BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Pallavi Sachdev	Research Associate
eRA COMMONS USER NAME Pallavi	

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
Cornell University, Ithaca, NY	B.S.	1993	Biological Sciences
New York Medical College, Valhalla, NY	M.P.H.	1996	Epidemiology and Biostatistics
Mount Sinai-New York University School of Medicine, New York, NY	Ph.D.	2002	Molecular and Cell Biology
Rockefeller University, New York, NY	PostdoctoralFellow	2002-2007	Molecular Biology and Biochemistry
Rockefeller University, New York, NY	Research Associate	2007-	Molecular Biology and Biochemistry

A. Positions and Honors.

Positions and Employment

1992 - 1993 Undergraduate research assistant, Cornell University, New York, NY
1993 - 1996 Microbiologist, Barr Pharmaceuticals, Pomona, NY
1996 - 2002 Graduate Student, Department of Microbiology and Cancer biology, Mount Sinai-New York University School of Medicine, New York, NY
2002 - 2007 Postdoctoral Fellow, Laboratory of Molecular Biology & Biochemistry, Rockefeller University, New York, NY
2007 - Research Associate, Rockefeller University, New York, NY
2008 - Director, Rockefeller University Biotechnology Forum
2008 - Executive Member, Rockefeller University Postdoctoral Association

Other Experience and Professional Memberships

New York Academy of Sciences, Member (2003-Present); American Society for Cell Biology, Member (2003-Present); Fundamentals of Bioscience Industry, Center for Biotechnology (Spring 2009); Marine Biological Laboratory, Analytical and Quantitative Light Microscopy (AQLM) Course, (2003); BIACORE, Biacore Basics: Biacore 3000 instrument operation, experimental design and data analysis (2003); Mount Sinai School of Medicine, Curriculum and Admissions Committee, Graduate Student Representative (1999-2001)

Honors

National Institutes of Health, National Eye Institute, Vision Training Grant, Postdoctoral Fellowship (2003), National Institutes of Health, National Cancer Institute, Doctoral Fellowship (2000); Cornell University, Excellence in cell biology (1993)

B. Peer-Reviewed Publications (in chronological order).

1). Zeng, L., Sachdev, P., Yan, L., Chan, J., Trenkle, T., McClelland, M., Welsh, J., & Wang, L.H. *Vav3 mediates receptor protein tyrosine kinase signaling, regulates GTPase activity, modulates cell morphology, and induces cell transformation. Mol. Cell Biol* 20:9212-9224 (2000).
2). Sachdev, P., Jiang, Y, Li W., Miki, T., Maruta, H., Nur-E-Kamal, M.S.A., & Wang, L.H. *Differential requirement for Rho family GTPases in an oncogenic IGF-1 receptor-induced cell transformation. J Biol Chem* 276:26461-26471 (2001).

3). Nguyen, K.T., Zong, C.S., Uttamsingh, S., Sachdev, P., Bhanot, M., Le, M.T., Chan, J.L., & Wang, L.H. *The role of phosphatidylinositol 3-kinase, Rho family GTPases, and Stat3 in Ros-induced transformation. J Biol Chem* 277:11107-11115 (2002).

4). Sachdev, P., Zeng, L. & Wang, L.H. *Distinct role of phosphatidylinositol 3-kinase in Vav3-mediated cell transformation, cell motility and cell morphology changes. J Biol Chem* 277:17638-17648 (2002).

5). Sachdev, P., Menon, S., Kastner, D.B., Chuang, J.Z., Yeh, T.Y., Conde, C., Caceres, A., Sung, C.H. & Sakmar, T.P. *G protein betagamma subunit interaction with the dynein light-chain component Tctex-1 regulates neurite outgrowth. The EMBO Journal* 26, 2621–2632 (2007).

6). Ye, S., Köhrer, C., Huber, T., Kazmi, M., Sachdev, P., Yan E., Aditi Bhagat, RajBhandary, U.L., & Sakmar T.P. *Site-specific incorporation of keto amino acids into functional G protein-coupled receptors using unnatural amino acid mutagenesis. J Biol Chem* 283(3):1525-1533 (2008).

7). Sachdev, P., Tirunagari, L.M., Kappei, D., Unson, C.G. *Monitoring glucagon and glucagon antagonist-mediated internalization: a useful approach to study glucagon receptor pharmacology.* Adv Exp Med Biol. 611:325-326 (2009).

C. Research Support

Ongoing Research Support

Tri-Institutional Stem Cell Initiative Sakmar (PI) 09/18/06-09/17/08

"Role of novel G protein-AGS2/Tctex-1 intereaction in controlling stem cell fate"
We propose to study the molecular mechanisms that control self-renewal and differentiation of stem cells. Heterotrimeric guanine nucleotide-binding proteins (G proteins) have recently been identified as key regulators of cell fate determination in both invertebrate and vertebrate development. We have identified a novel G protein-regulatory molecule, AGS2/Tctex-1, which is enriched in neural stem cells of the developing neocortex. This novel AGS2/Tctex-1-G protein interaction is likely to play an important role in self-renewal and cell fate determination of stem cells. Our preliminary data support the hypothesis that AGS2/Tctex-1 and G beta/gamma interact to regulate key developmental signaling pathways. We propose a collaborative, interdisciplinary pproach to characterize fully the functional and physical interaction between AGS2/Tctex-1 and G proteins in neural stem cells and human embryonic stem cells (hESCs) at the cellular and molecular level. We anticipate that the mechanism under study will be conserved among embryonic stem cells, neural stem cells and adult CNS stem cells. We will test this hypothesis by evaluating the role of AGS2/Tctex-1 under various conditions in multiple model systems. In addition, we propose to search for small molecules that modulate the G beta/gamma-AGS2/Tctex-1 interaction and thus provide tools to regulate stem cell fate determination. Since both G beta/gamma and AGS2/Tctex-1 are implicated in neural stem cell proliferation and differentiation, small molecules that modulate their interaction have therapeutic potential for neurodegenerative diseases.
Role: Postdoctoral Fellow

Murray Foundation Sakmar (PI) 01/01/2005 -

"Role of Cytoplasmic Dynein Light Chain, Tctex-1 in G Protein Localization and Signaling"
The goal of this research proposal is to characterize a novel mode of regulation of heterotrimeric G protein function. G protein signaling pathways are activated primarily via a family of cell surface receptors containing the seven membrane-span motif. Recently, independent lines of research suggest the existence of receptor-independent activation of G protein signaling. A functional screen for receptor-independent activators of G protein signaling identified AGS2. AGS2 was found to be identical to a cytoplasmic motor protein dynein light chain (DLC), Tctex-1. Our aim is to uncover the molecular mechanisms regulating the interaction of Tctex-1 and G protein subunits. Specifically, we will study how the activation of G protein signaling by the dynein light chain Tctex-1 is achieved and what is the functional significance of this interaction.
Role: Postdoctoral Fellow

Completed Research Support

Tri-Institutional Vision Training Grant Rodriguez-Boulan (PI) 07/01/03-06/30/04
NIH/NEI

"Identification and Characterization of Cytoplasmic Dynein Light Chain, Tctex-1, a novel G protein βγ subunitinteracting partner"
The goal of this research proposal was to study a novel regulator of G protein signaling pathways, AGS2, in collaboration with Dr. Ching-Hwa Sung at Weill Medical College Cornell University. Our aim was to uncover the molecular mechanisms regulating the interaction of AGS2/Tctex-1 and G protein subunits. Biochemical and cellular-based assays were employed to study the interaction of Tctex-1 and G protein βγ subunit. This work identified a cellular complex containing Gβγ and Tctex-1 and proposed Tctex-1 as a signaling intermediate for Gβγ. Role of Tctex-1 in Gβγ-mediated cellular events will be further investigated.
Role: Postdoctoral Fellow

Howard Hughes Medical Institute Sakmar (PI) 04/15/2002-06/30/03

"Identification of non-canonical G protein signaling pathways"
The goal of this research program was to employ an interdisciplinary approach, including molecular, cell biology, spectroscopic and biophysical methods, to identify and characterize novel modes of G protein regulation. G protein signaling pathways are activated primarily via a family of cell surface receptors containing the seven membrane-span motif. Recently, independent lines of research suggest the existence of receptor-independent activation of G protein signaling. A functional screen for receptor-independent activators of G protein signaling identified AGS2. AGS2 was found to be identical to a cytoplasmic motor protein dynein light chain (DLC), Tctex-1. Our aim was to uncover the molecular mechanisms regulating the interaction of Tctex-1 and G protein subunits. Extensive biochemical and cellular-based assays were employed to study the interaction of Tctex-1 and G protein βγ subunit. Role of Tctex-1 in Gβγ-mediated cellular events will be further investigated.
Role: Postdoctoral Associate