
CURRICULUM VITAE OF Dr. H. A. NAGARAJARAM

Personal details and contact addresses

Name : H. A. NAGARAJARAM

Full name : Hampapathalu Adimurthy Nagarajaram

Date of birth : 09 Feb. 1964

Address : F-50, Laboratory of Computational Biology
Department of Systems and Computational Biology
School of Life Sciences
University of Hyderabad
Hyderabad

Telephone : +91-(0)40-2313 4561
+91-(0)990 820 9193 (mobile)

E-mail : hansl@uohyd.ac.in

Web-site : <http://doscb.uohyd.ac.in>

Research Field : Computational Biology and Bioinformatics

Educational Qualifications

Doctoral degree (Ph.D.)(1995):

Ph.D. thesis title: Conformational studies on cyclic pentapeptides and structural features in globular proteins.

Thesis supervisor: Prof. C. Ramakrishnan

Institution: Molecular Biophysics Unit (MBU), Indian Institute of Science, Bangalore.

Master of Science (M.Sc.) (1987):

Subject : Physics

Institution: The Central College, Bangalore University

Bachelor of Science (B.Sc.) (1985) :

Subjects: Physics, Chemistry and Mathematics

Institution: National College (Jayanagar), Bangalore University

Current positions:*Since Oct 2018***Professor & Head, Department of Systems and Computational Biology, School of Life Sciences, University of Hyderabad****Coordinator and PI, DBT-Centre for Microbial Informatics, School of Life Sciences (Project approved by DBT Taskforce but awaiting financial sanction)****Positions held before:**

- a) **Professor-in-Charge, Centre for Modelling, Simulation and Design, University of Hyderabad (2018-2020)**
- b) **Coordinator, Bioinformatics Infrastructure Facility (BIF), School of Life Sciences, University of Hyderabad (2017-2020)**
- c) **Professor, Department of Biotechnology and Bioinformatics, School of Life Sciences, University of Hyderabad, Hyderabad (Feb 2017-Oct2018)**
- d) **Head, Laboratory of Computational Biology, Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad, India (2000- 2017)**
- e) **Research Associate, Prof. Sir Tom L. Blundell's group, Department of Biochemistry, University of Cambridge, England. (1996-2000)**
- f) **Research Fellow, in the Biocomputing group of Prof. Sir Tom Blundell in the Department of Crystallography, Birkbeck College, London. In August 96 moved to Cambridge along with Prof. Sir Tom Blundell (1996)**
- g) **Post-doctoral research fellow in Computer Aided Drug Design Laboratory of ASTRA research Centre, Bangalore. (1995-1996)**
- h) **Senior research fellow in the laboratory of Dr. R.Varadarajan, Molecular biophysics Unit, Indian Institute of Science, Bangalore (1995)**

Academic achievements

1. Number of Ph.Ds completed from my laboratory: 9
2. Number of students currently pursuing their Ph.D.: 6
3. Number of project trainees and summer trainees: 33
4. Have been teaching courses for M.Tech (Bioinformatics) and M.Sc. (Biotechnology) on **Computational Systems Biology (5 credits: 3 credits (theory) and 2 credits (practicals)), Mathematics and Statistics (3 credits) and Basics of Mathematics and Statistics (2 credits)**
5. Have taught courses in Bioinformatics and Computational Structural Biology at CDFD, A.N.G. R. Agricultural University and University of Hyderabad.

Memberships and Other Roles/Responsibilities

Name of body, society, Academy	<u>Position</u>	Year	Validity
International Protein Society	Member	2012	2012
European Molecular Biology Net work (EMBnet)*	National Node Manager, India	2000	2005
National Academy of Sciences, Allahabad*	Member	2002	Still valid
Indo-Malaysian Cooperation in Bioinformatics	Visited Malaysia as one of the member of five member Indian delegation to discuss the cooperation in bioinformatics	2003	2003
SUN-Special Interest Group in Computational Biology*	Member	2004	2006
The First ASEAN-India Bioinformatics Workshop, 7-11 November, 2005	Convener	2005	2005
Executive Committee, Asian Pacific Bioinformatics Network (APBioNet)	Elected Member	2005	2010
International Conference on Computational Biology (InCoB 2006), New Delhi	Member of the Scientific Programme Committee	2006	2006
Biophysical Society, Baltimore, MD, USA	Member	2007	2014
International Society for Computational Biology (ISCB)	Life Member	Since 2012	Still valid
Andhra Pradesh Akademy of Sciences	Elected Associate Fellow	Since 2010	
Society of Biological Chemists (India)	Life Member	Since 2012	

PG Board of Studies in Bioinformatics, JNTU	Nominated Member	2012	2013
PG Board of Studies in Bioinformatics, Pondicherry University	Nominated Member	2014	2017
Bioinformation	Editorial Member	2017	Till date
Frontiers in Medical Biotechnology- Pharmaceutical Innovations	Review Editor	2019	Till date

Research Grants

Project Name	Funding Agency	Role	Status
Nucleolus in control of breast tumor heterogeneity	MHRD, Government of India under “Scheme for Translational and Advanced Research in Sciences (STAR)”	Co-PI	On-going (2019-2022) (Rs.94.97 lakhs)

<p>Chemical and genomic approaches to investigate possible link between development of antimicrobial resistance (AMR) and pharma industry effluents</p>	<p>Bulk Drug Manufacturers Association of India (BDMAI) C-25, Industrial Estate, Sanathnagar Hyderabad - 500 018 Ph: 040-23706718/3910/48 04 e-mail: info@bdmai.org</p>	<p>Co-PI (Co-PI's share Rs.28.32 lakhs)</p>	<p>On-going (2018-19)</p>
<p>NCDs-CAPomics: Exploring the Volatome of NonCommunicable Diseases as a Promising Non-Invasive and Integrating Approach for its Rapid Diagnostics. The Case Study of Cancer and Neurodegenerative Diseases</p>	<p>INNO INDIGO Partnership Programme Call on "Diagnostics and interventions in Chronic non-communicable diseases" Department of Science & Technology (DST) India</p>	<p>Indian Co-PI (Co-PI's share Rs.32.11 lakhs)</p>	<p>On-going (2019-2022)</p>
<p>An attractive and promising strategy for early cancer diagnosis through the assembly of the human cancer volatomics (HCV Project)</p>	<p>New Indigo</p>	<p>Indian Co-PI (Co-PI's share Rs. 65 lakhs)</p>	<p>Completed (2013-2016)</p>
<p>Development of a Substitution Scoring Matrix Suitable for Aligning Disordered Regions in Proteins: A first step toward sustainable development of Bioinformatics research focusing structural and</p>	<p>UPE Phase II- Interface Studies in Teaching and Research – Research Projects- Translational Research Studies-</p>	<p>PI (Rs. 3.5 lacs)</p>	<p>Completed (2017)</p>

functional characterization of proteins enriched with disordered regions	Proposals under sustainable development		
Development of National Database of Genetic Disorders	Department of Biotechnology	PI	Completed
Annotation of <i>Plasmodium falciparum</i> genome	CSIR NMITLI	Co-I	Completed
Mechanistic studies on prokaryotes transcription termination and elongation	NIH, USA	Co-I	Completed
Construction, characterization and analysis of ESTs from silkworm	Department of Biotechnology, DBT, India	Co-I	Completed
Development of portable versatile software for biomolecular analysis and simulation	Council of Scientific and Industrial Research (CSIR, India)	Co-I	Completed

List of publications in peer-reviewed journals

1. Trivedi R, **Nagarajaram HA** (2020) Substitution Scoring Matrices for Proteins - An Overview. *Protein Science* <https://doi.org/10.1002/pro.3954> (Invited Peer reviewed Review Article; Accepted)
2. Hari Parapatla, Ramurthy Gudla, Guruprasad Varma Konduru, Elsin Raju Devadasu, **Hampapathula Adimurthy Nagarajaram**, Manjula Sritharan, Rajagopal Subramanyam and Dayananda Siddavattam (2020) Organophosphate hydrolase interacts with ferric-enterobactin and promotes iron uptake in association with TonB dependent transport system *Biochemical Journal* **477** 2821-2840
3. Ravindra Taware, Khushman Taunk, T. V.Santosh Kumar, Jorge A. M. Pereira, José S. Câmara, **H. A. Nagarajaram**, Gopal Chandra Kundu, Srikanth Rapole (2020) Extracellular volatiliomic alterations induced by hypoxia in breast cancer cells *Metabolomics* **16**, 21

4. Trivedi, R., **Nagarajaram, H.A.** (2019) Amino acid substitution scoring matrices specific to intrinsically disordered regions in proteins. *Sci Rep* **9**, 16380
doi:10.1038/s41598-019-52532-8
5. Ramurthy Gudla¹, Guruprasad Varma Konduru², **Hampapathalu Adimurty Nagarajaram**³, and Dayananda Siddavattam* (2019) Organophosphate hydrolase interacts with Ton components and targets membrane only in presence of ExbB/ExbD complex. *FEBS Letters* **593** 581-593
6. Ravindra Taware, Khushman Taunk, Jorge Pereira, Amey Shirolkar, Dharmesh Soneji , José S Câmara, **H A Nagarajaram**, Srikanth Rapole** (2018) Volatilomic insight of head and neck cancer via the effects observed on saliva metabolites *Scientific Reports* **8**:17725 | DOI:10.1038/s
7. Khushman Taunk, RavindraTaware, Tushar H. More, Priscilla Porto-Figueira, Jorge Pereira, Rajkishore Mohapatra, Dharmesh Soneji , José S Câmara, **H A Nagarajaram**, Srikanth Rapole** (2018) A non-invasive approach to explore the discriminatory potential of the urinary volatome of invasive ductal carcinoma of the breast *RSC Advances* **8**, 25040-25050
8. Carina Cavaco, Jorge Pereira, Khushman Taunk, Ravindra Taware, Srikanth Rapole, **Hampapathalu Nagarajaram** and José S. Câmara** (2018) Screening of salivary volatiles for putative breast cancer discrimination: An exploratory study involving geographic distant populations *Analytical and Bioanalytical Chemistry*, **410**, 4459-4468
9. Taware, Khushman Taunk, Jorge A. M. Pereira, Rahul Dhakne, Narayanan Kannan, Dharmesh Soneji, José S. Câmara, H A Nagarajaram, Srikanth Rapole** (2017) Investigation of urinary volatonic alterations in head and neck cancer: A non-invasive approach towards diagnosis and prognosi *Metabolomics* **13**, 111 (DOI 10.1007/s11306-017-1251-6)
10. Kumar, Parveen; Munnangi, Prathyusha; Chowdary, KVS; Shah, Varun; Shinde, Swapnil; Kolli, Nanci; Halehalli, Rachita; **Nagarajaram, Hampapathalu**; Maddika, Subbareddy (2017) A human tyrosine phosphatase interactome mapped by proteomic profiling *J. Proteome Res.* **16**, 2789–2801
11. Manjari Kiran and **H.A.Nagarajaram**** (2016) Interaction and Localization Diversities of Global and Local Hubs in Human Protein-Protein Interaction Network *Molecular Biosystems* **12**, 2875 – 2882
12. A K Chaudhary, R Mohapatra, **H A Nagarajaram**, P Ranganath, A Dalal, A Dutta, S Danda, K Girisha, M D Bashyam** (2015). The novel missense EDAR p.L397H mutation causes autosomal dominant hypohidrotic ectodermal dysplasia. *Journal of european academy of dermatology and venearology* **31**,
doi.org/10.1111/jdv.13587

13. Radha Rama Devi A**, Ramesh V.A, **Nagarajaram H.A**, SatishS.P.S, Jayanthi U, Lokesh Lingappa (2015) Spectrum of Mutations in Glutaryl-CoA Dehydrogenase gene in GlutaricAciduria Type I - Study from South India *Brain & Development* DOI: <http://dx.doi.org/10.1016/j.braindev.2015.05.013>
14. Abdul Mueed Bidcho, Ashwin Dalal, Rakesh Trivedi, Anju Shukla, Sheela Nampoothiri, VH Sankar, Sumita Danda, Neerja Gupta, Madhulika Kabra, Shrikiran A Hebbar, Ramesh Y Bhat, Divya Matta, Alka V Ekbote, Ratna Dua Puri, Shubha R Phadke, Kalpana Gowrishankar, Shagun Aggarwal , Prajnya Ranganath, Sheetal Sharda, Mahesh Kamate, Chaitanya A Datar, Kamalakshi Bhat, Nutan Kamath, Puthiya Mundyat Gopinath, Ishwar C Verma, **HA Nagarajaram**, Kapaettu Satyamoorthy, Katta Mohan Girisha** (2015) Recurrent and novel GLB1 mutations in India *Gene* **567**, 173-181
15. Jorge Pereira**, Priscilla Porto-Figueira, Carina Cavaco, Khushman Taunk, Srikanth Rapole, Rahul Dhakne, **Hampapathalu Nagarajaram**, José Câmara (2015) Breath analysis as a potential and non-invasive frontier in disease diagnosis. A metabolomic approach. *Metabolites* **5**, 3-55
16. Rachita Halehalli and **H.A.Nagarajaram**** (2015) Molecular principles of human virus protein-protein interactions *Bioinformatics* **31**, 1025-1033
17. Anupam Sinha and **H.A. Nagarajaram**** (2014) Nodes occupying central positions in human tissue specific PPI networks are enriched with many splice variants. *Proteomics* **14**, 2242-2248
18. Siddaramappa J Patil, Gaurava Kumar Rai, Venkatraman Bhat, Vakkalagadda A Ramesh, **H A Nagarajaram**, Jyoti Matalia, Shubha R Phadke (2014) Distal Arthrogyrosis Type 5D With A Novel ECEL1 Gene Mutation *Am J Med Genet Part A* DOI: 10.1002/ajmg.a.36702
19. Abdul Mueed Bidchol, Ashwin Dalal, Hitesh Shah, Suryanarayana S, Sheela Nampoothiri, Madhulika Kabra, Neerja Gupta, Sumita Danda, Kalpana Gowrishankar, Shubha R Phadke, Seema Kapoor, Mahesh Kamate, IC Verma, Ratna Dua Puri, VH Sankar, A Radha Rama Devi, SJ Patil, Prajnya Ranganath, S Jamal Md Nurul Jain, Meenal Agarwal, Ankur Singh, Pallavi Mishra, Parag M Tamhankar, Puthiya Mundyat Gopinath, **Nagarajaram HA**, Kapaettu Satyamoorthy, Katta Mohan Girisha (2014) GALNS Mutations in Indian Patients with Mucopolysaccharidosis IVA *Am J Med Genet Part A* <https://doi.org/10.1002/ajmg.a.36735>
20. Rachita Halehalli and **H.A.Nagarajaram**** (2014) Viral proteins that bridge unconnected proteins and components in human PPI network *Mol.Bio.Sys.* **10**, 2448-2458
21. Anusha Uttarilli, Prajnya Ranganath, S. Jamal Md Nurul Jain, Krishna Prasad C, Anupam Sinha, Ishwar C Verma, Shubha R Phadke, Ratna D Puri, Sumita Danda, Mamta N Muranjan, Ganesh Jevalikar, **H A Nagarajaram**, Ashwin B Dalal** (2014) Novel mutations of the ARSB gene in Indian patients with Mucopolysaccharidosis Type VI *Indian J. Med. Res.* **142**, 414-425

22. Murali D. Bashyam**, Ajay K. Chaudhary, Manjari Sinha, **H. A. Nagarajaram** *et al* (2014) Splice, insertion-deletion and nonsense mutations that perturb the Phenylalanine hydroxylase transcript cause Phenylketonuria in India. ***J.Cell.Biochem.*** **115**:566-574
23. Suresh B. Mudunuri, S. Patnana and **H.A. Nagarajaram**** (2014) MICdb3.0: A Comprehensive Resource of Microsatellite Repeats from Prokaryotic Genomes ***Database*** doi:10.1093/database/bau005
24. Murali D. Bashyam, Ajay K. Chaudhary, Manjari Kiran, Venkat Reddy, Hampapathalu A. Nagarajaram, Ashwin Dalal, Leena Bashyam, Deepti Suri, Anju Gupta, Neerja Gupta, Madhulika Kabra, Ratna Puri, RadhaRamaDevi, Seema Kapoor, Sumita Danda. Molecular analyses of novel ASAH1 mutations causing Farber lipogranulomatosis: analyses of exonic splicing enhancer inactivating mutation. ***Clin Genet***,2014; 86:530-538.
25. Manjari Sinha and **H.A.Nagarajaram**** (2013) Global versus local hubs in human protein-protein interaction network ***J.Proteome Res.*** 12: 5436–5446
26. Anupam Sinha and **H.A.Nagarajaram**** (2013) Effect of Alternative Splicing on the Degree Centrality of nodes in PPI networks of *Homo sapiens* ***J.Proteome Res.*** 12: 1980–1988
27. Vishal Acharya and **H.A.Nagarajaram**** (2013) Response to: Statistical Analysis of Missense Mutation Classifiers ***Human Mutat*** **34** 407
28. Suresh B. Mudunuri**, Priyatosh Mishra, and Nagarajaram, H.A. (2012) "In Silico Survey of Distribution and Frequency of Imperfect Microsatellite Repeats in Viral Genomes.", Proceedings of IEEE International Conference on Data Science & Engineering (ICDSE), 2012 Vol. 1, pp. 31-36
29. Murali D Bashyam**, Ajay K Chaudhary, Manjari, **H A Nagarajaram**, A Radha Rama Devi, Leena Bashyam, E Chandrakanth Reddy, Ashwin Dalal (2012). Molecular genetic analysis of MSUD from India reveals mutations causing altered protein truncation affecting the C-termini of E1 α and E1 β . ***Journal of Cellular Biochemistry*** 113:3122-3132
30. Murali Bashyam**, Guroji Purushotham, Ajay K Chaudhary, Madhumohan Rao, Vishal Acharya, Tabrez Mohammad, **H. A. Nagarajaram**, Vuppaladadhiam Hariram, Calambur Narasimhan (2012) A low prevalence of MYH7/MYBPC3 mutations among Familial Hypertrophic Cardiomyopathy patients in India. ***Mol Cell Biochem.*** 360:373-382
31. M D Bashyam**, A K Chaudhary, E C Reddy, V Reddy, V Acharya, **H A Nagarajaram** (2012), A R R Devi, L Bashyam, A B Dalal, N Gupta, M Kabra, M Agarwal, S R Phadke, R Tainwala, R Kumar, S V Hariharan. An Ectodysplasin A receptor (EDAR) founder mutation results in a high frequency of the autosomal recessive form of Hypohidrotic Ectodermal Dysplasia in India. ***Br J Dermatol.*** **166**:819-829.

32. Pankaj Kumar and **H.A.Nagarajaram**** (2012) A Study on Mutational Dynamics of Simple Sequence Repeats in Relation to Mismatch Repair System in Prokaryotic Genomes *J. Mol. Evol.* **74** 127-139
33. Suresh B. Mudunuri**, Priyatosh Mishra, and Nagarajaram, H.A. (2012) "Distributional Analysis and Motif Frequencies of Compound Microsatellite Repeats in Viral Genomes.", Proceedings of IEEE International Conference on Computing, Electronics and Electrical Technologies (ICCEET), 2012, vol.1, pp.887-893
34. Vishal Acharya and **H.A.Nagarajaram**** (2012) Hansa: An automated method for discriminating disease and neutral human nsSNPs *Hum Mutat* **33** 332-337
35. Md. Tabrez Shamim and **H A Nagarajaram**** (2011) A Hierarchical Approach to Protein Fold Recognition *J. Integr. Bioinform.* **8**:185
36. Murali Bashyam**, Guroji Purushotham, Ajay K Chaudhary, Madhumohan Rao, Vishal Acharya, Tabrez Mohammad, **H. A. Nagarajaram**, Vuppaladadhiam Hariram, Calambur Narasimhan (2012) A low prevalence of MYH7/MYBPC3 mutations among Familial Hypertrophic Cardiomyopathy patients in India. *Mol Cell Biochem.* **360**:373-382
37. Md. Tabrez Shamim and H.A. **Nagarajaram**** (2011) SVM-Based method for protein structural class prediction using secondary structural content and structural information of amino acids *J.Bioinform. Comput. Biol* DOI: 10.1142/ S0219720011005422
38. Pankaj Kumar, P. S. Chitanya and **H A Nagarajaram**** (2011) PSSRdb: A Relational Database of Polymorphic Simple Sequence Repeats Extracted from Prokaryotic Genomes *Nucleic Acid Res.* **39**(suppl 1): D601-D605
39. Suresh B Mudunuri, Pankaj Kumar, Allam Appa Rao, S Pallamsetty and **H A Nagarajaram**** (2010) G-IMEx: A comprehensive software tool for detection of microsatellites from genome sequences *Bioinformatics* **5**: 221-223
40. G Purushotham, K Madhumohan, Mohammad Anwaruddin, **H.A.Nagarajaram**, Vuppaladadhiam Hariram, Calambur Narasimhan, Murali D Bashyam** (2010) The MYH7 p.R787H mutation causes hypertrophic cardiomyopathy in two unrelated families. *Exp clin Cardiol* 2010;15(1):e1-e4.
41. Suresh, M., Rao, A.A., Mishra, P. and **H.A. Nagarajaram**** (2010) Comparative Analysis of Microsatellite Detecting Software: A Significant Variation in Results and Influence of Parameters, *Proceedings of International Symposium on Biocomputing*, (ISB 2010), Kerala, February 15-17, 2010. ([Link to ACM Digital Library](#))
42. Suresh B. Mudunuri**, Allam Appa Rao, S Pallamsetty, Priyatosh Mishra and **H.A.Nagarajaram** (2009) VMD: Viral Microsatellite Database - A

- Comprehensive Resource for All Viral Microsatellites. *Journal of Computer Science and Systems Biology*. 22: 283-000.
43. Korupolu, R.V., Achary, M.S., Aneesa, F., Sathish, K., Wasia, R., Sairam, M., **Nagarajaram, H.A.** and Singh, S.S** (2009) Profilin oligomerization and its effect on poly (l-proline) binding and phosphorylation *Int. J.Biol.Macromol.* 45: 265-273
 44. Achary, M.S. and **H.A. Nagarajaram**** (2009) Effects of Disease Causing Mutations on the Essential Motions in Proteins *J.Biomol. Struct. Dyn.* 26: 609-624
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 48. *The NMITLI-BioSuite Team (...H.A. Nagarajaram.)* (2007) BioSuite: A comprehensive bioinformatics software package (A unique industry–academia collaboration) *Curr. Sci.* 92: 29-38
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62. S.G.Panicker**, A.B.M.Reddy, A.K.Mandal, N.Ahmed, **H.A.Nagarajaram**, S.E.Hasnain and D.B. Balasubramanian (2002) Identification of novel mutations causing familial primary congenital glaucoma in indian pedigrees *Investigative Ophthalmology & Visual Science* 43 1358-1366 2002.
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Advances in Intelligent Systems and Computing, Springer (2016)

Patents :

Patent 1:

Inventors: Mitali Samaddar, Hampapathalu Adimurthy Nagarajaram, Kemburu Prasanna Kumar, Gosala Jayalakshmi, Chigurupati Jayaram

Title: HUMANIZED MONOCLONAL ANTIBODIES AGAINST HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR, USE AND METHOD THEREOF

Application number: 1236/CHE/2007 (Indian Patent)