

**Dr.M.Balasubramanyam**  
**Assistant Director & Senior Scientist**  
**Madras Diabetes Research Foundation (MDRF)**  
**Gopalapuarm, Chennai – 600 086, India.**  
*Email: balusignal@gmail.com*

**Qualifications :** MSc., M.Phil., PhD

**Specialization:** Cell Signaling in health and disease & Molecular Medicine with special reference to molecular mechanisms of pathogenesis of diabetes and its complications; Insulin signaling & Proteomics – Epigenetics aspects of diabetes, Unraveling mechanisms of hyperglycemic memory, Redox signaling, Oxidative stress and biomarkers identification; Bioprospecting herbal molecules.

**Positions held in chronological order:**

**2007 to till date:** Assistant Director & Senior Scientist, Madras Diabetes Research Foundation, Chennai, India

**1999 to August 2007:** Senior Scientist, Madras Diabetes Research Foundation, Chennai

**1996-1999:** Faculty, Centre for Biotechnology, Anna University, Chennai

**1993-1996:** Post Doctoral Fellow, American Heart Association Affiliate, New Jersey Medical School, New Jersey, USA

**1991-1993:** Post Doctoral Fellow, Government of India-Scholarship Award, New Jersey Medical School, New Jersey, USA

**1988-1991:** Research Associate (CSIR), S.V.University, Tirupati

**1986-1988:** Senior Research Fellow (CSIR), S.V.University, Tirupati

**1984-1986:** Junior Research Fellow, S.V.University, Tirupati.

**Additional Responsibilities:**

**1999-till date:** Member Secretary, Institutional Ethics Committee, Madras Diabetes Research Foundation

**1999-till date:** Academic Coordinator, MDRF (Training programmes for BSc/BTech; MSc/MTech students; short-term exposure training and end-semester project training)

**Research Experience:**

Possessing > **two decades** of post-MSc research experience since 1983. This includes an extensive Post Doctoral Fellow (PDF) training program (1991-95) at the **University of Medicine and Dentistry of New Jersey (UMDNJ), New Jersey Medical School, New Jersey, USA**, on the subject: “Biochemical machinery and Signal transduction in physiology and pathophysiology”.

**Training at the University of San Diego, USA** on human skeletal muscle/adipose biopsy and insulin signaling profiling.

**Teaching experience:**

15 years of total teaching experience which include teaching assignments at

a) Department of Zoology, S.V.University, Tirupati (1983-1991),

b) Centre of Biotechnology, Anna University, Chennai (1995-1999)

c) MDRF (1999 -till-to-date).

### **Research Grants:**

1993-1995 American Heart Association Fellowship grant (PI)  
1996-1997 Third World Academy of Sciences (TWAS), Italy - Research Grant (PI)  
2002-2005 Department of Science & Technology (DST), New Delhi (PI)  
2002-2007 FIST-DST Grant (Programme Coordinator)  
2003-2006 Department of Biotechnology (DBT) (Co-Investigator)  
2006-2010 Indian Council of Medical Research (ICMR) (Co-Investigator)  
2003-2006 Department of Science & Technology (DST), New Delhi (Co-PI).  
2007-2010 Department of Biotechnology (DBT), New Delhi (PI).

### **PhD students under my supervision at the Cell and Molecular Biology Department of MDRF (affiliated to the University of Madras) working on the following topics:**

- i) Altered signaling in diabetes and its complications with special reference to ion transport, redox imbalance and advanced glycation aspects (Thesis submitted).
- ii) Biochemical markers and molecular mechanisms of Oxidative Stress in Diabetes and its Complications (Thesis submitted).
- iii) Molecular convergence of hexosamine biosynthetic pathway and endoplasmic reticulum (ER) stress in insulin resistance (PhD synopsis submitted)
- iv) Clinical significance of non-alcoholic fatty liver disease (NAFLD) in diabetic patients and fatty-acid induced molecular perturbations in hepatocytes and adipocytes (PhD synopsis submitted)
- v) Glucolipotoxicity induced molecular alterations in insulin secretion and insulin resistance: Role of Gallic acid (PhD synopsis submitted)
- vi) Does oxidation/inflammation impose accelerated cellular senescence in adipocytes and modify their secretory profile and function?
- vii) Exploring novel mechanisms of insulin resistance and Type 2 diabetes using miRNA and RNAi technologies
- viii) Epigenetics and Type 2 diabetes
- ix) Molecular intricacies of endoplasmic reticulum (ER) stress in diabetes

### **Professional Recognition(s):**

- (i) Served as Guest-Editor for a special issue on Diabetes Mellitus in “Current Science” (2002, Vol: 83(12)).
- (ii) Co-organizer of the meetings organized by MDRF including
  - a) Brain Storming session on “Cell transplantation” sponsored by Department of Science & Technology (DST), Govt of India, 2002 at MDRF, Chennai

**Scientific Organising Secretary:** for

b) MDRF-ADA Post-graduate Course in Diabetology 2002

c) MDRF –ADA Post-graduate Course in Diabetology 2004

d) MDRF –ADA Post-graduate Course in Diabetology 2006

(iii) Organising Secretary – Indo-Swedish Symposium on Genomics and Proteomics of Diabetes (April 1-2, 2006)

(iv) Served as Guest-Editor for a special issue on Diabetes Research in “Indian Journal of Medical Research” (Vol 125) 2007.

**Referee for various journals including:**

Molecular and Cellular Biochemistry  
Indian Journal of Experimental Biology  
Current Science  
Indian Journal of Medical Research  
European Journal of Biology  
Diabetes Technology & Therapeutics  
BMC Endocrine disorders  
DRCP

**Scientific Services:**

Member - Task Force committee on Cardio-vascular diseases (CVD) in Department of Biotechnology (DBT), Govt of India

Member – Expert Committee on Clinical Proteomics, Department of Biotechnology, Govt. of India

Member – Life Sciences Research Board (LSRB) under DRDO, New Delhi.

Member – Board of Studies, Biotechnology, Loyola College, Chennai

**Editorial Board Member: Diabetes Technology & Therapeutics**

**Memberships & Research Awards:**

- 1) Elected Member – Madras Science Foundation (MSF), Chennai.
- 2) Elected Member - Asia Pacific International Molecular Biology Network (A-IMBN), 2001
- 3) International Diabetes Society grant to attend 5th IDS Congress, Chennai, 1999
- 4) MABMS award - Membership of the Indian Association of Biomedical Scientists 1999

- 5) Fellow - Indian Association of Biomedical Scientists, 1998
- 6) ICSU/INSA award to attend XIII International Biophysics Congress, New Delhi - 2000
- 7) Third World Academy of Sciences (TWAS, Italy) Associateship award, 1998.
- 8) Young Physiologist Foreign Guest at the Physiological Society meetings, Dublin (Ireland) March 23-26, 1997
- 9) The Wellcome Trust (UK) award for subsistence at the EC School/Conference on Calcium and Signal Transduction (Liverpool, UK, 14-20, March 1997)
- 10) Research Grant award from Third World Academy of Sciences (TWAS), Italy (Principal Investigator), 1996
- 11) International Union of Biochemistry and Molecular Biology (IUBMB, Germany), Young Scientist Travel Fellowship Award for participation in IUBMB Congress 1994, New Delhi, India
- 12) Junior Scientist Award from the Association of Scientists of India Origin in America Inc., (ASIOA), Mississippi, USA, 1993
- 13) American Heart Association (AHA, USA), New Jersey affiliate, Post-doctoral Fellowship Grant (Principal Investigator) (Diabetes Work), 1993-1995
- 14) Government of India sponsored Study abroad PDF scholarship award for Specialized Post doctoral training - New Jersey Medical School, Newark, New Jersey, USA, 1991-1992
- 15) Young Scientist Travel award for participation in the Fifth International Theriological Congress, Rome, Italy - Financed by DST, New Delhi, INDIA & V-ITC, Rome, ITALY, 1989

**Membership of Academies/Research Societies:**

Asia-Pacific International Molecular Biology Network (A-IMBN)  
Member- Madras Science Foundation (MSF)  
Member Indian Biophysics Society (IBS)  
Life member Indian Association of Biomedical Scientists (IABMS)  
Life member Indian Society of Cell Biology (ISCB)  
Life member-European Calcium Society (ECS, Germany)  
Member Alliance for Cell Signaling (AFCS, USA)  
Member Society of Biological Chemists (India) (SBC)  
Member Indian Science Congress Association (ISCA)  
Member Inter Academy of Biomedical Forum – (IABF)

### **Research publications in accredited journals:**

1. **Balasubramanyam, M.**, Adaikalakoteswari, A., sameermahmood, Z. & Mohan, V. Biomarkers of Oxidative Stress: Methods and Measures of Oxidative DNA Damage (COMET Assay) and Telomere Shortening. In: Free Radicals and Antioxidant Protocols (Second Edition, Eds. Rao, M. et al) in the series of Methods in Molecular Biology, The Humana Press Inc. 2008 (In press).
2. **Balasubramanyam, M.** TCF7L2 and Diabetes: a transcription gene with prescription hope? Current Science, 93:613-5, 2007.
3. Srinivasan V, Sandhya N, Sampathkumar R, Farooq S, Mohan V & **Balasubramanyam, M.** Glutamine Fructose-6-phosphate amidotransferase (GFAT) gene expression and activity in patients with Type 2 diabetes: inter-relationships with hyperglycemia and oxidative stress. Clinical Biochemistry, 40:952-7, 2007.
4. Anitha B, Sampathkumar R, **Balasubramanyam M** & Rema, M. Advanced glycation index and its association with severity of diabetic retinopathy in type 2 diabetic subjects. J. Diabetes and its Complications, 2007 (in press).
5. **Balasubramanyam M**, Mohan, V. Diabetes in 2007 – What are the promises & challenges? Indian Journal of Medical Res. 125:195-199, 2007.
6. **Balasubramanyam M**, Adaikalakoteswari, A, Finnymonickaraj, S. Mohan, V. Telomere shortening and metabolic/vascular diseases. Indian Journal of Medical Res. 125: 441-450, 2007.
7. Sundarajan S, Srinivasan, V, **Balasubramanyam M**, Tatu, U. Endoplasmic reticulum (ER) stress and diabetes. Indian Journal of Medical Research. 125: 411-424, 2007.
8. Adaikalakoteswari A, Rema, M, Mohan, V. and **M. Balasubramanyam**. Oxidative DNA damage and augmentation of Poly (ADP-ribose) polymerase/Nuclear Factor-kappa B signaling in patients with Type 2 diabetes and microangiopathy. International Journal of Biochemistry and Cell Biology, 39:1673-84, 2007.
9. Adaikalakoteswari A, **M. Balasubramanyam**, M, Ravikumar, R, Deepa. R. and Mohan, V. Association of telomere shortening with impaired glucose tolerance and diabetic macroangiopathy. Atherosclerosis, 195:83-9, 2007.
10. Sameer, M, **Balasubramanyam, M.** And Mohan, V. Stem cells and diabetes. Current Science, 91(9):1158-1165, 2006
11. **Balasubramanyam, M**, Adaikalakoteswari A, Sampathkumar, R and V. Mohan. Oxidative stress in Asian Indians with Type 2 diabetes. In: **Type 2 diabetes in South Asians: Epidemiology, Risk Factors and Prevention.** Jaypee Brothers, Medical Publishers (P) Ltd., New Delhi, pp 164-172, 2006.

12. Adaikalakoteswari A, **M. Balasubramanyam**, M. Rema and V. Mohan. Differential gene expression of NADPH oxidase (p22phox) and hemoxygenase-1 in patients with type 2 diabetes and microangiopathy. *Diabetic Medicine* 23:666-674, 2006.
13. **Balasubramanyam M.** Antioxidants and cardiovascular disease- Where do we stand? *The Asian Journal of Diabetology*, 8(1): 1-5, 2006
14. Premanand C, Rema M, Sameer Mahmood Z, Sujatha M, **Balasubramanyam M.** Effect of curcumin on proliferation of human retinal endothelial cells under invitro conditions. *Invest Ophthalmol Vis Sci.* 47:2179–2184, 2006.
15. Sampathkumar R, **Balasubramanaym M**, C.Tara, M.Rem, V.Mohan. Association of hypoglutathionemia with reduced  $\text{Na}^+/\text{K}^+$  ATPase activity in type 2 diabetes and microangiopathy. *Mol. Cell. Biochem*, 282 (1-2):169-76, 2006.
16. Sampathkumar R, **Balasubramanyam M**, Sudarslal S, Rema M, Mohan V and Balaram P. Increased glutathionylated hemoglobin (HbSSG) in type 2 diabetes subjects with microangiopathy. *Clinical Biochemistry*, 38(10):892-9, 2005.
17. Adaikalakoteswari A, **Balasubramanyam M** and Mohan V. Telomere shortening in patients with Type 2 diabetes. *Diabetic Medicine*, 22, 1151–1156, 2005.
18. **Balasubramanyam M**, Sampathkumar R and Mohan V. (2005) Is insulin signaling molecules misguided in diabetes for ubiquitin-proteasome degradation? *Mol. Cell. Biochem*, 275: 117–125, 2005.
19. **Balasubramanyam M** Transforming ‘traditional anecdotes’ to ‘evidence-based medicine’ and its relation to diabetes. *Current Science*, 89(3); 428, 2005
20. Mohan V, **Balasubramanyam M**, Radha V. Genomics and Proteomics of Type 2 Diabetes in Indians. *J Assoc Physicians India*, 53: 505-509, 2005.
21. Sampathkumar R, **Balasubramayam M**, Rema M, et al. A novel advanced glycation index (AGI) and its association with diabetes and microangiopathy. *Metabolism*, 58: 1004-1007, 2005.
22. **Balasubramanyam M**, Adaikalakoteswari A & Mohan V. Telomere shortening: A marker of atherosclerosis? *Current Science*, 87, 422-24, 2004.
23. **Balasubramanyam M** and Mohan V. (2004) Insulin signaling in Diabetes: Cascades and Complexities. *Advanced Biotech.* 2: 24-27, 2004.
24. **Balasubramanyam M**, Adaikalakoteswari A, Sampathkumar R et al. Curcumin-induced inhibition of cellular Reactive Oxygen Species (ROS) generation: Novel therapeutic implications. *J. Biosci*, 28: 715-721, 2003.

25. BrijendraKumar S, **Balasubramanyam M** & Mohan V. Scientific highlights of the MDRF-ADA post-graduate course in Diabetology. *Int J Diab Dev Countries*, 23:135-144, 2003.
26. **Balasubramanyam M**, Rema M & Premanand C. Biochemical and Molecular Mechanisms of Diabetic retinopathy. *Current Science*, 83: 1506 -14, 2002.
27. **Balasubramanyam M**, Premanand C & Mohan V. Lymphocytes as a cellular model to study insights into the pathophysiology of diabetes and its complications. *ANYAS - Annals of New York Academy of Sciences*, 958:399-402, 2002.
28. **Balasubramanyam M** & Mohan V. The need for high throughput screening of herbal medicine with special reference to diabetes mellitus. In: *Biodiversity (monitoring, management, conservation and enhancement)* Ramamurthy, R. & Bali, G (Eds), pp. 57-74, 2002.
29. **Balasubramanyam M** & Mohan V. Orally active insulin mimics: where do we stand now? *J. Biosciences*, 26:383-390, 2001.
30. Mohan, V & **Balasubramanyam, M**, (2001) Fenugreek and insulin resistance. *J. Assoc. Phys. India*, 49: 1055-6.
31. **Balasubramanyam M**, Balaji RA, Subashini B & Mohan V. Evidence for mechanistic alterations of Ca<sup>2+</sup> homeostasis in Type 2 diabetes mellitus. *Int. J. Experimental Diab Res*, 1: 275-287, 2001.
32. **Balasubramanyam M** & Mohan V. Current concepts of PPAR-g signaling in Diabetes mellitus. *Current Science*, 79:1440-1446, 2000.
33. **Balasubramanyam M** & Mohan V. Signal transduction during cardiac hypertrophy: New insights. *Indian Heart J*, 52:226-232, 2000.
34. **Balasubramanyam M**, Miranda P & Mohan V. Carbohydrate metabolism and diabetes: Links to etiology of diabetic complications and therapy. VI Volume of "The Trends in Carbohydrate Chemistry" , 2000.
35. **Balasubramanyam M**. Calcium and Signal transduction. *Indian Journal of Experimental Biology*, 35:1138-1139, 1997.
36. Cho JH, **Balasubramanyam M**, Chernaya G, Gardner et al. Oligomycin inhibits store-dependent calcium influx in chinese hamster ovary cells and Jurkat T-cells. *Biochemical Journal*, 324:971-980, 1997.
37. Gardner JP, **Balasubramanyam M** & Studzinski GP. Up-regulation of Ca<sup>2+</sup> influx mediated by store-operated channels in HL60 cells induced to differentiate by 1 $\alpha$ , 25-dihydroxy-vitamin D<sub>3</sub>. *Journal of Cellular Physiology*, 172:284-295, 1997.

38. Gardner JP & **Balasubramanyam M.**  $\text{Na}^+/\text{Ca}^{2+}$  exchange in circulating blood cells. *Annals of New York Academy of Sciences*, 779:502-514, 1996.
39. Dang AM, **Balasubramanyam M**, Zenaida Garcia, Raveche ES & Gardner JP. Altered signal transduction in B-1 malignant clones. *Immunology and Cell Biology*, 73:511-520, 1995.
40. **Balasubramanyam M** & Gardner JP. Protein kinase C modulates cytosolic free calcium by stimulating calcium pump activity in Jurkat T cells. *Cell Calcium*, 18:526-541, 1995.
41. **Balasubramanyam M**, Rohowsky-Cochan C, Reeves JP and Gardner JP.  $\text{Na}^+/\text{Ca}^{2+}$  exchange-mediated calcium entry in human peripheral blood lymphocytes. *Journal of Clinical Investigation*, 94:2002-2008, 1994.
42. **Balasubramanyam M**, Kimura M, Aviv A & Gardner, JP. Kinetics of calcium transport across the lymphocyte plasma membrane. *American Journal of Physiology*, 265:C321-C327, 1993.

**Oral/poster presentations at International/National Conference:**

1. Sampathkumar R, **Balasubramanyam M**, Rema M & Mohan V. Association of hypoglutathionemia with reduced  $\text{Na}^+/\text{K}^+$  ATPase Activity in type 2 diabetes and microangiopathy. Annual meeting of Indian Eye Research Group, Hyderabad, India, 2005.
2. Rema M, Premanand C, Sameer Mahmood Z, Anitha D & **Balasubramanyam M**. Inhibitory effect of curcumin on human retinal endothelial cell proliferation. 2004 Annual meeting of Association of Research in Vision and Ophthalmology (ARVO), Florida, USA, 2004.
3. Sampathkumar R, **Balasubramanyam M** et al. Identification of elevated glutathionyl hemoglobin (HbSSG) in patients with Type 2 diabetes: an indicator of altered redox signaling? 64th Scientific Sessions of the American Diabetes Association, Orlando, USA, 2004.
4. AdaikalaKoteswari A, **Balasubramanyam M** et al. Short telomeres in patients with Type 2 diabetes: an indicator of increased oxidative stress? 64th Scientific Sessions of the American Diabetes Association, Orlando, USA, 2004.
5. AdaikalaKoteswari A, **Balasubramanyam M**, Sampathkumar R, Premanand C & Mohan V. Increased Lipid Peroxidation in the Natural History of Diabetes: A Population Based Assessment. 18th International Diabetes Federation Congress, Paris, 2003.
6. Sampathkumar R, **Balasubramanyam M**, AdaikalaKoteswari A, Premanand C, & Mohan V. A Simple method of clinical utility to assess advanced glycation in

diabetes and its complications. 63rd Scientific Sessions of the American Diabetes Association, New Orleans, USA, 2003.

7. **Balasubramanyam M**, Premanand C, Sampathkumar R, AdaikalaKoteswari A & Mohan V. Glitazone modulation of cellular ion fluxes: novel mechanisms for their anti-inflammatory and vascular effects. 63rd Scientific Sessions of the American Diabetes Association, New Orleans, USA, 2003.
8. **Balasubramanyam M**, Premanand C, Sampathkumar R, & Mohan V. Rosiglitazone and troglitazone protect against oxidative stress: possible role of store operated Ca<sup>2+</sup> fluxes. 62nd Scientific sessions, P-1845, Sanfrancisco, USA, 2002.
9. **Balasubramanyam M** & Mohan V. Signal transduction network and drug targets. International Society for Heart Research (ISHR), SCTIMST, Trivandrum, 2002.
10. **Balasubramanyam M**, Premanand C & Mohan V. Increased reactive oxygen species (ROS) load in cells from Type 2 diabetes patients: role of cell calcium. XXV All India Cell Biology Conference, Indian Institute of Science, Bangalore, 2001.
11. **Balasubramanyam M**, Premanand C & Mohan V. Rosiglitazone inhibits reactive oxygen species (ROS) load: Ca<sup>2+</sup>-dependent and PKC-independent mechanisms. XXV All India Cell Biology Conference, Indian Institute of Science, Bangalore, 2001.
12. **Balasubramanyam M**, Sitalaximi T, Premanand C, Gautam P & Mohan V. XXV All India Cell Biology Conference, Indian Institute of Science, Bangalore, 2001.
13. **Balasubramanyam M** & Mohan V. The need for a Technology Mission to test, develop and validate herbal drugs for diabetes mellitus. IABMS meeting on World Health Day, IBMS, Taramani, Chennai, 2001.
14. **Balasubramanyam M**, Premanand C & Mohan V. Lymphocytes as a cellular model to study insights into the pathophysiology of diabetes and its complications. 5th International Congress of the Immunology of Diabetes Society, Chennai, India, 2001.
15. **Balasubramanyam M**, Premanand C & Mohan V. Altered Ca<sup>2+</sup> transport and signal transduction in diabetes mellitus, 3rd Asia-Pacific IMBN Conference & International Congress on Cell and Differentiation Biology, Australia., 2000.
16. **Balasubramanyam M**, Anjali V & Mohan V. Altered store-operated Ca<sup>2+</sup> entry in cells from NIDDM: possible reversal by *Withania somnifera*. XIII International Biophysics Congress, New Delhi, 1999.
17. **Balasubramanyam M**, Balaji A and Mohan V. Evidence for mechanistic alteration of Ca<sup>2+</sup> homeostasis in NIDDM. Symposium on: Membranes, Sensors and Cell surfaces, CCMB, Hyderabad, 1999.

18. **Balasubramanyam M** & Mohan V. The need for high throughput screening of medicinal plants with special reference to diabetes mellitus. Brain storming colloquium on: Biodiversity monitoring, conservation and management- a need for a national agenda to meet the challenges of the next millenium. Sri Venkateswara University, Tirupati. (Invited talk), 1999.
19. **Balasubramanyam M.** State-of-the art of studying cell calcium. XXII All India Cell Biology Conference, Rajiv Gandhi Center for Biotechnology, Trivandrum. (Invited talk). 1999.
20. **Balasubramanyam, M.** Calcium regulation and signaling in lymphocytes. Symposium on: Signal transduction in Biology, January 4-5, 1999, Cancer Research Center, Mumbai, 1999.
21. **Balasubramanyam, M,** Sridevi, B and Kunthala Jayaraman. Ca<sup>2+</sup> permeability in the mode of action of entomocidal d-endotoxins of *Bacillus thuringiensis*. 67th Annual Meeting of Society of Biological Chemists, Jawaharlal Nehru University, New Delhi, 1998.
22. **Balasubramanyam M.** Calcium messengers system regulation and signaling in lymphocytes. 24th Annual Conference of Indian Immunology Society , Science City, Calcutta (Invited talk) , 1997.
23. **Balasubramanyam M,** Subashini B, Santhosh M and Mohan V. Modified calcium signals in lymphocytes from non-insulin-dependent diabetes mellitus. 66th Annual meeting of the Society of Biological Chemists, Andhra University, Visakhapatnam. 1997.
24. **Balasubramanyam M** and Gardner JP. Lymphocyte calcium homeostasis: a cellular model for studying physiology and pathophysiology. Physiological Society Meeting, Dublin, Ireland, 1997.
25. **Balasubramanyam M,** Condrescu M, Reeves JP & Gardner JP. Evidence for Na/Ca exchange in certain non-excitabile cell lines. Pflugers Archiv Conference on "Calcium and Signal Transduction", Liverpool, UK, 1997
26. **Balasubramanyam, M.** Thapsigargin, a novel molecular probe for studying intracellular ionic movements. 65th Annual Meeting of the Society of Biological Chemists, Indian Institute of Science, Bangalore, 1996.
27. **Balasubramanyam M** & Kunthala J. Ion channel basis for the mode of action of entomocidal endotoxins of *Bacillus thuringiensis* - an overview. 65th Annual Meeting of the Society of Biological Chemists, Indian Institute of Science, Bangalore, 1996.
28. **Balasubramanyam M.** Calcium regulation and signaling in lymphocytes. TIFR Golden Jubilee symposium on the "Present and Future of major aspects of Modern Biology. NCBS, Bangalore, India, 1996.

29. Gardner JP, **Balasubramanyam M** & Studzinski GP. 1, 25-dihydroxycholecalciferol (1, 25-(OH) 2D3) reduces intracellular calcium stores and enhances store-dependent calcium influx (SDCI) in HL-60 cells. Biophysical Meeting, Baltimore, Maryland, USA, 1996.
30. Gardner JP & **Balasubramanyam M**. Increased cytosolic free calcium (Cai), Ca mobilization and Ca turnover rate in Jurkat T lymphocytes. Experimental Biology'94, Anaheim, California, USA, 1994.
31. **Balasubramanyam M** & Gardner JP. Na/Ca exchange-mediated calcium entry in human lymphocytes. IUBMB Congress, New Delhi (attended through young scientist award by International Union of Biochemistry and Molecular Biology (IUBMB, Germany) 1994.

**Short-term Projects Guided (M.Sc/M.Tech/B.Sc/B.Tech Level):**

- 1) A Study on lipid peroxidation in diabetes and antioxidant effects of “Curcumin”
- 2) Reactive Oxygen Species (ROS) in the Co-morbidity of Diabetes Mellitus and Periodontitis.
- 3) Effect of Glitazones on T-Cell Activation and Proliferation
- 4) Leukocyte count, Insulin Resistance and Type 2 diabetes
- 5) Oxidative stress in diabetes and antioxidant mechanisms of Curcumin
- 6) Urinary Advanced Glycation end Products and diabetic nephropathy
- 7) Association of TNF- $\alpha$  With Diabetes
- 8) Oxidative Stress in Type 2 Diabetes: An In vitro Comet-based Assessment
- 9) Association of Glutathione Depletion and Na<sup>+</sup>/K<sup>+</sup> ATPase Impairment in Type 2 Diabetes Mellitus
- 10) Redox imbalance in fasting and post prandial hyperglycemia
- 11) GFAT activity and the role of oxidative stress in type 2 diabetes subjects
- 12) Post-Prandial Oxidative Stress in Type 2 Diabetes
- 13) Protection Against oxidative stress and molecular effects of Gallic Acid in Human Monocytes
- 14) Role of Insulin and Insulin Sensitizers Beyond Glucose Control: Differential Antioxidant Effects

- 15) Increased Myeloperoxidase Activity And Oxidative Damage In Type 2 Diabetes Patients.
- 16) An analysis of clinical and biochemical characteristics of diabetic patients with and without periodontitis
- 17) Molecular Insights of Antioxidant and Anti-inflammatory actions of Estradiol
- 18) Reactive Oxygen Species (ROS) Generation and Beneficial molecular actions of Gallic Acid
- 19) Altered Molecular Signatures of Adiponectin and Oxidative stress in 3T3-L1 Adipocytes under Glucolipotoxicity
- 20) Oxidative Stress and telomere length alterations in pre-menopause women without and with Type 2 Diabetes
- 21) Elucidation of a protective role of nutrient sensing hexosamine biosynthetic pathway in L6 skeletal muscle cells.
- 22) Biochemical and Molecular Markers of Oxidative Stress in Type 2 Diabetic Subjects with and without Periodontal Disease