of 50 finalists among 827 applicants.
- 2004** Winner of the "Twelfth Annual Research Competition".  
Biochemistry Graduate Association, Texas A&M University.
- 2004** The Pfizer Foundation, Inc. Scholarship. Travel award to attend the Keystone Symposia conference "Molecular Biology of Lipid Domains" Vancouver, Canada.

**1998** Junior Research Fellowship (Life Sciences). Council for Scientific & Industrial Research (CSIR), India.

**1997** Summer Research Fellowship. Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India.

## **PROFESSIONAL EXPERIENCE**

**Research:** Leukemia and Lymphoma Society Special Fellow (7/2008 to 06/2011).  
Laboratory of Sandra L. Schmid, The Scripps Research Institute, CA.

American Heart Association Postdoctoral Fellow (7/2006 to 6/2008)  
Laboratory of Sandra L. Schmid, The Scripps Research Institute, CA.

Research Associate (10/2004 to 6/2006)  
Laboratory of Sandra L. Schmid, The Scripps Research Institute, CA.

Graduate Research Assistant (6/2000 to 10/2004)  
Laboratory of Arthur E. Johnson, Texas A&M University, TX.

Graduate Research Assistant (07/1998 to 07/1999)  
Department of Molecular and Cellular Physiology, Louisiana State University Health Science Center (LSUHSC), LA.

Masters Thesis Student (09/1996 to 06/1998)  
Laboratory of Vasantha Pattabhi, University of Madras, INDIA.

Summer Research Fellow (1997)  
Laboratory of S. C. Lakhotia, Banaras Hindu University, INDIA.

**Workshop:** 2<sup>nd</sup> LFD workshop in Advanced Fluorescence Imaging and Dynamics. Organized by the Laboratory of Fluorescence Dynamics (LFD) at the University of California, Irvine (Oct 22-26, 2007).

**Teaching:** Graduate Teaching Assistant for Undergraduate Lab Courses, Texas A&M University (09/99 to 05/00)  
GENE 432 – Molecular Genetics Lab (Fall 1999)  
BICH 412 – Biochemistry Lab (Spring 2000)

## **PUBLICATIONS**

### **Full-length Research Articles**

**Ramachandran, R\*.,** Pucadyil, T.J\*., Liu, Y.W., Acharya, S., Leonard, M., Lukiyanchuk, V., and Schmid, S.L. (2009) Membrane insertion of the pleckstrin homology domain variable loop 1 is critical for dynamin-catalyzed membrane fission. **Mol. Biol. Cell.** **20**, 4630-4639.

*(Highlighted in Incytes from MBC, Nov 2009 ASCB newsletter)*

*\*denotes equal authorship.*

Mettlen, M., Pucadyil, T., **Ramachandran, R.,** and Schmid, S.L. (2009) Dissecting dynamin's role in clathrin-mediated endocytosis. **Biochemical Society Transactions** **37**, 1022-6.

**Ramachandran, R.**, and Schmid, S.L. (2008) Real-time detection reveals that effectors couple dynamin's GTP-dependent conformational changes to the membrane. **EMBO J. 27**, 27-37.  
(Highlighted in *Nature Structural and Molecular Biology* 15, 25)

**Ramachandran, R.**, Surka, M., Chappie, J. S., Fowler, D. M., Foss, T. R., Song, B. D., and Schmid, S. L. (2007) The dynamin middle domain is critical for tetramerization and higher-order self-assembly. **EMBO J. 26**, 559-566.  
(Highlighted in *Biopolymers* Vol. 85 / Number 4)

Sever, S., Skoch, J., Newmyer, S., **Ramachandran, R.**, Ko, D., McKee, M., Bouley, R., Ausiello, D., Hyman, B. T., and Bacskai, B. J. (2006) Physical and functional connection between auxilin and dynamin during endocytosis. **EMBO J. 25**, 4163-4174.

Leonard, M., Song, B.D., **Ramachandran, R.**, and Schmid, S.L. (2005) Robust colorimetric assays for dynamin's basal and stimulated GTPase activities. **Methods Enzymol. 404**, 490-503.

**Ramachandran, R.**, Tweten, R. K., and Johnson, A. E. (2005) The domains of a cholesterol-dependent cytolysin undergo a major FRET-detected rearrangement during pore formation. **Proc. Natl. Acad. Sci. 102**, 7139-7144.  
(Faculty of 1000 rated 3.0)

**Ramachandran, R.**, Tweten, R. K., and Johnson, A. E. (2004) Membrane-dependent conformational changes initiate cholesterol-dependent cytolysin oligomerization and intersubunit  $\beta$ -strand alignment. **Nature Structural & Molecular Biology 11**, 697-705.  
(Highlighted in the cover page of the same issue)

**Ramachandran, R.**, Heuck, A. P., Tweten, R. K., and Johnson, A. E. (2002) Structural insights into the membrane-anchoring mechanism of a cholesterol-dependent cytolysin. **Nature Structural Biology 9**, 823-827.  
(Highlighted as a paper of special interest in *Curr. Opin. Struct. Biol.*, 2003, 13; 404-411)

## RESEARCH PRESENTATIONS

### INVITED TALKS

**2008 Boston University School of Medicine**, Boston, MA. Faculty candidate seminar "Fluorescence-detected dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" hosted by the Dept. of Physiology and Biophysics on Sep 23, 2008.

**2008 Case Western Reserve University School of Medicine**, Cleveland, OH. Faculty candidate seminar "Fluorescence-detected dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" hosted by the Dept. of Physiology and Biophysics on July 9, 2008.

**2008 Invitrogen Corporation**, Carlsbad, CA. Interview seminar "Fluorescence-detected dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" on June 19, 2008.

**2008 7<sup>TH</sup> International Weber Symposium** on Innovative Fluorescence Methodologies in Biochemistry and Medicine conducted June 6-12, 2008, Kauai, Hawaii, USA.

Seminar Title: "Fluorescence-detected dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis"

**2008 Iowa State University**, Ames, IA. Faculty candidate seminar "Dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" hosted by the Dept. of Biochemistry and Molecular Biology on Apr 14, 2008.

**2008 University of Texas MD Anderson Cancer Center**, Houston, TX. Faculty candidate seminar "Dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" hosted by the Dept. of Biochemistry and Molecular Biology on Feb 25, 2008.

**2008 Carnegie Mellon University**, Pittsburgh, PA. Faculty candidate seminar "Dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" hosted by the Dept. of Biological Sciences on Feb 18, 2008.

**2008 Johns Hopkins University School of Medicine**, Baltimore, MD. Faculty candidate seminar "Dynamics of dynamin-membrane interactions in clathrin-mediated endocytosis" hosted by the Dept. of Biophysics and Biophysical Chemistry on Jan 23, 2008.

**2007 Gordon Research Conference "Molecular Membrane Biology"** held at the Proctor Academy, Andover, NH between July 8-13, 2007. "Real-time Observation of Dynamin Reveals a Dynamic Interaction with the Membrane Under Different Nucleotide- and Effector-bound States".

**2004 Twelfth Annual Research Competition** organized by the Biochemistry Graduate Association and sponsored by the **Department of Biochemistry and Biophysics, Texas A&M University**. "Structural Insights into the Membrane-dependent Oligomerization of a Cholesterol-dependent Cytolysin".