

Pranab K. Mukherjee, MS, PhD
Associate Professor – Research,
Ophthalmology & Neuroscience

2020 Gravier Street, Suite D

New Orleans, LA 70112

Phone: (504) 599-0895

Fax: (504) 555-0891

E. Mail: pmukhe@lsuhsc.edu.



Education

1974 – PhD, University of Calcutta, India.

1969 – MS, University of Calcutta, India.

1967 - BS, University of Calcutta, India.

Position Held:

2008-pres Associate Professor-Research, Ophthalmology & Neuroscience Center, LSU Health Sciences Center, New Orleans, LA.

2002-2007 Assistance Professor- Research, Ophthalmology & Neuroscience Center, LSU Health Sciences Center, New Orleans, LA.

1992-2002 Instructor, Ophthalmology & Neuroscience Center, LSU Health Sciences Center, New Orleans, LA.

1987-1992 Staff Scientist, Oschner Medical Foundation, New Orleans, LA.

1979-1987 Res. Associate, Waksman Ins. of Microbiology, Piscataway, NJ.

1975-1979 Res. Fellow, Biological Chemistry, Harvard Medical School, Boston, Mass.

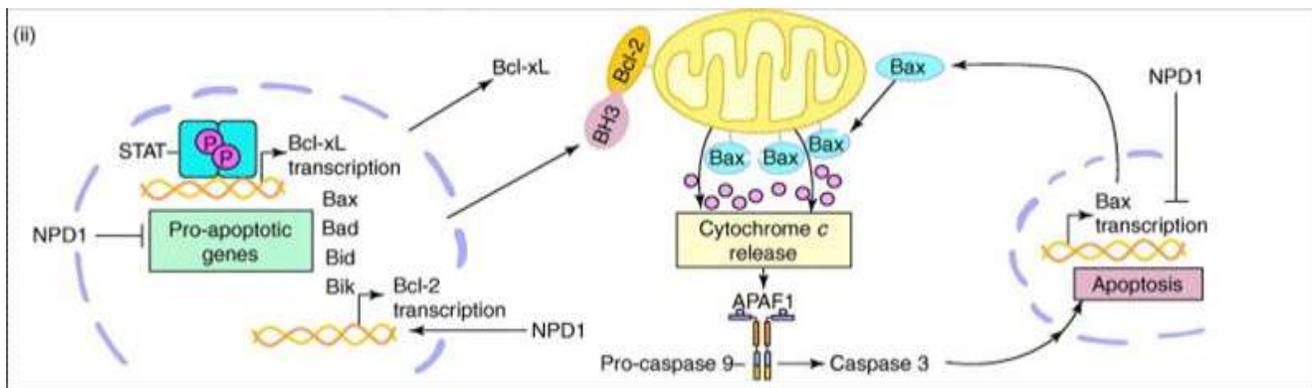
1974-1975 Postdoctoral Fellow, Atomic Energy, University of Calcutta, India.

Research Interest

The main focus of my research is to study cell signaling pathways. An *in vitro* model using retinal pigment

epithelial cells (ARPE-19) has been developed to study the oxidative stress initiated by H₂O₂ and TNF- α , induced gene expression, apoptotic cell death and neuroprotection. Since most neurodegenerative diseases are associated with neuronal loss, the identification of a potent neuroprotective agent could shed light on the treatment of some eye diseases such as glaucoma and age-related macular degeneration (AMD). To this end, we reported the development of neuroprotectin D1 (NPD1), a docosahexanoic acid-derived docosatriene that protects ARPE-19 cells from oxidative stress. We found that NPD1 also up-regulates the anti-apoptotic proteins Bcl2 and Bcl-xl, decreases pro-apoptotic Bax and Bad expression and caspase-3 activation, and inhibits IL-1-induced COX-2 expression under oxidative stress in the retinal pigment epithelium (RPE).

Neurotrophins, particularly pigment epithelium-derived factor (PEDF), induce NPD1 synthesis and its polarized apical secretion, implying paracrine and autocrine bioactivity of this lipid mediator. Also DHA and PEDF synergistically activate NPD1 synthesis and anti-apoptotic protein expression and decreased pro-apoptotic Bcl-2 protein expression during oxidative stress.



Currently my interest has been focused on the study of proteomics profiling of the various class of proteins, such as pro- and anti- apoptotic, pro- and anti-inflammatory proteins, metabolic pathways, and glycolytic pathway proteins, altered by NPD1 under oxidative stress in the RPE. We will use immunoblotting of 2D gel analysis of RPE cell extracts treated with NPD1 under oxidative stress. The results of this 2D analysis will provide us with ways to run Western blot and to further confirm the NPD1 modified proteins under experimental conditions.

Patents

United States Patent Application Serial No. 10/911,835 and PCT/US04/25636, filed Aug. 2004.
 Inventors: Nicolas G. Bazan, Charles N. **Pranab K. Mukherjee**, Karsten Gronert. Assignee: LSUHSC. "Neuroprotectin D1 protects against cellular apoptosis, and retinal diseases."

Awards and Honors:

International Conference on Frontier Researches in Integrative Physiology (ICFRIP)-2007, University of Calcutta, Calcutta, India; January 8-10, 2007: Invited Plenary Speaker and Chairman

ASIA - ARVO-International Meeting on Research in Vision and Ophthalmology. January 15-18, 2009, Hyderabad International Convention Center, Hyderabad, India. Speaker.

Selected Publications

Pranab K. Mukherjee, Victor L. Marcheselli, Juan Carlos de Rivero Vaccari, William C. Gordon, Fannie Jackson and Nicolas G. Bazan, Photoreceptor outer segment phagocytosis selectively attenuates oxidative stress induced apoptosis with concomitant neuroprotectin D1 synthesis, *Proc. Natl. Acad. Sci.* 104: 13158-13163, 2007.

Pranab K. Mukherjee, Amit Chawla, Marco S. Loayza, Nicolas G. Bazan, Docosanoids are Multifunctional Regulators of Neural Cell Integrity and Fate: Significance in Aging and Disease, *Prostaglandins Leukot. Essent. Fatty Acids*, 77:233-238, 2007.

Anthony L. Vaccarino, Dennis Paul, **Pranab K. Mukherjee**, Elena B. Rodriguez de Turco, Victor L. Marcheselli, Liang Xu, Marl L. Trudell, J. M. Minguez, M. P. Matia, Carlos Sunkel, Julio Alvarez-Builla, and Nicolas G. Bazan, Synthesis and in vivo evaluation of non-hepatotoxic acetaminophen analogs, *Bioorganic & Medicinal Chemistry* 15 : 2206-2215, 2007.

Victor S. Marcheselli*, **Pranab K. Mukherjee***, Makoto Arita*, Song Hong, Nicos Petasis, Charles N. Serhan, Nicolas G. Bazan, Protection against oxidative stress of retinal pigment epithelial cells by neuroprotectin D1 is potent, specific and stereoselective, *submitted (* first three authors share authorship)*, 2007.

Pranab K. Mukherjee, Victor L. Marcheselli, Sebastian Barreiro, Jane Hu, Dean Bok, and Nicolas G. Bazan, Neurotrophins enhance retinal pigment epithelial cell survival through neuroprotectin D1 signaling, *Proc. Natl. Acad. Sci.* 104: 13152-13157, 2007.

Pranab K. Mukherjee, Nicolas G. Bazan, Omega-3 fatty acids and the integrity of photoreceptors-retinal pigment epithelial cells, *Expert Review of Ophthalmology*, 2007.

Lukiw WJ, **Mukherjee PK**, Cui JG, Bazan NG, A2E selectively induces cox-2 in ARPE-19 and human neural cells, *Curr. Eye Res.* 31: 259-263, 2006.