

# BASKARAN GOVINDARAJAN, M.Phil, Ph.D.

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**VISA STATUS** Permanent resident (*Green card*)

**CURRENT POSITION** Instructor - Research Track

## SUMMARY

Biochemist and Molecular biologist with 10 years of experience in managing multiple research projects in the following areas: Human genetics, population genetics, cancer biology, drug discovery, small molecular inhibitors and synthesis, cell biology, bioinformatics, tumor angiogenesis, signal transduction, protein biochemistry, protein targeting, and gene therapy/delivery.

## QUALIFICATIONS

**Creative Scientist** Developed and implemented research plan and obtained significant findings that resulted in the Research Career Development Award from Dermatology Foundation (2004-2007).

**Problem Solver** Assisted research fellows in trouble shooting experiments to expedite project completion and publication.

**Group Leader** Revived unfinished projects in the laboratory and organized technical, postdoctoral and graduate students to move the projects towards completion.

**Effective Communicator** Effectively communicated research findings to faculty and students. Participated in 14 national and 2 international meetings, and presented two oral presentations.

**Skilled Writer** Authored 24 scientific research papers in prestigious journals, and coauthored research articles.

## EDUCATION

Ph.D in Medical Biochemistry, Univ. of Madras, Chennai, India 1992 – 1997

M.Phil in Medical Biochemistry, Univ. of Madras, Chennai, India 1991 – 1992

MS in Biochemistry, Bharathiar University, Coimbatore, India 1988 – 1990

BS in Biochemistry, Bharathiar University, Coimbatore, India 1985 – 1988

## RESEARCH AND MENTORING EXPERIENCE

- Research Instructor (2002- until now), Department of Dermatology, Emory University School of Medicine, Atlanta, USA.
- Postdoctoral fellow (1999-2001), Department of Dermatology, Emory University School of Medicine, Atlanta, USA
- Postdoctoral fellow (1997-1999) Dept. of Biochemistry, Indian Institute of Science, Bangalore, India.
- Assistant Professor (1995-1997) Department of Biochemistry and Biotechnology, Bharathiar University, India (2000 hours of teaching.)

## HONORS AND AWARDS

- 2005 Research Career Development Award (2006-2007) by Dermatology Foundation Medical and Scientific Committee, USA.
- 2004 Research Career Development Award (2004-2006) by Dermatology Foundation Medical and Scientific Committee, USA.
- 2003 The Emory Skin Diseases Research Core Center Pilot & Feasibility grant award. Emory University, School of Medicine.
- Best Poster award 63<sup>rd</sup> Annual Meeting, Society for Investigative Dermatology, USA, 2002.
- 1999 Postdoctoral fellowship from Council of Scientific and Industrial Research, Govt. of India, India
- 1997 – 1999 Postdoctoral fellowship from the Dept. of Biotechnology, Govt. of India, India.
- 1997 Travel/training fellowship from Indian Institute of Science to visit Edith Cowan University, Australia.
- 1992 – 1995 Senior research fellowship from Birla SmarakKosh Foundation, India
- 1990 – 1992 Junior research fellowship from the Directorate General of Health Sciences, Govt. of India, India.

## PROFESSIONAL MEMBERSHIPS

- 1) Society for Investigative Dermatology (SID), Cleveland, Ohio, USA.
- 2) Society for Biological Chemists (SBC), Bangalore, India.

## PATENTS

- Use of Aminosalicylic acid derivative and lipoxygenase inhibitors in the treatment of cancer. Submitted on 19<sup>th</sup> November 2002.

## TECHNICAL SKILLS

**Protein Biochemistry** Purification, electrophoresis, HPLC and enzyme kinetics, Western, immunoprecipitation, ELISA, bacterial expression, proteomics.

**Molecular Biology** General molecular biology procedures including PCR, cloning, colony screening, heteroduplex analysis, single strand confirmation polymorphism (SSCP), quantitative PCR. Micro arrays.

**Cell culture** Transfections (retroviral /adenoviral), reporter assays, soft agar assay, FACS.

**Animal experiments:** Extensive training in conducting experiments in Nude and transgenic animals

**Computer hardware and software:** Familiar with most of the common computer softwares. Expertise in trouble shooting and fixing hardware issues.

**Instrumentation** Well versed in handling, trouble shooting and maintaining laboratory equipments.

## LIST OF PUBLICATIONS:

- 1.) V.N.Satakopan, **G.BASKARAN**, M.Sankar. Protective influence of phytotonic concentrations of Al<sup>3+</sup> on mannitol-induced water stress in chickpea (*Cicer arietinum* L) seedlings.. *Indian J. Plant Physiol.*, XXIII (4): 374-375(1990)
2. V.N.Satakopan, M.Sankar,**G.BASKARAN** .Determination of toxicity levels of Al<sup>3+</sup> in chickpea (*Cicer arietinum* L.) seedlings.. *Indian J. PlantPhysiol.*, XXV (1): 90-94 (1992)

3. N.Satakopan, **G.BASKARAN**, M.Sankar. Changes in levels of RNA, proline, phenol and ascorbic acid in A13+toxicity in chickpea seedlings. *Indian J. Plant Physiol.* XXXV (3): 272-274 (1992)
- 4) R.Sumathi, **G. Baskaran**, P.Varalakshmi. Effect of DL alpha-lipoic acid on tissue redox state in acute cadmium - challenged tissues. *J. Nutr. Biochem.*, 7:85-92 (1995)
- 5) R.Sumathi, **G. Baskaran**, P.Varalakshmi. Relationship between glutathione and DL alpha-lipoic acid against cadmium-induced hepatotoxicity. *Jap. J. Med. Sci. Biol.*,49: 39-48 (1996)
- 6) R. Selvam, **G. Baskaran**. Hematological impairments in recurrent *P. vivax*-infected malaria patients. *Jap. J. Med. Sci. Biol.*,49: 6 (1996)
- 7) **G. Baskaran**, R.Selvam. Effect of vitamin E-chloroquine therapy on the erythrocyte antioxidant systems in *P. vivax* recurrent malaria patients. *J. Biosci.*, 58: 356-365 (1997)
- 8) Bittles, A.H., Wang, W., Di Grandi, S., Cahill,J., Savithri,H.S., Venkatesha Murthy,H.S., **G. Baskaran**. and Appaji Rao, N. A DNA-based analysis of long-term human inbreeding. *J. Med. Genetics* 36 supp., 31, (1999)
- 9) H.S.Savithri, H.S.VenkateshaMurthy, **G. Baskaran**, N.Appaji Rao, D. Kool, E. Edkins, W. Wang, A.H. Bittles. Predictive testing for familial adenomatous polyposis in a rural South Indian community. *Clin. Genet.* 58 :57-60 (2000)
- 10) H.S Savithri, H.S.Venkatesha Murthy, **G. Baskaran**, N.Appaji Rao, D. Kool, E. Edkins, W. Wang, A.H. Bittles. Mutation testing for familial polyposis coli in a rural south Indian community. *DNA polymorphism*, 8, 63-65 (2000)
- 11) A.H Bittles, H.S. Savithri, H. S. Venkatesha Murthy, **G. Baskaran**, W.Wang, J.Cahill, N. Appaji Rao. Human inbreeding: A familiar story full of surprises. In: *Health and Ethnicity*. Eds: H. Machbeth, P. Shetty, Taylor & Francis, London 68-78 (2001)
- 12) Jack L. Arbiser, Sharon W. Weiss, Zoya K. Arbiser, Francisco Bravo, **Govindarajan B**, Hector Caceres-Rios, George Cotsonis, Sixto Recavarren, Robert A Swerlick, Cynthia Cohen. Differential expression of active MAP kinase in cutaneous endothelial neoplasm: Implications for biological behavior and response to therapy. *J. Amer. Acad. Dermatol.* 44(2): 193-97 (2001)
- 13) Arbiser JL, Petros J, Klafter R, **Govindarajan B**, McLaughlin ER, Brown LF, Cohen C, Moses M, Kilroy S, Arnold RS, Lambeth JD. Reactive oxygen generated by Nox1 triggers the angiogenic switch. *Proc. Natl. Acad. Sci. U S A.* 99(2):715-20 (2002)
- 14) **Govindarajan B**, Klafter R, Miller MS, Mansur C, Mizesko M, Bai X, LaMontagne K Jr, Arbiser JL. Reactive oxygen-induced carcinogenesis causes hypermethylation of p16(Ink4a) and activation of MAP kinase. *Mol. Med.* 8(1):1-8 (2002) (cover page article)
- 15) Arbiser JL, **Govindarajan B**, Bai X, Onda H, Kazlauskas A, Lim SD, Amin MB, Claesson-Welsh L. Functional tyrosine kinase inhibitor profiling: a generally applicable method points to a novel role of platelet-derived growth factor receptor-beta in tuberous sclerosis. *Am. J. Pathol.* 161(3):781-6 (2002)
- 16) Cohen C, Zavala-Pompa A, Sequeira JH, Shoji M, Sexton DG, Cotsonis G, Cerimele F, **Govindarajan B**, Macaron N, Arbiser JL. Mitogen-activated protein kinase activation is an early event in melanoma progression. *Clin. Cancer Res.* 8(12):3728-33 (2002)
- 17) **Govindarajan B**, Bai X, Cohen C, Zhong H, Kilroy S, Moses M, Arbiser JL. Malignant transformation of melanocytes to melanoma by constitutive activation of MAP kinase signaling. **Govindarajan B**, Bai X, Cohen C, Zhong H, Kilroy S, Moses M, Arbiser JL. *J. Biol. Chem.* 278(11):9790-5 (2003)

- 18) **Govindarajan B**, Melissa C. Mizesko, Mark Steven Miller, Hiroaki Onda, Matthew Nunnally, Katherine Casper, Daniel Brat, Cynthia Cohen, Jack L. Arbiser. Tuberosclerosis-associated neoplasms express activated p42/44 mitogen-activated protein (MAP) kinase, and inhibition of MAP kinase signaling results in decreased in vivo tumor growth. *Clin. Cancer Res.*, 9(9):3469-75 (2003).
- 19) Bai X, Cerimele F, Ushio-Fukai M, Waqas M, Campbell P, **Govindarajan B**, Der C, Battle T, Frank DA, Ye K, Murad E, Dubiel W, Soff G, Arbiser JL. Honokiol, a small molecular weight natural product, inhibits angiogenesis in vitro and tumor growth in vivo. *J. Biol. Chem.*, 278(37):35501-7 (2003)
- 20) Lu X, Arbiser JL, West J, Hoedt-Miller M, Sheridan A, **Govindarajan B**, Harral JW, Rodman DM, Fouty B Tumor necrosis factor-related apoptosis-inducing ligand can induce apoptosis in subsets of premalignant cells. *Am. J. Pathol.* 165(5):1613-20 (2004).
- 21) **Govindarajan B**, Brat DJ, Csete M, Martin WD, Murad E, Litani K, Cohen C, Cerimele F, Nunnally M, Lefkove B, Yamamoto T, Lee C, Arbiser JL. Transgenic expression of dominant negative tuberin through a strong constitutive promoter results in a tissue-specific tuberous sclerosis phenotype in the skin and brain. *J. Biol. Chem.* 280(7):5870-4 (2005).
- 22) **Govindarajan B**, Shah A, Cohen C, Arnold RS, Schechner J, Chung J, Mercurio AM, Alani R, Ryu B, Fan CY, Cuezva JM, Martinez M, Arbiser JL. Malignant transformation of human cells by constitutive expression of platelet derived growth factor-BB (PDGF-BB). *J. Biol. Chem.* 280(14):13936-43 (2005).
- 23) Jack L. Arbiser, Xing-Cong Li, Chowdhury Fiaz Hossain, Dale G. Nagle, David M. Smith, Paul Miller, **Govindarajan B**, Josh DiCarlo, Dennis Liotta, Kristin R. Landis-Piowar, Q. Ping Dou. Naturally Occurring Proteasome inhibitors from Mate tea (*Ilex paraguayensis*) serve as Models for Topical Proteasome Inhibitors. *J. Invest. Dermatol.* 125(2):207-12 (2005)
- 24) Arbiser JL, **Govindarajan B**, Battle TE, Lynch R, Frank DA, Ushio-Fukai M, Perry BN, Stern DF, Bowden GT, Liu A, Klein E, Kolodziejcki PJ, Eissa NT, Hossain CF, Nagle DG. Carbazole Is a Naturally Occurring Inhibitor of Angiogenesis and Inflammation Isolated from Antipsoriatic Coal Tar. *J. Invest. Dermatol.* Apr 13 (2006)
- 25) **Baskaran Govindarajan**, Betsy N Perry, Sulochana S Bhandarkar, Ulla G Knaus, Monika Valo, Celina Sturk, Carol O Carrillo, Allie Sohn, Francesca Cerimele, Dan Dumont, Albert Losken, Joseph Williams, Lawrence F Brown, Xiaolian Tan, Ella Ioffe, George D Yancopoulos and Jack L Arbiser Pharmacologic Blockade of Angiopoietin-2 Is Efficacious against Model Hemangiomas in Mice. *J. Invest. Dermatol.* 1 June (2006)

#### MANUSCRIPTS COMMUNICATED / IN PREPARATION

- 1) S.V. Setzer, G.C. Poole, **Govindarajan B**, D. Sexton, J. Arbiser, C. Cohen. Maspin expression, Angiogenesis, prognostic parameters and outcome in Malignant Melanoma. (*Clinical Cancer Research*)
- 2) **Govindarajan B**, James Sligh, Bethaney Vincent, Richard Rodenberg, Jan Smeitink, Larry Oberley, Yuping Zhang, Joyce Slingerland, Rebecca S Arnold, J David Lambeth, Cynthia Cohen, Lu Hilenski, Kathy Greindling, Jose M. Cuezva, Marta Martínez, Jack L Arbiser Overexpression of akt converts radial growth melanoma to vertical growth melanoma. (*Journal of Biological Chemistry*)
- 3) **Govindarajan B**, Anna Marie Kenney, Neil Watkins, Daniel J Brat, William David Martin, Cynthia Cohen, Andrej Dlugosz, Chunsik Li, Jack L. Arbiser. Collaboration between

dominant negative tuberin and patched (PTCH) in the development of brain tumors in mice. (*Journal of Biological Chemistry*)

- 4) Betsy N. Perry, Cynthia Cohen, **Govindarajan B**, George Cotsonis, Jack L. Arbiser. Expression of Wilms Tumor 1 (WT1) distinguishes nevi from melanoma.
- 5) Jack L. Arbiser, Tweeny Kau, Martha Konar, Ramani Ramchandran, Pamela A. Silver, Jenny Bain, Philip Cohen, David Whitmire, Scott Furness, **Baskaran Govindarajan**, J. Phillip Bowen. Solenopsin, the alkaloidal component of the fire ant (*Solenopsis invicta*), is a naturally occurring inhibitor of Akt
- 6) Kalpana Reddy, Benjamin Lefkove, **Baskaran Govindarajan**, Lan Bo Chen, Michael Owens, Fatima Mechta-Grigoriou, Jack L Arbiser The antidepressant sertraline downregulates Akt and has activity against melanoma cells
- 7) Honokiol inhibits phospholipase D-mediated cellular signaling. Jack L. Arbiser, Kun-Liang Guan, Veronique Noguiera, Nissim Hay, Michael Brownlee, Paraskevi Giannakakou, Daniel Escuin, **Baskaran Govindarajan**, Lawrence Young, Tianqing Zhu, David A. Foster

## ABSTRACTS AND POSTERS PRESENTED IN MEETINGS

### *Oral and poster presentations*

- 15) **Govindarajan B**, Jack L. Arbiser, Tweeny Kau, Martha Konar. Society for Investigative Dermatology, St. Louis, MI, 2005.
- 14) **Govindarajan B**, Shah, Asha, Arbiser, Jack L., Cohen, Cynthia. 66<sup>th</sup> Annual Meeting, Society for Investigative Dermatology, St. Louis, MI, 2005.

### *Poster presentations*

- 15) **Govindarajan B**, Cynthia Cohen, W David Martin, Jack L Arbiser. Collaboration between dominant negative tuberin and p16 deficiency results in development of T cell lymphoma in transgenic mice. Philadelphia Convention centre, Pennsylvania, 2006
- 14) Perry, Betsy, Cohen, Cynthia; **Govindarajan B**, Cotsonis, George, Arbiser, Jack L. Wilms tumor 1 (WT1) expression distinguishes nevi from melanoma. Philadelphia Convention centre, Pennsylvania, 2006
- 13) **Govindarajan B**, Shah, Asha, Arbiser, Jack L., Cohen, Cynthia. 65<sup>th</sup> Annual Meeting, Society for Investigative Dermatology, Rhode Island Convention Centre Providence, RI, 2004.
- 12) Arbiser, Jack L., **Govindarajan B**, Slingerland, Joyce, Arnold, Rebecca S., Lambeth, David J. 65th Annual Meeting, Society for Investigative Dermatology, Rhode Island Convention Center Providence, RI, 2004.
- 11) **Govindarajan B**, Xianhe Bai, Jack L Arbiser. 64<sup>th</sup> International Meeting, Society for Investigative Dermatology, Miami Beach, Florida, 2003.
- 10) **Govindarajan B**, Xianhe Bai, Cynthia Cohen, Marsha Moses, Jack L Arbiser. 63<sup>rd</sup> Annual Meeting, Society for Investigative Dermatology, Los Angeles, California, 2002.
- 9) Jack L. Arbiser, **Govindarajan B**, Xianhe Bai, Hiroaki Onda, Andrius Kazlauskas, So Dug Lim, Mahul B. Amin, Lena Claesson-Welsh. 63<sup>rd</sup> Annual Meeting, Society for Investigative Dermatology, Los Angeles, California, 2002.
- 8) **Govindarajan B**, MS Miller D Kwiatkowski, H Onda, M Nunnally, LF Brown and Jack

L. Arbiser. 62<sup>nd</sup> Annual Meeting, Society for Investigative Dermatology, Washington DC, 2001.

- 7) Robert Klafter, **Govindarajan B**, Larry F. Brown, Marsha Moses, Susan Kilroy, Rebecca S. Arnold, J. David Lambeth, Jack L. Arbiser Proceedings of the American Association of Cancer Research, Vol. 42, New Orleans, 2001.
- 6) **G. Baskaran**, Sumathi R, Varalakshmi P. 3<sup>rd</sup> Intl. Symposium on Atherosclerosis, Thrombosis & Transfusion Medicine, India, 1998.
- 5) H.S. Savithri, **G. Baskaran**, H.S. Venkatesha Murthy, N. Appaji Rao, AH Bittles, D. Kool, E. Edkins. Human Genetics: Diversity and Disease International Conference, Perth, Australia, 1997.