



Dr. K. Balamurugan
Professor

Contact

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Academic Qualifications:

M. Sc., Ph. D.

Teaching Experience:

18 Years

Research Experience:

23 Years

Additional Responsibilities

- Expert Member of the Inspection Commission for Affiliation of B.Sc., Biotechnology
- Expert Member of the Inspection Commission for Affiliation of M.Sc., Biotechnology
- Co-Coordinator: Bioinformatics Infrastructure Facility (funded by DBT, Govt. of India)
- Deputy Coordinator: UGC-SAP (DRS-I) Department of Biotechnology.

Areas of Research

- **Host pathogen-interactions using *C. elegans* as model organism**
- **Functional genomics**
- **Interacting Proteomics**

Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	PDF	-	01
	Ph.D.	10	04
	M.Phil.	-	-
Project	PG	45	-
	UG / Others	4	-

Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
86	176	3	38	6

Cumulative Impact Factor (as per JCR) : 242.648 (Avg. I.F. 2.923)
h-index : 17
i10 index : 25
Total Citations : 890

Funded Research Projects

Completed Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1.	DBT	Dec-2007	Dec-2010	RNA-interference mediated silencing of antimicrobial genes of <i>Caenorhabditis elegans</i> .	24.73
2.	UGC	Apr-2008	Mar-2011	Screening of marine bioresources for antibacterial compounds	11.76
3.	ICMR	Mar-2011	Mar-2014	Analysis of antimicrobial gene expression pattern	25.23
4.	DBT	Mar-2011	Mar-2014	Studies on Immune regulatory proteins	26.546
5.	CSIR	Apr-2011	Mar-2014	<i>Caenorhabditis elegans</i> response to human pathogens through proteomics studies	21.92

6.	DST	July-2011	July-2014	Characterization of innate immune regulators during <i>Shigella spp.</i>	23.30
7.	DST	Feb-2012	Jan-2015	<i>Caenorhabditis elegans</i> response against <i>Vibrio spp.</i> infection	20.03
8.	ITC-AU Collaborative project	July-2011	Dec-2014	Anti-aging: Role of target genes	19.14

On-going Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	UGC Major Research Project	01 April 2013	31 March 2017	Physiological and molecular changes in <i>Caenorhabditis elegans</i> during subsequent bacterial infections	10.85
2	ITC-AU Collaborative Project	Jul-2016	Jun-2019	<i>C. elegans</i> : An <i>in vivo</i> model for dermal inflammation and healing	41.17

Patents

S. No	Title	Inventors	Patent Number	Filing Date	Publication date
1	Personal Care Compositions for Anti-Aging	Prasanth MI, Balamurugan K , Pandian SK, Gayathri S, James PB	676/KOL/2015	18 June 2015	20/10/17
2	Personal Care Compositions for Anti-Aging	Prasanth MI, Balamurugan K , Pandian SK, Gayathri S, James PB	679/KOL/2015	18 June 2015	20/10/17
3	Composition Comprising Green Tea and Naringenin for Anti-Aging	Prasanth MI, Balamurugan K , Pandian SK, Gayathri S, James PB	677/KOL/2015	18 June 2015	20/10/17
4	Personal Care Compositions for Anti-Aging	Prasanth MI, Balamurugan K , Pandian SK, Gayathri S, James PB	680/KOL/2015	18 June 2015	20/10/17
5	Personal Care Compositions for Anti-Aging	Prasanth MI, Pandian SK, Gayathri S, James PB, Balamurugan K	766/KOL/2015	15 July 2015	13/10/17
6	Personal Care Compositions	Prasanth MI, Pandian SK, Gayathri S, James	779/KOL/2015	17 July 2015	13/10/17

	for Anti-Aging	PB, Balamurugan K			
7	An anti-acne synergistic composition and process thereof	Sivasankar C, Pandian SK and Balamurugan K	Application No. 201641010057	22 March 2016	-

Distinctive Achievements / Awards

1. 2008-DBT-RGYI Young Scientist award project for Young Investigator under 40 Years.
2. 2011- DST Young Scientist Award project.
3. 2011-DST International Travel award for attending FEMS 2011 Conference held at Geneva, Switzerland during June 26-30, 2011.
4. Best Poster Award - "**AMI-Panjab University**" for the poster presentation entitled "*Modification of pathogen lipopolysaccharide during the interaction with Caenorhabditis elegans*" presented by Vignesh Kumar B and Balamurugan, K, at 52nd Annual Conference of Association of Microbiologists of India (AMI), "International Conference on Microbial Biotechnology for Sustainable Development" during Nov 3-6, 2011 held at Panjab University, Chandigarh, India.
5. Invited ORAL presentation at the 10th Asia Pacific Bioinformatics Conference conducted by LA Trobe University, Melbourne, Australia, 17-19 Jan 2012.
6. Second Best Oral Presentation Award at the 5th International Conference on Natural Products for Health and Beauty (NATPRO 5) in Phuket, Thailand, 05-07 May 2014.
7. **Best Faculty Award- Biotechnology 2013- Senior** by Shri PK Das Memorial, Nehru Group of Institutions, Coimbatore.
8. **Dr. R. R. Mani Maran Memorial Lecture Award** on 26 November 2014 by Indian Society for Comparative Endocrinology for the scientific contribution in the field of Host-Pathogen interactions related to Reproduction.

Events organized in leading roles

Number of Seminars / Conferences / Workshops / Events organized: **10**

Events Participated (optional)

Conferences / Seminars / Workshops: 176

Overseas Exposure / Visits

1. Japan
2. Portugal
3. Thailand
4. Germany
5. London, United Kingdom
6. Australia
7. Switzerland
8. USA
9. Taiwan

Membership in

Professional Bodies

LIFE MEMBER: Association of Microbiologists of India

LIFE MEMBER: Society of Biological Chemists, India (SBC)

LIFE MEMBER: The Biotech Research Society, India (BRSI)

LIFE MEMBER: Indian Society for Comparative Endocrinology (ISCE)

LIFE MEMBER: Proteomics Society, India (PSI)

- The Indian Science Congress Association
- American Gastroenterological Association
- European Congress of Clinical Microbiology and Infectious Diseases
- American Society for Microbiology

Editorial Board

- Gene Reports
- Journal of Proteins and Proteomics
- CRC Press: Taylor and Francis

Advisory Board

- UGC-SAP (DRS-1) Advisory Committee member- Department of Biosciences, Mangalore University (2016-)

Academic Bodies (such as Board of Studies etc.,)

MEMBER IN BOARD OF STUDIES

- M.Sc. Biotechnology, Alagappa University (2007 onwards)
- Biotechnology, Manonmaniam Sundaranar University, Tirunelveli (2008-2010)
- Biochemistry, Dr. G.R. Damodaran College of Science (2010-2012)
- B.Sc. (Chairman) Biotechnology, Alagappa University (2008-2011)&(2015-2017)
- B.Sc. Biotechnology, Alagappa University (2011-2014)
- B.Sc. Biochemistry, Alagappa University (2011-2014)
- B.Sc. Advanced Zoology & Animal Biotechnology (2015-2017)

Resource persons in various capacities

Number of Invited / Special Lectures delivered: **70**

Others

1. Articles published in Newspapers / Magazines : **4 Book chapters**
2. Products developed : **7**
3. No. of PhD Thesis evaluated : **16**
4. No. of PhD Public Viva Voce Examination conducted : **16**
5. Sequences submitted in GenBank: **103**

Recent Publications

1.	Sharika R, Subbiah P and Balamurugan K. (2018). Studies on reproductive stress caused by candidate Gram positive and Gram negative bacteria using model organism, <i>Caenorhabditis elegans</i> . Gene 649:113-126; https://doi.org/10.1016/j.gene.2018.01.088 ; [Country: UK; Elsevier Ltd; Impact Factor: 2.415].
2.	Kavitha S, Pooranachithra M, Balamurugan K and Goel G (2018) Multivariate analysis of increase in life span of <i>Caenorhabditis elegans</i> through intestinal colonization by indigenous probiotic strains. Probiotics and Antimicrobial Proteins [Country: USA; Springer] (Impact Factor: 1.60). [Accepted].
3.	Rai P; Sharika R, Ganguli A, Balamurugan K , Sarala B, Sharma R, Gupta R, Neogi SB (2017). Application of <i>C. elegans</i> for elucidating reproductive toxicity of indigenous preparations claimed for sex selection in India. BMC Pharmacology and Toxicology ISSN: 2050-6511; (Publisher: BioMed Central; Country UK; Impact Factor: 2.288] (Revised)
4.	Kamaladevi A, Marudhupandiyan S and Balamurugan K (2017). Model system based proteomics to understand the host response during bacterial infections. Molecular BioSystems 13: 2489-2497. DOI: 10.1039/C7MB00372B; [Country: UK; Royal Society of Chemistry] (Impact Factor: 2.781).
5.	Vigneshwari L and Balamurugan, K. Involvement of O-GlcNAcylation in <i>Caenorhabditis elegans</i> during pathogenic infection. FEBS Journal. Volume 75: Page 75. [ISSN: 1742-464X]; [Wiley; UK] (Impact Factor: 4.237); 3. Kamaladevi A and Balamurugan K (2017).
6.	Global proteomics revealed <i>Klebsiella pneumoniae</i> induced autophagy and oxidative stress in <i>Caenorhabditis elegans</i> by inhibiting PI3K/AKT/mTOR pathway during infection. Frontiers in Cellular and Infection Microbiology 7:393; DOI: 10.3389/fcimb.2017.00393 [Country: Switzerland; Frontiers Media S. A.] (Impact Factor: 4.3).
7.	Marudhupandiyan S, Prithika U, Balasubramaniam B and Balamurugan K (2017). RACK1, a multifaceted regulator is required for <i>C. elegans</i> innate immunity against <i>S. flexneri</i> M90T infection. Developmental and Comparative Immunology. Vol. 74; September 2017, Pages 227-236. DOI:10.1016/j.dci.2017.05.008 [Country: UK; Elsevier] (Impact Factor: 3.62).
8.	Dhanashree, Sharika R, Balamurugan K and Rajagopal K (2017). Bifid shape is intrinsic to <i>Bifidobacterium adolescentis</i> . Front. Microbiol. 8:478. doi: 10.3389/fmicb.2017.00478. (Impact Factor: 4.165)
9.	Prithika U, Vikneswari R and Balamurugan K (2016). Short term memory of <i>Caenorhabditis elegans</i> against bacterial pathogens involves CREB transcription factor. Immunobiology. DOI: 10.1016/j.imbio.2016.12.008 [Country: Netherlands; Publisher: Elsevier BV] (Impact Factor: 2.99).
10.	Marudhupandiyan S and Balamurugan K (2016). Intrinsic JNK-MAPK pathway involvement requires <i>daf-16</i> mediated immune response during <i>Shigella flexneri</i> infection in <i>C. elegans</i> ". Immunologic Research DOI: 10.1007/s12026-016-8879-6. [Country: USA; Springer] (Impact Factor: 2.934).
11.	Kamaladevi A and Balamurugan K (2016). <i>Lactobacillus casei</i> triggers TLR mediated RACK-1 dependent p38 MAPK pathway in <i>Caenorhabditis elegans</i> to resist <i>Klebsiella</i>

	<i>pneumoniae</i> infection. Food & Function 7: 3211- 3223. DOI: 10.1039/C6F000510A [Country: UK; Royal Society of Chemistry] (Impact Factor: 2.791).
12.	Prithika U, Deepa V and Balamurugan K (2016). External induction of heat shock stimulates the immune response and longevity of <i>C. elegans</i> towards pathogen exposure. Innate Immunity 22(6): 466-478. DOI: 10.1177/1753425916654557 [Country: UK; SAGE Publishing] (Impact Factor: 3.271)
13.	Vigneshkumar B, Durai S, Kundu S and Balamurugan K (2016). Proteome Analysis Reveals Translational Inhibition of <i>Caenorhabditis elegans</i> enhances susceptibility to <i>Pseudomonas aeruginosa</i> PAO1 pathogenesis. Journal of Proteomics 145: Pages 141-152. DOI: 10.1016/j.jprot.2016.03.047 [Elsevier, Country: UK] (Impact Factor: 3.888)
14.	JebaMercy G, Durai S, Prithika U, Marudhupandiyam S, Dasauni P, Kundu S and Balamurugan K (2016). Role of DAF-21 in <i>Caenorhabditis elegans</i> immunity against <i>Proteus mirabilis</i> infection. Journal of Proteomics 145: Pages 81-90. DOI:10.1016/j.jprot.2016.03.047 [Elsevier, Country: UK] (Impact Factor: 3.888)
15.	Kamaladevi A and Balamurugan K (2016). Lipopolysaccharide of <i>Klebsiella pneumoniae</i> attenuates immunity of <i>Caenorhabditis elegans</i> and evades by altering its supramolecular structure. RSC Advances 6:30070-30080. DOI: 10.1039/C5RA18206A. [Country: UK; Royal Society of Chemistry] (Impact Factor 3.84)
16.	Prasanth MI, Santoshram GS, Bhaskar JP and Balamurugan K (2016). Ultraviolet-A triggers photoaging in model nematode <i>Caenorhabditis elegans</i> in a DAF-16 dependent pathway. AGE (Dordr) 38(27): 1-13; DOI: 10.1007/s11357-016-9889-y (Country: American Aging Association, Dordrecht, The Netherlands; Publisher: Springer; Impact Factor: 3.445)
17.	Kamaladevi A, Ganguli A and Balamurugan K (2016). <i>Lactobacillus casei</i> stimulates phase-II detoxification system and rescues malathion induced physiological impairments in <i>Caenorhabditis elegans</i> . Comparative Biochemistry and Physiology-Part C: Toxicology & Pharmacology 179: 19-28. DOI: 10.1016/j.cbpc.2015.08.004 (Country: New York, USA; Publisher: Elsevier Science; Impact Factor: 2.301).
18.	Sivamaruthi BS, Madhumita R, Balamurugan K and Rajan KE (2015). <i>Cronobacter sakazakii</i> infection alters serotonin transporter and improved fear memory retention in the rats. Frontiers in Pharmacology, section Neuropharmacology 6:188. doi: 10.3389/fphar.2015.00188 (Country: Switzerland; Publisher: Lausanne: Frontiers Media; Impact factor: 3.8).
19.	Kamaladevi A and Balamurugan K (2015). Role of PMK-1/p38 MAPK defense in <i>Caenorhabditis elegans</i> against <i>Klebsiella pneumoniae</i> infection and changes in supra-molecular aggregate structure of LPS during host-pathogen interaction. Pathogens and Disease 73 (5) (Formerly FEMS Immunology & Medical Microbiology. Published on behalf of the Federation of European Microbiological Societies) DOI: 10.1093/femspd/ftv021 (Country: UK; Oxford University Press. Impact Factor: 2.554)
20.	Sivamaruthi B, Prasanth MI and Balamurugan K (2015). Alterations in <i>Caenorhabditis elegans</i> and <i>Cronobacter sakazakii</i> lipopolysaccharide during interaction. Archives of Microbiology 197:327-337 DOI:10.1007/s00203-014-1064-1 (Country: USA; Springer-Verlag; Impact Factor: 1.8)
21.	Kesika P, Prasanth MI and Balamurugan K (2015). Modulation of <i>Caenorhabditis elegans</i> immune response and modification of <i>Shigella</i> endotoxin upon interaction.

	<i>Journal of Basic Microbiology</i> . doi: 10.1002/jobm.201400511 [Impact factor: 1.822].
22.	JebaMercy G, Prithika U, Lavanya N, Sekar C and Balamurugan K (2015). Changes in host, <i>Caenorhabditis elegans</i> and Staphylococcal Lipoteichoic acid during their interactions. <i>Gene</i> 558 (1): 159-172. DOI: 10.1016/j.gene.2014.12.056 [Country: UK; Elsevier Ltd; Impact Factor: 2.341].
23.	Durai S, Nirpendra S, Suman K and Balamurugan K (2014). Proteomic investigation of <i>Vibrio alginolyticus</i> challenged <i>Caenorhabditis elegans</i> revealed regulation of cellular homeostasis proteins and their role in supporting innate immune system. <i>Proteomics</i> 14(15):1820-32. DOI 10:1002/pmic.201300374. [Country: Germany; WILEY-VCH Verlag GmbH & Co. KGaA, Germany; Impact Factor: 4.150].
24.	Vigneshkumar B, Radhakrishnan S and Balamurugan K (2014). Analysis of Gram negative pathogen Lipid A changes during the interaction with model organism, <i>Caenorhabditis elegans</i> . <i>Lipids</i> . 49(6):555-75. DOI:10.1007/s11745-014-3898-3 [Country: Germany; Springer Berlin Heidelberg; Impact Factor: 2.129].
25.	Durai S, Vigneshwari L and Balamurugan K (2013). <i>Caenorhabditis elegans</i> based <i>in vivo</i> screening of bioactives from marine sponge associated bacteria against <i>Vibrio alginolyticus</i> . <i>Journal of Applied Microbiology</i> Dec;115(6):1329-42. DOI: 10.1111/jam.12335y [Wiley] [Impact Factor: 2.337].
26.	Sivamaruthi B and Balamurugan K (2013) Physiological and immunological regulations in <i>Caenorhabditis elegans</i> infected with <i>Salmonella enterica</i> serovar Typhi. <i>Indian Journal of Microbiology</i> 54 (1): 52-58. DOI:10.1007/s12088-013-0424-x [Springer] [Impact Factor: 0.511].
27.	Jebamercy G, Vigneshwari L and Balamurugan K (2013). A MAP Kinase pathway in <i>Caenorhabditis elegans</i> is required for defense against infection by opportunistic <i>Proteus species</i> . <i>Microbes and Infection</i> 15(8-9): 550-568. DOI:10.1016/j.micinf.2013.03.009 [ELSEVIER] (Impact Factor: 3.101).
28.	Kamaladevi A, Ganguli A, Kumar M and Balamurugan K (2013). <i>Lactobacillus casei</i> protects malathion induced oxidative stress and macromolecular changes in <i>Caenorhabditis elegans</i> . <i>Pesticide Biochemistry and Physiology</i> 105: pp. 213-223. DOI: 10.1016/j.pestbp.2013.02.005 [ELSEVIER] (Impact Factor: 2.009).
29.	VigneshKumar B, Durai S, Nirpendra Singh, Suman K and Balamurugan K . (2013). Understanding host-pathogen interaction by proteomic studies involving <i>C. elegans</i> and <i>P. aeruginosa</i> . <i>Protein Science</i> , 2013 August: Vol 22, Special Issue- Issue Supplement S1, Pages 1-258 (Impact factor: 2.735).
30.	Vigneshkumar B, Pandian SK and Balamurugan K (2013). Catalase Activity and Innate Immune Response to the Heavy Metal Toxin Lead by the <i>Caenorhabditis elegans</i> <i>Environmental Toxicology</i> 28(6):313-321. Doi:10.1002/tox.20722. [Country: USA; Impact Factor: 1.831].
31.	Jebamercy G and Balamurugan K (2012). Effects of subsequent infections in <i>Caenorhabditis elegans</i> with <i>Staphylococcus aureus</i> and <i>Proteus mirabilis</i> . <i>Microbiology and Immunology</i> 56(12):825-35. doi: 10.1111/j.1348-0421.2012.00509.x. [Wiley-Blackwell, Japan, Impact Factor: 1.304].
32.	Durai S and Balamurugan K (2012). Rescue of model organism, <i>Caenorhabditis elegans</i> by <i>Lagerstroemia speciosa</i> flower extract against clinical and drug resistant <i>Staphylococcus aureus</i> infection. <i>International Journal of Infectious Diseases</i> 2012;16S1:e317-e473; No. 54.009. [Country: USA; Impact Factor: 2.529].
33.	JebaMercy, G and Balamurugan, K . Response of <i>Caenorhabditis elegans</i> during subsequent infections with Gram positive and negative bacteria. <i>BMC Infectious Diseases</i> 2012; 12:P44 (Impact Factor: 3.118).

34.	Balamurugan K and Kesika P (2012). Role of immune pathways in <i>Caenorhabditis elegans</i> during <i>Serratia marcescens</i> infection. <i>Clinical Microbiology and Infection</i> 18(s3):1-902.
35.	Balamurugan K and Sivamauthi B (2012) . Changes in immune pathway and proteins of <i>Caenorhabditis elegans</i> during <i>Cronobacter sakazakii</i> infection. <i>The FASEB Journal</i> 26: 1156.2 [Country: USA; Impact Factor: 6.79].
36.	Balamurugan K and JebaMercy G (2012). Role and contribution of conserved p38MAP kinase pathway in <i>Caenorhabditis elegans</i> immunity during <i>Proteus vulgaris</i> infection. <i>The FASEB Journal</i> 26: 835.2 [Country: USA; Impact Factor:6.79].
37.	Kesika P and Balamurugan K (2012). Studies on <i>Shigella boydii</i> infection in <i>Caenorhabditis elegans</i> and bioinformatics analysis of immune regulatory protein interactions. <i>BBA: Proteins and Proteomics</i> 1824 (12): 1449–1456 [http://dx.doi.org/ 10.1016 /j.bbapap. 2012.07.008]. [Country: Germany; Impact Factor: 3.635]
38.	Vigneshkumar B, Pandian SK and Balamurugan K (2012). Regulation of <i>Caenorhabditis elegans</i> and <i>Pseudomonas aeruginosa</i> machinery during interactions. <i>Archives of Microbiology</i> 2012 Apr; 194(4):229-42 [Country: Germany; Impact Factor: 1.927].
39.	Jebamercy G, Pandian SK and Balamurugan K (2011). Changes in <i>Caenorhabditis elegans</i> life-span and selective innate immune genes during <i>Staphylococcus aureus</i> infection. <i>Folia Microbiologica</i> 56: 373-380 (Springer Publishers; Country: Netherlands; Impact Factor: 0.978).
40.	Durai S, Pandian SK and Balamurugan K (2011). Changes in <i>Caenorhabditis elegans</i> exposed to <i>Vibrio parahaemolyticus</i> . <i>Journal of Microbiology and Biotechnology</i> 21(10): 1026–1035 [Country: South Korea; Impact Factor: 1.381].
41.	Sivamaruthi B, Ganguli A, Kumar M, Bhaviya S, Pandian SK and Balamurugan K (2011). <i>Caenorhabditis elegans</i> as a model for studying <i>Cronobacter sakazakii</i> ATCC BAA-894 pathogenesis. <i>Journal of Basic Microbiology</i> 51, 540–549 DOI 10.1002/jobm.201000377. [Country: UK; Impact Factor: 1.822]
42.	Kesika P, Pandian SK and Balamurugan K (2011). Analysis of <i>Shigella flexneri</i> mediated infections in model organism, <i>Caenorhabditis elegans</i> . <i>Scandinavian Journal of Infectious Diseases</i> 43(4):286-95 DOI:10.3109/00365548. 2010.548400 [Country: UK; Impact Factor: 1.70].
43.	Durai S, Pandian SK and Balamurugan K (2011). Establishment of a <i>Caenorhabditis elegans</i> infection model for <i>Vibrio alginolyticus</i> . <i>Journal of Basic Microbiology</i> 51(3):243-52. DOI 10.1002/jobm.201000303 [Country: UK; Impact Factor: 1.822] .

Faculty Profile as of 30th MAY 2018