

Curriculum Vitae

G. BHANUPRAKASH REDDY

Scientist-E & Head
Department of Ocular Biochemistry
National Institute of Nutrition
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Date of Birth: April 27, 1967

Education

B.Sc. (Biol & Chem): Osmania University, 1988, I Division
M.Sc. (Biochemistry): Osmania University, 1990, I Division
Ph.D. (Biochemistry): Osmania University, 1996

Postdoctoral Training

1996-1998: DBT-Postdoctoral Fellow, Molecular Biophysics Unit, Indian Institute of Science, Bangalore, India

1998-2000: Research Associate, Case Western Reserve University, Cleveland (USA).

Research Interests: Nutrigenomics of age-related diseases- Major thrust is to investigate molecular basis, assess nutritional status, and evaluate beneficial effects of functional foods, identification of susceptible (genetic, nutritional and environmental) factors of age-related and life-style disorders. The ultimate goal is to develop preventive and therapeutic strategies by nutritional, dietary means for age-related and lifestyle disorders.

Positions Held

2009- : Scientist-E & Head, Ocular Biochemistry, National Institute of Nutrition, Hyderabad

2005- 2009: Scientist-D & Group Leader, National Institute of Nutrition, Hyderabad

2000- 2005: Senior Research Officer, National Institute of Nutrition, Hyderabad

Visiting Appointments

August-October 2007: DBT-Overseas Associate at the University of Michigan, USA

September 2005-February 2006: ICMR-International Fellow at the University of Michigan, USA

April-July, 2003: Visiting Scientist at University of Michigan, USA.

Honors/Awards

- Fellow, Andhra Pradesh Akademi of Sciences, India – 2012
- ICMR-Basanti Devi Amir Chand Prize – 2010
- Scopus India Young Scientist Award (Medicine) – 2008
- Research to Prevent Blindness (USA)-International Research Scholars Award - 2007
- DBT-Associateship for Young Scientists in Niche Areas of Biotechnology-2006-07
- Prof. B. K. Bachhawat International Travel Grant for Young Scientist-2007
- ICMR Award for Excellent Research Output - 2006
- Fellow, National Academy of Sciences, India - 2006
- ICMR International Fellow – 2005
- ICMR Dr. V. N. Patwardhan Prize – 2002
- Young Scientist Award, Nutrition Society of India – 1994
- Young Scientist Award Fellowship to attend 16th IUBMB Congress – 1994
- Young Scientist Awards to four PhD theses (Drs. M. Satish Kumar, P. Anil Kumar, PNBS Srinivas and P. Muthenna) by Dr. K. V. Rao Scientific Society

Membership in Professional Bodies

- Executive Member (2008-12) & Life Member, Nutrition Society of India
- Society of Biological Chemists, India (Life Member)
- Indian Pharmacological Society
- American Society for Biochemistry and Molecular Biology
- Association for Research in Vision and Ophthalmology (ARVO)
- Indian Eye Research Group, ARVO-India Chapter

Membership in Professional Committees

- Member, Research Advisory Committee, KIMS Foundation and Research Center, Hyderabad (2013-)
- Member, Advisory Group, South Asia Centre for Disability Inclusive Development and Research, Indian Institute of Public Health, Hyderabad (2011-)
- Subject Expert, Selection Committee for recruitment of faculty (Biochemistry), Osmania University, Hyderabad (2012)
- Subject Expert, Assessment Committee for promotion of faculty, Jawaharlal Nehru Technological University, Hyderabad (2011)
- Member, Institutional Review Board, Indian Institute of Public Health, Hyderabad (2011-)
- Member, Institutional Animal Ethics Committee, National Institute of Nutrition (2008-)
- Member, Board of Studies in Biochemistry, Osmania University (2009-)
- Member, Board of Studies in Nutrition, Osmania University (2011-)
- Member, Institutional Animal Ethics Committee, Osmania University (2006-11)

Editorial & Peer Reviewing Services

- *Guest Editor: Reviews in Endocrinology & Metabolism (Edited an issue on Metabolic syndrome and nutrition)*
- *Editorial Board Member: J Biophys Struct Biol*
- *Reviewer for scientific journals: Arch Biochem Biophys, Arch Med Res, Biochem Biophys Acta, Biochem J, Biochemistr, Br J Nutr, Clin Chem Lab Med, Curr Mol*

Med, Curr Sci, Diabetes, Exp Diab Res, Exp Eye Res, Food Chem, FEBS Letts, Indian J Biochem Biophys, Indian J Exp Biol, Indian J Ophthalmol, Invest Ophthalmol Vis Sci, J Diabetes Complications, Metabolism, Mol Vis, Nutrition, Plant Food Human Nutr, PLoS One

- **Grant reviewer:**

*Medical Research Council (London)
British Council of Prevention of Blindness
Council for Scientific and Industrial Research
Department of Biotechnology
Department of Science and Technology
Indian Council of Medical Research
Life Sciences Research Board (DRDO)*

Research Grants

Principal Investigator:

- **Indo-EU 7th FP Collaborative project on FUNCFOOD;** Title: Impact of agents with potential use in functional foods on biomarkers for induction of age related diseases; *Funding Agency: Department of Biotechnology (BT/IN/EU/17/SN/2009); Funding period: 2010-2014*
- **Indo-US Collaborative Program in Vision Research;** Title: Characterization of retinal degeneration in an obese rat model. *Funding Agency: DBT; Funding Period: 2010-2013*
- Characterization of active principles and mechanism of action of aldose reductase inhibitors and antiglycating agents from dietary sources. *Funding agency: Life Sciences Research Board (DLS/81/48222/LSRB-217/FSB/2010); Funding Period: 2010-2013*
- Diabetic retinopathy: Role of micronutrients. *Funding Agency: DST; Period: 2009-2012*
- Transcriptome and proteome analysis of ALR2 and its involvement in diabetic retinopathy- **(Multicentric Study with Arvind Medical Foundation, Madurai)**. *Funding Agency: Department of Biotechnology (BT/PR9299/BRB/10/549/2007); Funding Period: 2009-2012*
- Biochemical and molecular basis of type-2 diabetes-induced cataract and retinopathy: Evaluation of a suitable animal model and role of dietary agents. *Funding Agency: Department of Science & Technology (SR/SO/HS-01/2007); Funding Period: 2007-20010*
- Biochemical, molecular and nutritional aspects of cataract and retinal degeneration. *Funding Agency: Indian Council of Medical Research- Excellent Research Output Grant Funding Period: 2007-2010 (No. 2/2/2003-Admn.II; Dt: 27-02-2007)*
- Characterization of cataractogenesis in WNIN-Obese mutant rats. *Funding Agency: Indian Council of Medical Research- Flagship Project; Funding Period: 2005-2009*
- Characterization of a novel fatty acid elongase, Elovl4, of the eye lens. *Funding Agency: Department of Biotechnology (BT/PR5058/BRB/10/367/2004); Funding Period: 2005-2008*
- Importance of α -crystallin heteropolymer in the eye lens: chaperone-like activity and associated physicochemical properties. *Funding Agency: Department of Science & Technology (SR/FT/L-05/2004); Funding Period: 2004-2007; DST-Fast Track Project*
- Molecular chaperone function of α -crystallin under hyperglycemic conditions: Modulation by aldose reductase inhibitors and antiglycating agents. *Funding: DST; Period: 2004-2007*
- Screening and testing of aldose reductase inhibitors and antiglycating agents from dietary sources. *Funding Agency: Life Sciences Research Board-DRDO; Funding Period: 2003-2006*

Co-Investigator

- Assessment of subclinical micronutrients status and non-communicable diseases of urban geriatric population: A population based cross-sectional study. Funding Agency: DST
- Proteasome inhibitory potential of cinnamon extract in prostate cancer: In vitro and in vivo studies. *Funding Agency: DBT (BT/PR6197/FNS/20/698/2012); Duration: 2013-16*
- The effect of clarified butter oil (ghee) on inflammation and insulin sensitivity in diet-insulin resistance and diabetic murine models. *Funding: DBT; Period: 2013-2016*
- Childhood obesity in India: A multicenter study on its measurements and determinants Funding Agency: ICMR-Taskforce study; Funding period: 2011-13
- Pre-diabetes induced retinopathy: Biochemical and molecular mechanisms and intervention by dietary agents. *Department of Biotechnology; Funding period: 2012-2015*
- Biological monitoring of advanced glycation endproducts (AGE) of protein in human sample: prospective role of antiglycating dietary agents in case of diabetic complications. *Funding Agency: University Grants Commission; Funding period: 2012-2015*
- Development of tools to identify and map IgE binding epitopes using synthetic peptides *Funding Agency: Department of Biotechnology; Funding Period: 2012-2015*
- A potential role for aldose reductase in cancer drug resistance and use of aldose reductase inhibitors as adjuvants during anticancer drug therapy. *Funding Agency:2009-12*
- Evaluation of genetic susceptibility to age related cataracts with reference to genes related to oxidative stress (Department of Biotechnology; 2005-2008)

Research Supervisor/ Mentor/ Training/ Teaching

Graduate students in Biochemistry/ Nutrition

- Eight (CSIR/UGC/DST/ICMR) research fellows are currently registered for doctoral studies

Past Research Students:

- Madhoosudan A Patil, submitted PhD thesis to Osmania University, March 2014 (Currently Postdoctoral Fellow at Colorado University, Colorado, USA)
- P. Muthenna PhD awarded by Osmania University, September 2013 (Currently Faculty, Shathavahana University, Karimnagar)
- P. Yadagiri Reddy PhD awarded by Osmania University, October 2012 (Currently, Staff, National Institute of Nutrition)
- A. Satyanarayana, ICMR Fellow, PhD awarded by Osmania University, August 2012 (Currently Postdoctoral Fellow at Kansas University, Kansas City, USA)
- T. Mrudula, APNLB Fellow, PhD awarded by Osmania University, October 2010 (Currently Postdoctoral Fellow at the National Brain Research Center, Manesar, New Delhi)
- PNBS Srinivas, DBT-SRF, PhD awarded by Osmania University, August 2010 (Currently Postdoctoral Fellow at Boston University, Boston, USA)
- Megha Saraswat, ICMR Fellow, PhD awarded by Osmania University, October 2009 (Currently Grant Manager with DBT-Wellcome Trust Alliance)
- P. Anil Kumar, CSIR Fellow, PhD awarded by Osmania University, March 2008 (Currently DST-INSIRE Faculty, Department of Biochemistry, Osmania University)
- M. S. Moghaddam, PhD awarded by University of Pune, March 2005 (Co-Guide) (Currently Faculty Member at University of Pyan Noor, Iran)
- M. Satish Kumar, CSIR Fellow, PhD awarded by Osmania University, April 2005 (Currently Assistant Professor at the Cincinnati Children's Hospital , USA)

Scientists and Postdoctoral fellows supervised

- Dr. P. Suryanarayana, Scientist-E
- Dr. N. Saravanan, Scientist-B
- Dr. P. Anil Kumar, DST-INSPIRE Faculty
- Dr. S. Srinivasa Reddy, DST-Fast Track (Young) Scientist
- Dr. G. Raghu, Research Associate

MSc by thesis

- Ms. B. Binasha, MSc (Applied Nutrition), National Institute of Nutrition (NTR Health University), Hyderabad, 2013
- Ms. Preskshi Srivastava, MSc (Applied Nutrition), National Institute of Nutrition (NTR Health University), Hyderabad, 2013
- Mr. S. Chennakhesava Reddy, MSc (Pharmacology), National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, 2012-13
- Mr. M. Nagamani, Integrated MSc (Optometry & Vision Sci), School of Medical Sciences, Hyderabad University, Hyderabad, 2012-13
- Mr. M. Sudarshan, MSc (Applied Nutrition), National Institute of Nutrition (NTR Health University), Hyderabad, 2012
- Ms. Nilanja Pal, MSc (Applied Nutrition), National Institute of Nutrition (NTR Health University), Hyderabad, 2011
- Mr. G. Mahesh Kumar, MSc (Pharmacology), National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, 2010-11
- Mr. Prashanth Kumar, MSc (Pharmacology), National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, 2009-10
- Ms. Akileshwari, MSc (Biotechnology), Jawaharlal Nehru Technological University, Hyderabad, 2009
- Ms. P. Swathichitra, MSc (Nutrition), Avinashilingam Institute for Home Science and Higher Education for Women. Coimbatore, 2006
- Ms. Sapna V. Iyer, MSc (Biotechnology) Mumbai University, Mumbai, 2005
- Ms. I. Srivalli, MSc (Applied Nutrition), National Institute of Nutrition, Hyderabad, 2002

Trainees; Trained about 40 (MSc/ BSc students in Biochemistry/ Biotechnology/ Nutrition) students for project work and summer training including the candidates sponsored by **Indian Academy of Sciences**.

Teaching

- To participants of M. Sc. (Applied Nutrition) at National Institute of Nutrition
- PG Certificate Course (Nutrition) at National Institute of Nutrition
- To participants of Certificate Course in Endocrinology.
- To participants of Animal House Training Courses.
- To pre-PhD. (Biochemistry) students at Osmania University.

PUBLICATIONS

Number	Citations	h-index	i10-index
97	2560	31	61

1. MA. Patil, P. Suryanarayana, PU. Kumar. M. Srinivas, **GB. Reddy** (2014) Evaluation of neonatal streptozotocin-induced diabetic rat model for the development of cataract. *Oxidative Med Cellular Longevity* (Accepted)
2. S. Ovais, H. Pushpalatha, **GB Reddy**, P. Rathore, R. Bashir, S. Yaseen, A. Dheyaa, R. Yaseen, O. Prakash, M. Akthar, M. Samim, K. Javed (2014). Synthesis and biological evaluation of some new pyrazoline substituted benzenesulfonylurea/thiourea derivatives as anti-hyperglycaemic agents and aldose reductase inhibitors. *Eur J Med Chem* (in press)
3. S Shrivastava, P Kulkarni, D Thummuri, MK Jeengar, VGM. Naidu, M Alvala, **GB Reddy**, S Ramakrishna (2014) Piperlongumine, an alkaloid causes inhibition of PI3 K/Akt/mTOR signaling axis to induce caspase-dependent apoptosis in human triple-negative breast cancer cells. *Apoptosis* (in press)
4. Venkanna A, Siva B, Poornima B, Rao Vadaparathi PR, Prasad KR, Reddy KA, **Reddy GB**, Babu KS (2014) Phytochemical investigation of sesquiterpenes from the fruits of *Schisandra chinensis* and their cytotoxic activity. *Fitoterapia*. Mar 13 [Epub]
5. VS Reddy, CU Kumar and **GB Reddy** (2014) Effect of chronic hyperglycemia on crystallin levels in rat lens. *Biochem Biophys Res Commun* **446**:602-607.
6. C. Akileshwari , G. Raghu, P. Muthenna, P. Suryanaryana, N. H. Mueller, J. M. Petrash, and **GB. Reddy** (2014). Bioflavonoid ellagic acid inhibits aldose reductase: implications for prevention of diabetic complications. *J Func Foods* **6**: 374-383.
7. VS Reddy, G Raghu, SS Reddy, AK Pasupulati, P Suryanarayana and **GB Reddy** (2013). Response of small heat shock proteins in diabetic rat retina. *Invest Ophthalmol Vis Sci* **54**:7674-82
8. **GB. Reddy**, A. Satyanarayana, N. Balakrishna, M. Sivaprasad, PY. Reddy, P. Lopamudra, P. Suryanarayana, K.Viswanath, R. Ayyagari (2013) Micronutrient status in diabetic retinopathy. *Annals Nutr Metab* **63**: 1455.
9. P. Muthenna, G. Raghu, C. Akileshwari, S. N. Sinha, P. Suryanarayana and **GB. Reddy** (2013). Inhibition of protein glycation by procyanidin-B2 fraction of cinnamon: Delay of diabetic cataract in rats. *IUBMB Life*. **65**:941-50
10. C.N. Grama, P. Suryanarayana, MA. Patil, G. Raghu, N. Balakrishna, MNV. Ravi Kumar and **GB. Reddy** (2013) Efficacy of biodegradable curcumin nanoparticles in delaying cataract in diabetic rat model. *PLoS One* 8(10): e78217.
11. Pasupulati AK, **Reddy GB** (2013). Nutrition & metabolic syndrome. *Rev Endocr Metab Disord*. **14**:217
12. Kumar PA, Chitra PS, **Reddy GB** (2013). Metabolic syndrome and associated chronic kidney diseases: Nutritional interventions. *Rev Endocr Metab Disord*. **14**:273-86.
13. S. Rajkumar, A. Ragukanth Vasavada, M. R. Praveen, R. Ananthan, **GB. Reddy**, H. Tripathi (2013) Exploration of molecular and physiological factors impairing superoxide dismutase (SOD) isoforms activity in human senile cataractous lenses. *Invest Ophthalmol Vis Sci*. **54**:6224-6233.
14. Uma Rani P, Rushendhiran K, Raghu G, Avaneesh T, Kumar PU, **Reddy GB** and Dixit M (2013) Ellagic acid inhibits PDGF-BB induced vascular smooth muscle cell proliferation and prevents atheroma formation in streptozotocin-induced diabetic rats. *J Nutr Biochem*. **24**:1830-39

15. PY. Reddy, R. Pullakhandan, NV. Giridharan and **GB. Reddy** (2013) Increased risk of cataract development in WNIN Obese rats due to accumulation of intra-lenticular sorbitol. *IUBMB Life*. **65**:472-78
16. M. Balakumar, N. Saravanan, D. Prabhu, BS. Regin, **GB. Reddy**, V. Mohan, M. Rema, M. Balasubramanyam (2013). Benefits of early glycemic control by insulin on sensory neuropathy and cataract in diabetic rats. *Indian J Exp Biol* **51**:56-64
17. M. Tiruvalluru, P. Ananthathmakula, V Ayyalasomayajula, G. Nappanveetil, R. Ayyagari, **GB Reddy** (2013) Vitamin A supplementation ameliorates obesity associated retinal degeneration in WNIN/Ob rats. *Nutrition*, **29**: 298-304
18. C. Cukras, T. Gaasterland, P. Lee, HV. Gudiseva, VRM. Chavali, R. Pullakhandam, B. Maranhao, L. Edsall, S. Soares, **GB. Reddy**, PA. Sieving, R. Ayyagari. Exome analysis identified a novel mutation in the RBP4 gene in a consanguineous pedigree with retinal dystrophy and developmental abnormalities. *PLoS One*.2012; **7**:e50205.
19. R. Pullakhandam, R. Palika, S. Ghosh, **GB. Reddy** (2012). Contrasting effects of type 2 and 1 diabetes on plasma RBP4 levels: The significance of transthyretin. *IUBMB Life*. **64**:975-82
20. C. Akileshwari, P. Muthenna, B. Nastasijević, G. Joksić, J. M. Petrash and **GB Reddy** (2012) Inhibition of aldose reductase by *Gentiana* extracts. *Exp Diab Res* **2012**: Article ID 147965
21. VRS. Rao, P. Muthenna, C. Akileswari, G. Shankaraiah, KH. Babu, KS Babu, RSC. Kumar, KP. Prasad, PAYadav, **GB Reddy***, JM. Rao (2012) Synthesis and biological evaluation of new piplartine analogues as potent aldose reductase inhibitors. *Eur J Med Chem* **57**: 344-361.
22. R. Sireesha, S.G. Bhagyalaxmi, M. Mamata, P. Y. Reddy, P. U. Goud, P. V. Rao, **G. B. Reddy**, S. Vishnupriya, T. Padma (2012) Total activity of glutathione-S-transferase (GST) and polymorphisms of *GSTM1* and *GSTT1* genes conferring risk for the development of age related cataracts. *Exp Eye Res* **98**: 67-74.
23. P. Muthenna, J. Ponder, **G. B. Reddy**, J. M. Petrash, and D. V. LaBarbera (2012) The isolation and characterization of β -glucogallin as a novel aldose reductase inhibitor from *Emblica officinalis*. *PLoS One* **7**: e31399. doi:10.1371/journal.pone.0031399
24. PY. Reddy, NV. Giridharan, **GB Reddy** (2012) Activation of sorbitol pathway in metabolic syndrome and increased susceptibility to cataract in WNIN-Obese rats. *Mol Vis*. **18**: 495-503.
25. P. Muthenna, C. Akileshwari and **G. B. Reddy** (2012). Ellagic acid - a new antiglycating agent: Inhibition of N^{ϵ} -(carboxymethyl)lysine. *Biochem J* **442**: 221-230.
26. P. Muthenna, M. Saraswat, C. Akileshwari and **GB Reddy** (2012). Inhibition of advanced glycation end product formation on eye lens protein by rutin. *Br J Nutr*. **107**: 941-949
27. **GB Reddy**, P. Muthenna, C. Akileshwari, Megha Saraswat and J. M. Petrash (2011) Inhibition of aldose reductase and sorbitol accumulation by dietary rutin. *Curr Sci* **101**: 1191-1197
28. V. Vakdevi, V. Sudhakar Reddy, T. Padma, J. M. Petrash and **G. B. Reddy** (2011) Temperature-dependent structural and functional properties of a mutant (F71L) α A-crystallin: Molecular basis for early onset of age-related cataract. *FEBS Letts* **585**: 3884-3889.
29. A. Satyanarayana, N. Balakrishna, S. Pitla, P. Y. Reddy, S. Mudili, P. Lopamudra, P. Suryanarayana, K.Viswanath, R. Ayyagari and **G. B. Reddy** (2011) Status of B-vitamins and homocysteine in diabetic retinopathy: Association with vitamin-B12 deficiency and hyperhomocysteinaemia. *PLoS One* **6**: e26747.

30. P. Suryanarayana, M. A. Patil and **G. B. Reddy** (2011) Insulin resistance mediated biochemical alterations in the eye lens of neonatal streptozotocin-induced diabetic rat. *Indian J Exp Biol* 49:749-755. PMID:22013741
31. V. Vasireddy, J. Jamison, U. B. Kompella, R. Kadam, V. Joseph, J. H. Lin, **G. B. Reddy** and R. Ayyagari (2011) Rescue of photoreceptor degeneration by curcumin in transgenic rats with P23H rhodopsin mutation. *PLoS One* 6: e21193. PMID:21738619
32. P. A. Kumar, P. Y. Reddy, P. Suryanarayana and **G. B. Reddy**. Effect of tannoids enriched fraction of *Emblica officinalis* on α -crystallin chaperone activity under hyperglycemic conditions in lens organ culture. *J Biophys Struct Biol* 2011; 3: 24-29
33. Mrudula T, Ghafoorunissa, Saravanan N and **Reddy GB**. Effects of prenatal and postnatal dietary polyunsaturated fatty acids on retinal fatty acid composition and gene expression in adult rat. *J Food Sci Nutr* 2011; 1: 102 (doi:10.4172/2155-9600.1000102)
34. Zablocki GJ, Ruzycki PA, Overturf MA, Palla S, **Reddy GB**, Petrash JM. Aldose reductase-mediated induction of epithelium-to-mesenchymal transition (EMT) in lens. *Chem Biol Interact.* 2011; 191:351-6. PMID:21329682
35. Srinivas PN, Patil MA, **Reddy GB**. Temperature-dependent coaggregation of eye lens α B- and β -crystallins. *Biochem Biophys Res Commun.* 2011; 405:486-90. PMID:21256113
36. Srinivas P, Narahari A, Petrash JM, Swamy MJ, **Reddy GB**. Importance of eye lens α -crystallin heteropolymer with 3:1 α A to α B ratio: stability, aggregation, and modifications. *IUBMB Life.* 2010; 62:693-702. PMID:20836128
37. Saraswat M, Suryanarayana P, Reddy PY, Patil MA, Balakrishna N, **Reddy GB**. Antiglycating potential of Zingiber officinalis and delay of diabetic cataract in rats. *Mol Vis.* 2010; 16:1525-37. PMID:20806076
38. Huang SP, Palla S, Ruzycki P, Varma RA, Harter T, **Reddy GB**, Petrash JM. Aldo-keto reductases in the eye. *J Ophthalmol.* 2010; 2010:521204. PMID:20628518
39. Bhagyalaxmi SG, Padma T, **Reddy GB**, Reddy KR. Association of G>A transition in exon-1 of alpha crystallin gene in age-related cataracts. *Oman J Ophthal.* 2010; 3:7-12.
40. Muthenna P, Suryanarayana P, Gunda SK, Petrash JM, **Reddy GB**. Inhibition of aldose reductase by dietary antioxidant curcumin: Mechanism of inhibition, specificity and significance. *FEBS Lett.* 2009; 583:3637-42. PMID: 19850041
41. Saraswat M, Reddy PY, Muthenna P, **Reddy GB**. Prevention of non-enzymic glycation of proteins by dietary agents: prospects for alleviating diabetic complications. *Br J Nutr* 2009; 101:1714-21. PMID:18986599
42. Bhagyalaxmi SG, Srinivas P, Barton KA, Kumar KR, Vidyavathi M, Petrash JM, **Bhanuprakash Reddy G***, Padma T. A novel mutation (F71L) in alphaA-crystallin with defective chaperone-like function associated with age-related cataract. *Biochim Biophys Acta.* 2009; 1792: 974-81. PMID: 19595763
43. **Reddy GB**, Vasireddy V, Mandal MN, Tiruvalluru M, Wang XF, Jablonski MM, Nappanveetil G, Ayyagari R. A novel rat model with obesity-associated retinal degeneration. *Invest Ophthalmol Vis Sci.* 2009; 50: 3456-63. PMID: 19369235
44. Pullakhandam R, Srinivas PN, Nair MK, **Reddy GB**. Binding and stabilization of transthyretin by curcumin. *Arch Biochem Biophys.* 2009; 485: 115-9. PMID: 19268650
45. Kumar PA, **Reddy GB**. Modulation of alpha-crystallin chaperone activity: a target to prevent or delay cataract? *IUBMB Life.* 2009; 61: 485-95. Review. PMID: 19391162
46. Kumar PA, Reddy PY, Srinivas PN, **Reddy GB**. Delay of diabetic cataract in rats by the antiglycating potential of cumin through modulation of alpha-crystallin chaperone activity. *J Nutr Biochem.* 2009; 20:553-62. PMID: 18789666
47. **Reddy GB**. Molecular-target based nutraceuticals: Prospects for alleviating diabetic complications. *Nutrition News*, 2009; 30 (Issue 1)

48. Saraswat M, Muthenna P, Suryanarayana P, Petrash JM, **Reddy GB**. Dietary sources of aldose reductase inhibitors: prospects for alleviating diabetic complications. *Asia Pac J Clin Nutr*. 2008; 17:558-65. PMID: 19114390
49. Surolia I, Sinha S, Sarkar DP, Reddy PY, **Reddy GB**, Surolia A. Concurrence of Danish dementia and cataract: insights from the interactions of dementia associated peptides with eye lens alpha-crystallin. *PLoS One*. 2008; 3:e2927. PMID: 18698348
50. Kamarthapu V, Rao KV, Srinivas PN, **Reddy GB**, Reddy VD. Structural and kinetic properties of Bacillus subtilis S-adenosylmethionine synthetase expressed in Escherichia coli. *Biochim Biophys Acta*. 2008; 1784:1949-58. PMID: 18634909
51. Srinivas PN, Reddy PY, **Reddy GB**. Significance of alpha-crystallin heteropolymer with a 3:1 alphaA/alphaB ratio: chaperone-like activity, structure and hydrophobicity. *Biochem J*. 2008; 414:453-60. PMID: 18479247
52. **Reddy GB**, Satyanarayana A, Balakrishna N, Ayyagari R, Padma M, Viswanath K, Petrash JM. Erythrocyte aldose reductase activity and sorbitol levels in diabetic retinopathy. *Mol Vis*. 2008; 14:593-601. PMID: 18385795
53. **Reddy GB**. Diabetic complications and dietary factors. *In Touch* 2008; 9:4
54. Suryanarayana P, Satyanarayana A, Balakrishna N, Kumar PU, **Reddy GB**. Effect of turmeric and curcumin on oxidative stress and antioxidant enzymes in streptozotocin-induced diabetic rat. *Med Sci Monit*. 2007; 13:BR286-92. PMID: 18049430
55. Kumar PA, Kumar MS, **Reddy GB**. Effect of glycation on alpha-crystallin structure and chaperone-like function. *Biochem J*. 2007; 408:251-8. PMID: 17696877
56. Suryanarayana P, Saraswat M, Petrash JM, **Reddy GB**. Emblica officinalis and its enriched tannoids delay streptozotocin-induced diabetic cataract in rats. *Mol Vis*. 2007; 13:1291-7.
57. Mrudula T, Suryanarayana P, Srinivas PN, **Reddy GB**. Effect of curcumin on hyperglycemia-induced vascular endothelial growth factor expression in streptozotocin-induced diabetic rat retina. *Biochem Biophys Res Commun*. 2007; 361:528-32.
58. Vasireddy V, Uchida Y, Salem N Jr, Kim SY, Mandal MN, **Reddy GB**, Bodepudi R, Alderson NL, Brown JC, Hama H, Dlugosz A, Elias PM, Holleran WM, Ayyagari R. Loss of functional ELOVL4 depletes very long-chain fatty acids (> C28) and the unique omega-O-acylceramides in skin leading to neonatal death. *Hum Mol Genet*. 2007; 16:471-82.
59. Mandal MN, Vasireddy V, Jablonski MM, Wang X, Heckenlively JR, Hughes BA, **Reddy GB**, Ayyagari R. Spatial and temporal expression of MFRP and its interaction with CTRP5. *Invest Ophthalmol Vis Sci*. 2006; 47:5514-21. PMID: 17122143
60. Mandal MN, Vasireddy V, **Reddy GB**, Wang X, Moroi SE, Pattnaik BR, Hughes BA, Heckenlively JR, Hitchcock PF, Jablonski MM, Ayyagari R. CTRP5 is a membrane-associated and secretory protein in the RPE and ciliary body and the S163R mutation of CTRP5 impairs its secretion. *Invest Ophthalmol Vis Sci*. 2006; 47:5505-13.
61. Saraswat M, Mrudula T, Kumar PU, Suneetha A, Rao Rao TS, Srinivasulu M, **Reddy GB**. Overexpression of aldose reductase in human cancer tissues. *Med Sci Monit*. 2006; 12: CR525-529.
62. **Reddy GB**, Kumar PA, Kumar MS. Chaperone-like activity and hydrophobicity of alpha-crystallin. *IUBMB Life*. 2006; 58:632-41 PMID: 17085382
63. Surolia I, **Reddy GB**, Sinha S. Hierarchy and the mechanism of fibril formation in Adan peptides. *J Neurochem*. 2006; 99:537-48.
64. Anil Kumar P, **Bhanuprakash Reddy G**. Focus on molecules: aldose reductase. *Exp Eye Res*. 2007, 85:739-40. Review.
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 98. **Reddy GB**, Bhat KS. UVB irradiation alters the activities and kinetic properties of the enzymes of energy metabolism in rat lens during aging. *J Photochem Photobiol B*. 1998; 42:40-6.

Book Chapters:

1. **G. B. Reddy** and N. Saravanan. Nutrition and eye diseases in Textbook of Human Nutrition (eds: M.S. Bamji, K. Krishnaswamy & G. N. V. Brahman) 3rd Edn, pp 418-430, 2009, Oxford & IBH, New Delhi.
2. **G. B. Reddy** and P. Suryanarayana. Diabetes and diabetic complications and *Phyllanthus* sp in *Phyllanthus* species: Scientific Evaluation and Medicinal Applications (eds: K. B. Hari Kumar & Ramadas Kuttan), pp 235-253, 2011, Taylor & Francis Group.

List of Patents:

- ALR2 inhibitors and their synthesis from a natural source (JM Rao¹, **GB Reddy**², VRS Rao¹ and P. Muthenna²; ¹IICT & ²NIN); Patent # WO/2011117706; US 20120245357; EP 2550063 A1; Priority Data (**0682/DEL/2010**).
- Antiglycating potential of procyanidin-B2 isolated from cinnamon bark: Prospects for prevention or treatment of diabetic complications (cataract, retinopathy & nephropathy) (**GB Reddy**, P. Muthenna, C. Akileshwari and G. Raghu). Patent filed by ICMR. (Application Number: 1452/DEL/2012)

Invited Talks

- Nutrigenomic studies on complications of diabetes and obesity. At the National Seminar on 'Nutrigenomics: A promising tool for combating chronic diseases' At the PG Dept of Home Science, Sardar Patel University, Vallabh Vidyanagar, February 3-4, 2014.
- Application of genomic tools to microbial biotechnology. At the National Seminar on Emerging Trends in Microbial Biotechnology organized by AP State Council of Higher Education, SRR Govt Arts & Science College, Karimnagar, January 8, 2014.
- Small heat shock protein in ocular complications of diabetes. At the Asia-ARVO (Association for Research in Vision and Ophthalmology) International Conference, New Delhi, October 28-31, 2013.
- Impact of metabolic syndrome on retinal abnormalities in rodent models. At the Asia-ARVO (Association for Research in Vision and Ophthalmology) International Conference, New Delhi, October 28-31, 2013.
- Novel antiglycating agents from herbal and dietary sources: Prospects for alleviating diabetic ocular complications. At the Asia-ARVO (Association for Research in Vision and Ophthalmology) International Conference, New Delhi, October 28-31, 2013.
- Research on diabetic complications and nutritional factors: NIN experience at the Workshop on Research in Type 2 Diabetes conducted by Research Society for Study of Diabetes in India (RSSDI) AP Chapter, Hyderabad, September 28, 2013.
- Diabetic retinopathy: Functional foods. At the International Workshop on New Frontiers in Treating and Preventing Diabetic Retinopathy, CR Rao Advanced Institute, Hyderabad, January 30-31, 2013.
- Nutrigenomics of ocular complications of diabetes & obesity. At the Indo-US Science & Technology Forum sponsored brain storming meeting on Novel Tools and Themes in Vision Sciences, Hyderabad, January 21-22, 2013
- Diabetic ocular complications: Dietary and nutritional factors. At the Iladevi Cataract and IOL Research Center, Ahmedabad, December 6, 2012
- Diabetic ocular complications: Nutritional and dietary factors. At the Indian Dietetics Association Hyderabad Chapter Meeting. April 20, 2012
- Application of genomic tools in biotechnology. At the National Workshop on Techniques in tissue culture and biotechnology, Osmania University College for Women (Department of Botany), April 19-21, 2012
- Isolation and characterization of novel aldose reductase inhibitors and antiglycating agents from natural sources: Prospects for alleviating diabetic complications". At the National Seminar on "Drug Discovery from Plants: Promises & Challenges" organised by School of Life Sciences, SRTM University, Nanded, February 14-15, 2012.
- Molecular-target based phytonutrients for diabetic complication. Symposium (Molecular Nutrition) speaker at the 80th Annual Meeting of Society of Biological Chemists (India), Lucknow, November 13-15, 2011

- Mutations, retinal dystrophies and phytonutrients. Symposium (Chemical Basis of Nutrient Function) speaker at the 43rd National Conference of Nutrition Society of India, Hyderabad, November 11-12, 2011
- Concepts, principles and applications of nutrigenomics. Pre-Conference Workshop speaker at the 43rd National Conference of Nutrition Society of India, Hyderabad, November 10, 2011
- Micronutrient status and diabetic retinopathy. At the Annual Meeting of Indian Eye Research Group, Hyderabad, July 30-31, 2011
- Structural and functional impact of a novel mutation (F71L) in α A-crystallin associated with age-related cataract. At the Indo-US Bilateral symposium on Aging and Age-Related Diseases, National Institute of Immunology, New Delhi, Marc 3-4, 2011
- Preventive and therapeutic approaches to chronic diabetic complications. At the International Conference on Imbibing pharmaceutical knowledge to the professionals, conducted by Indian Pharmacological Society and Lalitha College of Pharmacy, Hyderabad, Jan 28-31, 2011.
- Diet-based approach for diabetic complications. At the International Conference on Traditional Foods, conducted by Pondicherry University, Pondicherry, Dec 1-3, 2010.
- Characterization of retinal degenerations in WNIN-Ob rat model. At the symposium on “Animal models developed by Indians in India” conducted by National Center for Laboratory Animal Sciences, Hyderabad, April 24, 2010.
- Nutritional & dietary factors in diabetic ocular complications. At the 41st National Conference of Nutrition Society of India, Hyderabad, November 20-22, 2009
- Nutritional and dietary factors in complications of diabetes. At the 6th Indo-Australian Biotechnology Conference on “Nutrition and life-course evolution of non-communicable diseases”, Hyderabad, September 2-4, 2009
- Structure and functional significance of heteropolymer of eye lens small heat shock protein, α -crystallin. At National Conference on Cellular and Molecular Biophysics conducted by Indian Biophysical Society, CCMB, Hyderabad, January 22-24, 2009
- Chaperone-like activity of α -crystallin under hyperglycemic conditions. At the Asia-ARVO International Conference, Hyderabad, January 15-18, 2009
- Ocular complications of diabetes and obesity: Role of dietary and nutritional factors. At the Aravind Eye Hospitals, Aravind Medical Foundation, Madurai, September 11, 2008.
- Heat stability of allergens. At the Brainstorming session on “Harmonization allergenicity assessment protocols for conventional and novel food products” conducted by Department of Biotechnology at the National Institute of Nutrition, Hyderabad, August 20-21, 2008.
- Diabetic ocular complications and dietary factors. At the Department of Ophthalmology and Dean A. McGee Eye Institute, The University of Oklahoma Health Science Center, Oklahoma City, USA, October 19, 2007
- Expression, structure and function of small heat shock proteins, alpha-crystallins, under hyperglycemic conditions. At the Department of Ophthalmology and Visual Sciences, Washington University, St. Louis, MO, USA, October 17, 2007
- Nutrition Research in the era of ‘Omics’ and beyond. At the Trendys in Biochemistry-2006 meeting, National Institute of Nutrition, Hyderabad, August 18-19, 2006
- Retinal degenerations in WNIN-Ob rat: A microarray analysis. At the Indo-Swedish Workshop on “Genomics and Proteomics of Diabetes”, Madras Diabetic Research Foundation, Chennai, April 1-2, 2006
- Anticataract potential of dietary components. At the *National Eye Institute*, National Institutes of Health, Bethesda (USA), January 19, 2006

- Curcumin: Role in delaying the progression of cataract. At Grandrounds of Kellogg Eye Center, *University of Michigan* (USA), October 27, 2005
- What is in food stores against secondary complications of diabetes? At *M. V. Diabetes Specialties Centre*, Chennai, August 23, 2004
- Effect of glycation on molecular chaperone function of eye lens α -crystallin. At the Kellogg Eye Center, *University of Michigan* (USA), July 17, 2003
- Effect of diabetes and dietary factors on molecular chaperone function of eye lens α -crystallin. At the *Washington University*, Department of Ophthalmology, St. Louis (USA), June 16, 2003
- Structural determinants of chaperone of function of α A-crystallin: A study with single tryptophan mutants. At Molecular Biology Unit, *Indian Institute of Science*, Bangalore, May 17, 2000

Organized the meetings/ chaired the sessions/ resource person

Chaired

- Chaired the session on ‘Heat shock proteins & crystallins’ at the Asia-ARVO (Association for Research in Vision and Ophthalmology) International Conference, New Delhi, October 28-31, 2013.
- Chaired a session at the Indian Eye Research Group – India ARVO Chapter, L. V. Prasad Eye Institute, Hyderabad, July 28-29, 2012.
- Chaired a session at the National Symposium on “Laboratory Animals Science in the New Millennium” conducted by National Center for Laboratory Animal Sciences, Hyderabad, April 24-25, 2012.
- Chaired a session at the National Seminar on "Drug Discovery from Plants: Promises & Challenges-2012" organised by School of Life Sciences, SRTM University, Nanded, February 14-15, 2012.
- Chaired a session at the 43rd National Conference of Nutrition Society of India, Hyderabad, November 11-12, 2011
- Chaired a session at the Golden Jubilee Regional Symposium of National Academy of Medical Sciences (India), August 26, 2011.
- Chaired a session at the Indian Eye Research Group L. V. Prasad Eye Institute, Hyderabad, July 30-31, 2011.
- Chaired the “Lens Session-1” At the Asia-ARVO (Association for Research in Vision and Ophthalmology) International Conference, Hyderabad, January 15-18, 2009
- Chaired a session at the Symposium on “Agricultural Biotechnology-Food and Nutrition Security” organized by NINSA and AICBA at National Institute of Nutrition, Hyderabad, December 22, 2006
- Chaired a scientific session at the Indo-Swedish workshop on “Genomics and Proteomics of Diabetes” at the Madras Diabetic Research Foundation, Chennai, April 1-2, 2006

Organized/ Resource Person

- Organized one workshop on “Proteomics for biomedical research” January 6-10, 2014, National Institute of Nutrition, Hyderabad under the DHR-sponsored Human Resource Development Program.
- Member Organizing committee of 82nd Annual Meeting of Society of Biological Chemists, India, December 2-5, 2013, Hyderabad
- Member Scientific Committee, 45th Annual Conference of Nutrition Society of India, Hyderabad, November 21-22, 2013.

- Served as the Panel of Judges for evaluation of manuscripts and presentations for the Nutrition Society of India Young Scientists Awards-2013
- Member Scientific Committee, Asia-Association for Research in Vision and Ophthalmology International Conference, New Delhi, October 28-31, 2013.
- Served as the Panel of Judges for evaluation of presentations in Lens Section for the Best Poster Awards at the Asia-Association for Research in Vision and Ophthalmology International Conference, New Delhi, October 28-31, 2013.
- Served as the Panel of Judges for evaluation of presentation in Biology for the Dr. K. V. Rao Annual Science Awards-2013
- Organized pre-conference workshop on “Concepts, principles and applications of nutrigenomics” during 43rd National Conference of Nutrition Society of India, November 10, 2011, Hyderabad
- Member Organizing committee of 43rd National Conference of Nutrition Society of India, November 11-12, 2011, Hyderabad
- Organized the UGC-sponsored National Workshop on “Diseases protein folding and misfolding: Role of natural & nutritional products at St. Francis College for Women, Hyderabad, Feb 18-19, 2011
- Joint Organizing Secretary of one day symposium on “Agricultural Biotechnology: Food and Nutrition Security” at the National Institute of Nutrition, Hyderabad, Dec 22, 2006
- Member of organizing committee of Satellite Symposium of FAOBMB-SBCI Congress on Molecular Aspects of Cellular Signaling. December 3-4, 2003, Hyderabad

PAPERS PRESENTED AT SCIENTIFIC MEETINGS

1. **GB. Reddy**, P. Muthenna, G. Raghu, C. Akileshwari, P. Anil Kumar and P. Suryanarayana. Antglycating potential of procyanidin-B2 isolated from cinnamon bark: Prevention or treatment of diabetic nephropathy. Annual Conference of Indian Society of Nephrology, Ahmedabad, December 7-9, 2012.
2. **GB. Reddy**, A. Satyanarayana, N. Balakrishna, M. Sivaprasad, K. Viswanath and R. Ayyagari. Micronutrient status and diabetic retinopathy. Annual Meeting of Indian Eye Research Group, Hyderabad, July 30-31, 2011
3. **GB. Reddy**, A. Satyanarayana, N. Balakrishna, P. Sujatha, P. Y. Reddy, K. Viswanath and R. Ayyagari. Diabetic retinopathy: Association with hyperhomocysteinaemia and vitamin-B12 deficiency. Annual Meeting of Association for Research in Vision and Ophthalmology, Fort Lauderdale (FL, USA), May 1-5, 2011
4. **GB Reddy**, SG Bhagyalaxmi, PNBS Srinivas, KA Barton, KR Kumar, M Vidyavathi, JM Petrash and T Padma. Identifications of a novel mutation in α A-crystallin associated with age-related cataract: structure-function studies. Annual Meeting of Association for Research in Vision and Ophthalmology, Fort Lauderdale (FL, USA), May 3-7, 2009
5. **GB. Reddy**, V. Vasireddy, T. Mrudula, X. Wang, M. M. Jablonski, N. V. Giridharan and Radha Ayyagari. Obesity associated retinal abnormalities in a rat model. At the Asia-ARVO International Conference, Hyderabad, January 15-18, 2009
7. **GB Reddy**, MNA Mandal, V Vasireddy, T Mrudula, X Wang, MM Jablonski, NV Giridharan and R Ayyagari. Photoreceptor degeneration in a spontaneous obese rat model. Annual Meeting of Association for Research in Vision and Ophthalmology, Fort Lauderdale (FL, USA), May 6-10, 2007
8. **GB Reddy**, PA Kumar, P Suryanarayana and PY Reddy. Delay of diabetic cataract in rats by curcumin: Modulation of α -crystallin chaperone activity. At Annual Meeting of Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale (FL, USA), May 1-5, 2005.

9. **GB. Reddy**, P. Suryanarayana, P. A. Kumar, M. Saraswat. Inhibition of aldose reductase by tannoid principles of *Emblica Officinalis*: Implications for the prevention of sugar cataract. Exclusive meet on Ophthalmic Research at Sankara Nethralaya, Chennai, August 20-22, 2004
10. **GB. Reddy**, M. S. Kumar and P. Y. Reddy. Relevance of in vitro aggregation assays to study the chaperone function of α -crystallin. Annual Meeting of Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale (FL, USA), May 4-8, 2003.
11. **GB. Reddy**, S. Narayanan, P. Y. Reddy and A. Surolia. Abrin: A new model substrate for α -crystallin chaperone activity in vitro. Annual Meeting of Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale (FL, USA), May 5-10, 2002.
12. **GB. Reddy**, KP Das, JM Petrash and WK Surewicz. Structural and functional differences between human α A and α B-crystallins. 69th Annual Meeting of Society of Biological Chemists (India), Calcutta, India. December 7-9, 2000.
13. **GB. Reddy**, J. Mark Petrash and W. K. Surewicz. Domain structure and chaperone activity of α A-crystallin: A study with single tryptophan mutants. Biophysical Society, Annual Meeting, New Orleans, Feb 12-16, 2000.