



**Dr. K. Emmanuel Rajan**  
**Professor**

#### Contact

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#### Academic Qualifications:

M.Sc ., (1994) : Madurai Kamaraj University, Madurai

Ph.D., (2000) : Department of Animal Behaviour and Physiology, Madurai Kamaraj University, Madurai

#### Teaching Experience:

Since 2012 (December) : Professor, Department of Animal Science, Bharathidasan University, Tiruchirappalli.

2005(August) -2012 : Assistant Professor, Department of Animal Science, Bharathidasan University, Tiruchirappalli.

## Area of Research

**Behavioural Neuroscience: *Molecular Mechanism of Learning and Memory***

## Research Experience:

1. Visiting Researcher (January 2020 – June 2020) Institute of Neurobiology, National University Autonomous of Mexico (UNAM), Mexico.
1. DBT-CREST Visiting Fellowship (January 2013-January 2014), Institute of Zoology for Neurobiology and Animal Physiology, University of Cologne, Germany.
2. INSA-DFG visiting fellowship (2009; Aug – Nov) Centre for Cognitive Neuroscience, University of Bielefeld, Bielefeld, Germany.
3. Postdoctoral fellow (2003 – 2005) Department of Neurobiology, Pharmacology and Physiology, The University of Chicago, IL, USA.
4. Post-doctoral Fellow (2000-2003) Department of Cellular Engineering and Biocatalysis, Institute of Biotechnology, Mexico.

## Research Supervision / Guidance

Research	Program of Study	Completed	Ongoing
	Ph.D.	11	4
Project	M.Phil.	4	1
	PG	37	3
	UG / Others	1	0

## Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
53	3	1	5	4

**Cumulative Impact Factor (as per JCR) : 211.67**  
**h-index : 17**  
**i10 index : 27**  
**Total Citations : 945**

## Funded Research Projects

### Ongoing Projects:

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	TAN SCH E	2021	2024	Social stress alters odor recognition memory possibly through the process of gating by amygdala	31.96
2	DST	2018	2021	The effect of environmental enrichment on hippocampal dependent memory on socially stressed mice	38.40

### Completed Projects:

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	DBT	2017	2021	Impact of <i>Cronobacter sakazakii</i> infection on the neuro-immunity using multiple model system <i>C. elegans</i> and Rats	27.00
2	DBT	2011	2014	Role of Immediate Early Genes in Regulation of Synaptic Proteins in Involved in Olfactory Learning and Memory	44.00
3	UGC	2011	2014	Short Interspersed Elements(SINEs):A Temporal Landmark to Determine Evolutionary Relationship	09 .00
4	CSIR	2010	2013	Behavioural and genomic response of the Indian shot – nosed fruit bat <i>Cynopterus sphinx</i> to the distress call of conspecifics	11.30
5	DAE-DRANS	2007	2010	Learning and Memory Storage :A dialogue mediated by serotonin	08.30

6	DBT	2007	2010	Olfactory learning and memory formation : A model to visualize mammalian memory trace	23.27
7	CSIR	2006	2009	Social organisation of Indian false vampire bat <i>Megaderma lyra</i> : Genomic scan on the mating system and genetic structure	11.00
8	DST	2006	2009	Evolutionary dynamics of Hipposiderid bats	09.60

### Consultancy Projects:

#### Patents

1. (Wo/2004/099404) Bioinformatic method for predicting functional equivalence between biological sequences

#### Distinctive Achievements / Awards

1. Residential Research Fellowship-2020 Awarded by National University Autonomous of Mexico (UNAM/ Government of Mexico), Mexico.
2. Cutting –Edge Research Enhancement and Scientific Training (CREST) Award -2012 by Department of Biotechnology, Govt of India, India.
3. INSA –DST awarded mentorship for INSA – DST sponsored summer project to post – graduate students /college teachers (from 2011).
4. INSA- DFG exchange visiting fellowship to work in Neurogenesis at centre for Cognitive Neuroscience, University of Bielefeld, Bielefeld, Germany.
5. Young scientist Award (2006) – Department of Atomic Energy ,Board of Research in Nuclear Science , Government of India.
6. Young Scientist Award (2006) – Department of Science and Technology, Ministry of Science and Technology, India.
7. National Research System Fellowship (June 2002- June 2005), Awarded by National Council for Science and Technology , Government of Mexico, Mexico
8. Personal Academic Career Fellowship (June 2001- June 2003), Awarded by Technical Committee for Scientific Investigation, National University Autonomous of Mexico (UNAM),Mexico.

## Events organized in leading roles

1. Refresher course on Lifesciences – Coordinator, Academic Staff College, Bharathidasan University, Tiruchirappalli. 16<sup>th</sup> to 29<sup>th</sup> July, 2019.
2. Refresher course on “Bioscience” – Coordinator, Academic Staff College, Bharathidasan University, Tiruchirappalli. 26<sup>th</sup> October to 15<sup>th</sup> November, 2017.
3. Organized National Workshop on “Application of Molecular Tools in Animal Science Research” During January 19- 21, 2016 at Department of Animal Science, Bharathidasan University, Tiruchirappalli – 620 024.
4. Organized National Symposium on Current perspectives in Animal Biotechnology (CPABT-2011) during 3<sup>rd</sup> & 4<sup>th</sup> February 2011 at Department of Animal Science, Bharathidasan University, Tiruchirappalli – 620 024.
5. Organized National Seminar & Special Lectures on “Emerging Trends in Animal Biotechnology” During January 27 – 28, 2006 at Department of Animal Science, Bharathidasan University, Tiruchirappalli – 620 024.
6. Organized National Workshop on “Application of Molecular Tools in Animal Science Research” During December 05- 22, 2007 at Department of Animal Science, Bharathidasan University, Tiruchirappalli – 620 024.

## Publications

1. **Emmanuel Rajan K** (2021) Olfactory learning and memory in the greater short-nosed fruit bat *Cynopterus sphinx*: the influence of conspecifics distress calls. *Journal of Comparative Physiology A*. DOI : 10.1007/s00359-021-01505-2 (**Impact Factor:1.836**)
2. Karen C, Douglas JH, **Emmanuel Rajan K** (2021) *Lactobacillus paracasei* Supplementation Prevents Early-Life Stress Induced Anxiety and Depressive-like Behaviour in Maternal Separation Model a Possible Involvement of Microbiota-Gut-Brain Axis in Differential Regulation of MicroRNA124a/132 and Glutamate Receptors. *Front. Neurosci.* doi: 10.3389/fnins.2021.719933. (**Impact Factor:4.677**)
3. Sivasangari K, **Emmanuel Rajan K** (2020) Standardized *Bacopa monnieri* Extract Ameliorates Learning and Memory Impairments through Synaptic Protein, Neurogranin, Pro-and Mature BDNF Signaling, and HPA Axis in Prenatally Stressed Rat Offspring. *Antioxidants* (Basel). 4;9(12):1229. (**Impact Factor: 6.312**)
4. Vinay P, Karen C, Balamurugan K, **Emmanuel Rajan K** (2021) *Cronobacter sakazakii* Infection in Early Postnatal Rats Impaired Contextual-Associated Learning: a Putative Role of C5a-Mediated NF- $\kappa$ B and ASK1 Pathways. *Journal of Molecular Neuroscience* 71(1):28-41. (**Impact Factor: 3.444**)

5. Thangaleela S, Ragu Varman D, Sivasangari K, **Emmanuvel Rajan K** (2021) Inhibition of monoamine oxidase attenuates social defeat-induced memory impairment in goldfish, (*Carassius auratus*): A possible involvement of synaptic proteins and BDNF. *Comp Biochem Physiol C Toxicol Pharmacol.* 239:108873 (**Impact Factor: 3.228**)
6. Jeyaraj SE, Sivasangari K, García-Colunga J, **Emmanuvel Rajan K** (2021) Environmental enrichment enhances sociability by regulating glutamate signaling pathway through GR by epigenetic mechanisms in amygdala of Indian field mice *Mus booduga*. *General and Comparative Endocrinology.* 1;300:113641 (**Impact Factor: 2.822**)
7. **K. Emmanuvel Rajan**, Suba Soundarya, Christopher Karen, V. Shanmugapriya and K. Radhakrishnan (2019) Presence of Mother Reduces Early-life Social Stress: Linking the alternation in Hypothalamic Pituitary-Adrenal Axis and Serotonergic System. *Developmental Neuroscience* 12: 1-11 (**Impact Factor: 2.984**)
8. Christopher Karen and **K. Emmanuvel Rajan** (2019) Social Behaviour and Epigenetic Status in Adolescent and Adult Rats: The Contribution of Early-Life Stressful Social Experience. *Cellular and Molecular Neurobiology* 39 (3): 371-385 (**Impact Factor: 5.046**)
9. M.Mukilan, D.M. Rajathej, Edwin Jeyaraj, N.Kayalvizhi & **K. Emmanuvel Rajan** (2018) MiR-132 regulated olfactory bulb proteins linked to olfactory learning in greater short-nosed fruit bat *Cynopterus sphinx*. *Gene*,671:10-20 (**Impact Factor: 3.688**)
10. M. Mukilan, W. Bogdanowicz, G. Marimuthu & **K. Emmanuvel Rajan** (2018) Odor discrimination learning in the Indian greater short-nosed fruit bat (*Cynopterus sphinx*): differential expression of Egr-1, C-fos and PP-1 in the olfactory bulb, amygdala and hippocampus. *Journal of Experimental Biology, jeb.* 175364. (**Impact Factor: 3.312**)
11. S. Thangaleela, V. Shanmugapriya, M. Mukilan, K. Radhakrishnan & **K. Emmanuvel Rajan** (2018) Alterations in microRNA-132/212 expression impairs fear memory in goldfish *Carassius auratus*. *Annals of Neuroscience* 25(2): 90-97. (**Impact Factor: 1.64**)
12. Moses Raj, AFA, **Emmanuvel Rajan K** & Raguram H (2018) Responses of short-nosed fruit bat, *Cynopterus sphinx* (Vhal 1747) towards distress call of their conspecifics from related and unrelated sites: implications for building social relationships. *Current Science* 115 (11): 2150 -55. (**Impact Factor: 1.102**)
13. A. Ganesh, M. Mukilan, G. Marimuthu & **K. Emmanuvel Rajan** (2016) A novel food preference in the greater short-nosed fruit bat, *Cynopterus sphinx*: mother-pup interaction a strategy for learning. *Acta Chiropterologica* 18(1): 193-198. (**Impact Factor : 1.073**)
14. J. Preethi, Hemanth K. Singh & **K. Emmanuvel Rajan**, (2016) Possible involvement of standardized *Bacopa monniera* extract (CDRI-08) in epigenetic regulation of *reelin* and brain derived neurotrophic factor to enhance memory. *Frontiers in Pharmacology.* 7: 166 (**Impact Factor: 5.810**)

15. S. Mariappan, B. Wieslaw, H. Raguram, G. Marimuthu, & **K. Emmanuel Rajan** (2015). Structure of distress call: implication for specificity and activation of dopaminergic system. *Journal of Comparative Physiology A* 202(1):55-65. **(Impact Factor: 1.836)**
16. **K. Emmanuel Rajan**, J. Preethi & Hemanth K. Singh (2015) Molecular and functional characterization of *Bacopa monniera*: A retrospective review. *Evidence Based complementary and Alternative Medicine*. DOI: 10.1155/2015/945217. **(Impact Factor: 2.629)**
17. Sivamaruthi BS, Madhumita R, Balamurugan K & **K. Emmanuel Rajan** (2015) *Cronobacter sakazakii* infection alters serotonin transporter and improved fear memory retention in the rat. *Frontiers in Pharmacology* 6: 188. **(Impact Factor: 5.810)**
18. D. Ragu Varman & **K. Emmanuel Rajan** (2015) Environmental enrichment reduces anxiety by differentially activating serotonergic and neuropeptide-Y-ergic system Indian field mouse (*Mus booduga*): an animal model for post-traumatic stress disorder. *PLoS One* May27; 10(5)e0127945. **(Impact Factor: 2.740)**
19. M. Mukilan, D. Ragu Varman, S. Sudhakar & **K. Emmanuel Rajan** (2015) Activity-dependent expression of miR-132 regulates immediate-early gene induction during olfactory learning in the greater short-nosed fruit bat *Cynopterus sphinx*. *Neurobiology of Learning and memory* 120: 41-51. **(Impact Factor: 2.877)**
20. **K. Emmanuel Rajan**, S. Thangaleela & C. Balasundaram (2015) Spatial learning associated with stimulus response in gold fish *Carassius auratus*: relationship of CREB signaling. *Fish Physiology and Biochemistry* 41: 685-691. **(Impact Factor: 2.794)**
21. D. Ragu Varman & **K. Emmanuel Rajan** (2014) Environmental enrichment modulates glucocorticoid receptor expression and reduces anxiety in indian field mouse *Mus booduga* through up-regulation of microRNA-124a. *General and Comparative Endocrinology* 199: 26-32. **(Impact Factor: 2.822)**
22. J. Preethi, K. Hemant Singh, Venkatraman JS & **K. Emmanuel Rajan** (2014) Standardized extract of *Bacopa monniera* (CDRI-08) improves contextual fear memory by differentially regulating histone acetylation and protein phosphatases (PP1 $\alpha$ , PP2A) in hippocampus. *Cellular and Molecular Neurobiology* 34 (4):577-589. **(Impact Factor: 5.046)**
23. D.M. Rajathej, J. Preethi. Hemant Singh & **K. Emmanuel Rajan** (2014) Molecular docking of Bacosides with Tryptophan Hydroxylase: a model to understand the bacosides mechanism. *Natural Products and Bioprospecting* 4: 251-255 **(Impact Factor: 2.90 )**
24. S. Mariappan, B. Wieslaw, G. Marimuthu & **K. Emmanuel Rajan** (2013). Distress calls of the greater short-nosed fruit bat *Cynopterus sphinx* activate hypothalamic-pituitary-adrenal (HPA) axis in conspecifics. *Journal of Comparative Physiology A* 199(9):775-83. **(Impact Factor: 1.836)**
25. D. Ragu Varman, G. Marimuthu & **K. Emmanuel Rajan** (2013). Environmental

enrichment upregulates micro-RNA-183 and alters acetylcholinesterase splice variants to reduce anxiety-like behavior in the little Indian field mouse (*Mus booduga*). ***Journal of Neuroscience Research* 91: 426-435.(Impact Factor: 4.164)**

26. J. Preethi, K. Hemant Singh, C. Prisila Dulcy & **K. Emmanuvel Rajan** (2012) Participation of microRNA-124-CREB pathway: a parallel memory-enhancing mechanism of standardised extract of *Bacopa monniera* (BESEB CDRI-08). ***Neurochemical Research*.37:2167-2177. (Impact Factor: 3.996)**
27. Ganesh, Wieslaw Bogdanowicz, K. Balamurugan, D. Ragu Varman & **K. Emmanuvel Rajan** (2012) Egr-1 antisense oligodeoxynucleotide administration into the olfactory bulb impairs olfactory learning in the greater short-nosed fruit bat *Cynopterus sphinx*. ***Brain Research* 1471: 33-45 (Impact Factor: 3.252)**
28. Prisila Dulcy, Hemant K. Singh, J. Preethi & **K. Emmanuvel Rajan** (2012) Standardized extract of *Bacopa monniera* (BESEB CDRI-08) attenuates contextual associative learning deficits in the aging Rat's brain induced by D-Galactose. ***Journal of Neuroscience Research*90: 2053-2064 (Impact Factor: 4.164)**
29. S. Dharaneedharan, R. Rajkumar, K. Radhakrishnan, S. Thanga Leela, C. Balasundaram & **K. Emmanuvel Rajan** (2012) Upregulation of the b-form of 14-3-3 protein in telencephalon of goldfish (*Carasius auratus*): its possible role in spatial learning. ***NeuroReport* 23: 840-845. (Impact Factor: 1.837)**
30. D. Ragu Varman, G. Marimuthu & **K. Emmanuvel Rajan** (2012) Environmental enrichment exerts anxiolytic effects in the Indian field mouse *Mus booduga*. ***Applied Animal Behaviour Science* 136: 166-173 (Impact Factor: 2.448)**
31. Yang Liu, Naijian Han, Lucía F Franchini, Huihui Xu, Francisco Pisciotano, Ana Belén Elgoyhen, **K. Emmanuvel Rajan** & Shuyi Zhang (2012) The voltage-gated potassium channel subfamily KQT member 4 (KCNQ4) displays parallel evolution in echolocating bats. ***Molecular Biology and Evolution*. 29(5): 1441-1450.(Impact Factor: 16.240)**
32. A. Arulsundari, Wieslaw Bogdanowicz, D. Ragu Varman, G. Marimuthu & **K. Emmanuvel Rajan** (2011) Ectoparasite *Raymondia lobulata* infestation in relation to the reproductive cycle of its host - the greater false vampire bat *Megaderma lyra*. ***Journal of Parasitology* 98 (1): 61-63. (Impact Factor: 1.109)**
33. Anna Tereba, Dagmar Čížková, A. Arul Sundari, **K. Emmanuvel Rajan** & Wieslaw Bogdanowicz (2011) New polymorphic microsatellite markers in the greater false vampire bat *Megaderma lyra* (Chiroptera: Megadermatidae). ***Conservation Genetic Resources* 3:749-751.( Impact Factor: 0.973)**
34. **K. Emmanuvel Rajan**, K. Hemant Singh, A. Parkavi & C. Prisila Dulcy (2011) Attenuation of 1-(*m*-chlorophenyl)-biguanide Induced Hippocampus-Dependent Memory Impairment by a Standardised Extract of *Bacopa monniera* (CDRI-08). ***Neurochemical Research* 36: 2132-2144. (Impact Factor: 3.996)**



35. C. Kanagaraj, P. Mariappan, P. Swami Doss, G. Marimuthu & **K.Emmanuvel Rajan** (2011) Genetic diversity and population structure of leaf-nosed bat *Hipposideros speoris* (Chiroptera: Hipposideridae) in Indian subcontinent. *African Journal of Biotechnology* 10: 1320 – 1328. (**Impact Factor: 0.44**)
36. C. Prisila Dulcy, A. Ganesh, P. Geraldine, M.A. Akbarsha & **K. Emmanuvel Rajan** (2011) *Bacopa monniera* leaf extract up-regulates tryptophan hydroxylase (TPH2) and serotonin transporter (SERT) expression: Implications in memory formation. *Journal of Ethnopharmacology*, 134: 55-61 **Impact Factor: 4.360**)
37. **K. Emmanuvel Rajan**, A. Ganesh, S. Dharaneedharan & K. Radhakrishnan (2011) Spatial learning-induced *egr-1* expression in telencephalon of gold fish *Carassius auratus*. *Fish Physiology and Biochemistry*, 37: 153-159. (**Impact Factor: 2.794**)
38. Chen J, Rossiter SJ, Flanders JR, Sun Y, Hua P, Miller-Butterworth C, Liu X, **Rajan KE**, Zhang S (2010) Contrasting genetic structure in two co-distributed species of old world fruit bat. *PLoS ONE* 5 (11): e13903. (**Impact Factor: 2.740**)
39. Ganesh A, Wieslaw B, Haupt M, Marimuthu G & **Emmanuvel Rajan K** (2010) Role of olfactory bulb serotonin in olfactory learning in the Indian short-nosed fruit bat, *Cynopterus sphinx* (Chiroptera: Pteropodidae). *Brain Research* 1352: 108-117. (**Impact Factor: 3.252**)
40. Ganesh A, Raghuram H, Nathan PT, Marimuthu G & **Emmanuvel Rajan K** (2010) Distress call induced gene expression in the brain of the Indian short-nosed fruit bat, *Cynopterus sphinx*. *Journal of Comparative Physiology A* 196: 155-164. (**Impact Factor: 1.836**)
41. Kanagaraj C, Marimuthu G & **Emmanuvel Rajan K** (2010) Genetic analysis on three South Indian sympatric hipposiderid bats (Chiroptera, Hipposideridae). *Animal Biodiversity and Conservation* 33 (2): 187-194. (**Impact Factor: 0.867**)
42. C. Prisila Dulcy, A. Ganesh & **K. Emmanuvel Rajan** (2010) Olfactory bulb serotonin level modulates the olfactory recognition in the neonate rat. *Indian J. Experimental Biology* 48: 1078-1082. (**Impact Factor: 0.818**)
43. Prisila Dulcy. C & **Emmanuvel Rajan K** (2009) *Bacopa monniera* extract enhance the cognitive ability of rats by increasing serotonin level. *Neuroscience Research* 65(1): S110. (**Impact Factor: 3.304**)
44. **Emmanuvel Rajan K**, Rajkumar R., Chen-Chug Liao, Ganesh A & Marimuthu G (2009) Light induced COP9 signalosome expression in the Indian false vampire bat *Megaderma lyra*. *The Journal of Physiological Sciences* 60 (1): 43-49. (**Impact Factor: 2.781**)
45. **Emmanuvel Rajan K**, Arul Sundari A & Marimuthu G (2009). Isolation and characterization of microsatellite marker in Indian false vampire bat *Megaderma lyra*. *Conservation Genetic Resources* (1): 369-371. (**Impact Factor: 0.973**)
46. **Emmanuvel Rajan K** & Marimuthu G (2006). A Preliminary investigation of genetic

variation in the Indian false vampire bat *Megaderma lyra*. *Animal Biodiversity and Conservation* 29(2): 109 - 115. **(Impact Factor: 0.867)**

47. Enrique Morett, Jan O.Korbel, **Emmanuel Rajan**, Gloria Saab-Rincon, Leticia Olvera, Maricela Olvera, Steffen Schmidt, Berend Snel & Peer Bork (2003). Systematic discovery of analogous enzymes in thiamin biosynthesis. *Nature Biotechnology* 21(7): 790 - 795. *This paper commended in Faculty 1000. (Impact Factor: 54.908)*
48. Enrique Morett, Jan O.Korbel, **Emmanuel Rajan**, Gloria Saab-Rincon, Leticia Olvera, Maricela Olvera, Steffen Schmidt, Berend Snel & Peer Bork (2002). Discovery of analogous enzymes in thiamin biosynthesis by anticorrelation. *Genome Informatics* 13: 365 – 366. **(Impact Factor: 0.68)**
49. Marimuthu G, Emmanuel Rajan K, Kandula S, Stuart Parson & Garath Jones (2002). Effects of different surfaces on the perception of prey generated noise by the Indian false vampire bat *Megaderma lyra*. *Acta Chiropterologica* 4(1): 25-32. **(Impact Factor: 1.073)**
50. **Emmanuel Rajan K** & Marimuthu G (2000). Genetic diversity within and among populations of a Microchiropteran bat *Hipposideros speoris*. *Mammalian Biology* 65: 301-306. **(Impact Factor: 1.863)**
51. **Emmanuel Rajan K** & Marimuthu G (1999). Postnatal growth and age estimation in the Indian false vampire bat *Megaderma lyra*. *Journal of Zoology (London)* 248: 529-534. **(Impact Factor: 2.322)**
52. Marimuthu G, **Emmanuel Rajan K** and Sripathi K (1999). Active and passive mode of prey detection by the Indian false vampire bat *Megaderma lyra*. *Advances in Ethology* 34:88pp **(Impact Factor: 1.897)**
53. **Rajan KE** & Marimuthu G (1999). Localization of prey by the Indian false vampire bat *Megaderma lyra*. *Mammalia* 63: 149-158. **(Impact Factor: 0.944)**
54. Marimuthu G, **Rajan KE**, Johnkoil Raj A, Suthakar Isaac S & Balasingh J (1998). Observations on the foraging behaviour of a tent roosting Megachiropteran bat *Cynopterus sphinx*. *Biotropica* 30 (2):321-324. **(Impact Factor: 2.508)**

### Chapter in Book

1. **K. Emmanuel Rajan** & K. Sivasangari (2020), *Gene-Environment Interaction: An overview of anxiety-like behaviour*, In Laboratory Animal Management and Techniques in Biomedical Research. ISSN: 978-93-85347-07-8.
2. **K. Emmanuel Rajan** & Christopher Karen (2018) Neonatal bacterial infection - *Insights into pathogenic strategy and onset of meningitis and sepsis*. In **Pocket guide to Biomedical science**. Taylor & Francis.
3. BS. Sivamaruthi, R. Madhumita, K. Balamurugan & **K.Emmanuel Rajan** (2016).

*Cronobacter sakazakii* infection alters serotonin transporter and improved fear memory retention in the rat. In **Serotonin and Memory** (Ed.) Alfredo Meneses & Antonella Gasbarri.

4. H.Raghuram, N. Singaravelan, P.Thiruchenthil Nathan, **K.Emmanuvel Rajan** & G. Marimuthu (2011). *Foraging Ecology of Pteropodid Bats: Pollination and Seed Dispersal*. In. **Bats, Biology and Behaviour** (Ed.) Jackop L. Zuban & Sara L. Malkar.
5. Enrique Morett, Gloria Saab, Enrique Marino, Peer Bork, **Emmanuvel Rajan**, Leticia Olvera & Maricela Olvera (2003). *High rate of gene displacement in vitamin biosynthesis pathways*. In. **Bioinformatics and Genomes: Current perspective** (Ed.) Miguel A. Andrade . Horizon Scientific Press, Wymondham, England . 70 – 79.

### Additional Responsibilities

1. Project Coordinator- Biological Sciences, RUSA 2.0, Bharathidasan University, Tiruchirappalli.
2. Head (June 2017-December 2020), Department of Animal Science, Bharathidasan University, Tiruchirappalli.
3. Co-ordinator, UGC-SAP (DRS-II), Department of Animal Science, Bharathidasan University, Tiruchirappalli.
4. Co-ordinator, DST-FIST (Level-II), Department of Animal Science, Bharathidasan University, Tiruchirappalli.
5. Convenor, Institutional Animal Ethical Committee, Bharathidasan University, Tiruchirappalli.
6. Member, Institutional Biosafety Committee, Bharathidasan University, Tiruchirappalli.
7. Member, Steering Committee for Preparation NAAC (Third Cycle), Bharathidasan University, Tiruchirappalli.
8. Nominated as subject expert in Teachers Recruitment Board (2014) for the selection of Assistant Professor in Tamil Nadu Government Colleges, Collegiate Educational Service, Tamil Nadu.
9. University Grant Commission Nominee to UGC – SAP-DRS-II program (2015-2020) Department of Zoology, Osmania University, Hyderabad.
10. University Grant Commission Nominee to UGC- SAP-DRS-II program (2015-2020) Department of Zoology, University of Kerala , Tiruvananthapuram, Kerala.

### Membership in

#### Professional Bodies

1. Bat Conservation International

2. Life Member, Ethological Society of India, India.
3. Life Member in BATNET, Association for bat researchers in India, India.
4. Life Member, Association for Promotion of DNA Fingerprinting and other DNA Technologies, India.

**Editorial Board: Associate Editor in Acta Chiroptera**

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

1. University Nominee in Governing Body Member (2018-2021) A.V.V.M Sri Pushpam College, Poondi.
2. University Nominee in Governing Body Member (2018-2021) National College, Tiruchirappalli.
3. University Nominee in Governing Body Member (2017-2020) Aadhavan Arts and Science College, Manapari, Tiruchirappalli.
4. University Nominee in Governing Body Member (2015-17; 2017-2020) Bishop Heber College, Tiruchirappalli.
5. University Nominee in Academic Council Member (2014-17) Bishop Heber College, Tiruchirappalli.
6. University Nominee in Academic Council Member (2014-17) National College, Tiruchirappalli.
7. University Nominee in Academic Council Member (2016-19) Srimad Andavan College, Tiruchirappalli.
8. University Nominee in board of study (2017)- Department of Zoology, A.D.M. College for Women, Nagapattinam.
9. University Nominee in board of study (2016-18) - Department of Zoology, Governments Arts College, Pumpookar.
10. University Nominee in board of study (2015-17) - Department of Zoology, Jamal Mohamed College, Tiruchirappalli.
11. University Nominee in board of study (2014-16) - Department of Zoology, National College, Tiruchirappalli.
12. University Nominee in board of study (2012-15; 2017-2020)- Department of Zoology, Governments Arts College, Karur.
13. University Nominee in board of study (2012-15; 2017-2020)- Department of Zoology, Nehru Memorial College, Puthanampatti.
14. University Nominee in board of study (2006-08) - Department of Zoology, Bishop Heber College, Tiruchirappalli.
15. University Nominee in board of study (2006-08) - Department of Bioinformatics, Bharathidasan University, Tiruchirappalli.
16. Member in Institute Biosafety Committee, SASTRA University, Thanjavur- 61340

**Other Research Contributions:**

1. Refer for Genome Sequencing (218 Sequences):  
<https://www.ncbi.nlm.nih.gov/nucore/?term=Rajan+KE>
2. Metagenomics Sequence Data: <https://www.ebi.ac.uk/ena>  
PRJEB45530 (ERP129650) | Lactobacillus paracasei Supplementation Prevents Early-Life Stress
3. Invited Lecture : 67