CURRICULUM VITAE

Introduction

I have skills and experience in molecular biology, cell biology, proteomics, reproduction biology & epigenetics.

Personal Details

Name:	**Karthika Radhakrishnan**
Date of Birth:	6TH March 1987
Nationality:	Indian (Australian permanent resident)
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Current position:

Position: Postdoctoral Scientist, Centre for Reproductive Health, Hudson Institute of Medical Research, Clayton, Melbourne, Australia

Duration: *May 2018 to present*

Key Area: **TGFβ signaling, reproductive biology, nuclear transport, testicular cancer**

Positions Held:

1. **Position:** Postdoctoral Visiting Fellow, Department of Biology, Tata Institute of Fundamental Research

   (TIFR), Mumbai

   Duration: *July 2017 to February 2018*

   Key Area: **RNA localization, early embryonic development in zebrafish, transgenesis**

2. **Position:** CSIR Junior Research Fellow and Senior Research Fellow, Rajiv Gandhi Centre for Biotechnology, Trivandrum

   Duration: *March 2010 to March 2015*

   Key Area: **Reproduction biology, Epigenetics, Molecular biology and Proteomics**

3. **Position**: Junior Research Fellow in Department of Science and Technology funded project**,** Molecular Reproduction Unit, Rajiv Gandhi Centre for Biotechnology, Trivandrum

   Duration: *August 2009 to March 2010*

   Key Area: **Gene cloning, protein expression and purification**

Education:

Course	Institute/College/School	University/ Board	Duration	Percentage
Ph. D (Biotechnology)	Rajiv Gandhi Center for Biotechnology (RGCB), Trivandrum, India	Kerala University	2011-2017	N/A
M.Sc. (Biotechnology)	Department of Biotechnology, Mumbai, India	Mumbai University	2007-2009	76.6 % (First class with Distinction)
B.Sc. (Chemistry, Zoology, Biotechnology)	SIES College, Mumbai, India	Mumbai University	2004-2007	75.5% (First Class)

I. PhD (August 2011- May 2017)

Supervisor: Dr. Pradeep Kumar G, Scientist G, Molecular Reproduction Unit, Rajiv Gandhi Centre for Biotechnology, Trivandrum, India

Topic: **H3K4 methylation and spermatogenesis**

My PhD project aimed to study the role of epigenetics in sperm development. To this end, I profiled the changes in the pattern of H3K4 trimethylation during mouse spermatogenesis using ChIP NGS and further integrated ChIP seq data with transcriptome data to understand the correlation of H3K4 trimethylation and gene expression during the onset of meiosis. I have also used candidate-based approach for studying a few known chromatin modifiers to understand their role in regulating spermatogenesis related gene expression program. AIRE, one of the proteins that I have studied plays a central role in autoimmunity. I carried out global proteome analysis using LC/MS to understand the possible role of an autoimmune regulator in germ cell development.

II. Master's Degree Dissertation (April 2008 - June 2008)

Supervisor: Dr. Pradnya Kowtal, Co-Principal Investigator, Cancer Genetics Laboratory, Advanced Cancer Treatment Research and Education Centre (ACTREC), Kharghar, Navi Mumbai

Topic: **Germline mutation analysis of BRCA1 in patients with hereditary breast and ovarian cancer**

I analyzed blood samples from patients suffering from hereditary breast and ovarian cancer for mutations in BRCA1 gene using PCR based assays and dHPLC

Technical Skills:

1. Gene expression analysis (PCR, qPCR, PAGE, protein purification, quantitation, western blotting)
2. Sequencing
3. Immunoprecipitation and chromatin immunoprecipitation
4. Gene cloning and expression of proteins in prokaryotic and eukaryotic systems
5. Tissue sectioning, Immunohistochemistry and Microscopy (bright field, fluorescence, confocal)
6. Cell culture
7. Overexpression and silencing of genes (electroporation & lipofection) in cell lines

8. Immunocytochemistry and FACS sorting
9. Mouse experimentation (completed short training in animal handling and experimentation from RGCB, India)
10. Bioinformatics (completed a short course in bioinformatics from RMIT, Australia and NGS data analysis from Bionivid Inc, India)
11. Functional analysis of bulk data (DAVID, PANTHER, CYTOSCAPE, KEGG pathway analysis) from whole proteomics (LC/MS), transcriptomics (microarray) and next generation sequencing (NGS)

Soft Skills:

1. Excellent planning, organization and time management skills.
2. Excellent communication skills (written & verbal) in English language

Teaching Experience

Supervised short term projects (three months to six months) of graduate and postgraduate students (2012 to 2015)

Journal Publications

1. Diana J Micati, **Karthika Radhakrishnan**, Julia C Young, Ewa Rajpert-De Meyts, Gary R Hime, Helen E Abud, Kate L Loveland. Snail Factors in Testicular germ cell tumors and their regulation by the BMP4 signaling pathway. *Andrology* (2020) 8:1456–1470.
2. Kongattu P. Bhagya, Rohini J. Aswathy, **Karthika Radhakrishnan**, Jeeva Sengottaiyan, Pradeep G. Kumar. Autoimmune Regulator Enhanced the Expression of Caspase-3 and did not induce massive germ cell apoptosis in GC1-Spg cells. *Cellular Physiology and Biochemistry* (2020);54.
3. A. Soumya, **Karthika Radhakrishnan** and Pradeep G. Kumar. DNA Methylation and Histone Modifications Associated with Male Germ Cell Differentiation. *Journal of Endocrinology and Reproduction*, Vol 21(2), 59-66, 2018, DOI: 10.18311/jer/2017/23323.
4. **Karthika Radhakrishnan**, Kongattu P Bhagya and Pradeep G Kumar. Over-expression of Autoimmune regulator in spermatogonial cell line GC1-spg altered the expression of several nucleic acid binding and cytoskeletal proteins. *Molecular and Cellular Proteomics* (2016) 15: 2686-2698.
5. Shreesha Sree, **Karthika Radhakrishnan**, Indu S, Kumar PG. Dramatic changes in 67 miRNAs during initiation of first wave of spermatogenesis in Mus musculus testis: global regulatory insights generated by miRNA-mRNA network analysis. *Biology of Reproduction* (2014) 91(3):1-69.

Conference presentations

1. **Karthika Radhakrishnan,** Julia Young, Diana Micati, Josie Iaria, Hong-Jian Zhu & Kate Loveland TGFβ signalling crosstalk during foetal germ cell development; a role for the nuclear transport protein, IPO5. (2019) ESA-SRB-AOTA, International Convention Centre Sydney, Australia.

2. **Karthika Radhakrishnan** & Pradeep G Kumar. Profiling the changes in the pattern of H3K4 trimethylation during the first wave of spermatogenesis in mice (Award talk). (2019) 29th Annual Meeting of Indian Society for the Study of Reproduction and Fertility (ISSRF), JNU, New Delhi, India.

3. **Karthika Radhakrishnan** & Kumar PG. Evaluation of the effect of over expression of AIRE, an H3K4me0 reader in germ cell line. (October 2016) International Biofest, Melbourne, Australia. (poster).

4. **Karthika Radhakrishnan** & Kumar PG**.** Evaluation of the effect of over expression of AIRE, an H3K4me0 reader in germ cell line. (October 2016) Annual Research Meeting of Epigenetics Consortium of South Australia Inc (EpiCSA), Adelaide, Australia. (poster).

5. **Karthika Radhakrishnan,** Bhagya KP, Kumar PG**.** Histone methylation and Spermatogenesis- Does AIRE have a say? (Feb 2015) 25th Annual Meeting of Indian Society for the Study of Reproduction and Fertility (ISSRF), Mumbai, India. (poster).

6. **Karthika Radhakrishnan**, Bhagya KP, Kumar PG. A Global Proteomic approach for elucidating the mechanism of action of AIRE in germ cells. (April 2014) 5th Congress of the Asia Pacific Initiative on Reproduction (ASPIRE), Brisbane, Australia. (Oral presentation).

7. **Karthika Radhakrishnan**, Kumar PG. Histone methylation and spermatogenesis. (Feb 2013) 23rd Annual Meeting of Indian Society for the Study of Reproduction and Fertility (ISSRF), Trivandrum, India. (poster)**.**

Fellowships/ Scholarships/Awards

1. Recipient of **Dr. Mridula Kamboj Young Scientist Award 2019**, Indian Society for the Study of Reproduction and Fertility, India.
2. Recipient of **Indo-US Fulbright postdoctoral fellowship** (2018-2020) (Not availed)
3. **TIFR-DAE visiting fellowship** (2017-2018)
4. **Indian Council for Medical Research (ICMR) travel award,** April 2014 for presenting a paper at the 5th Congress of the Asia Pacific Initiative on Reproduction (ASPIRE), Brisbane, Australia.
5. Recipient of **Junior research fellowship and Senior research fellowship**, Council of Scientific and Industrial Research (**CSIR**), India (2010 to 2015).
6. **Junior research fellowship**, **ICMR** (2009), not availed.
7. Recipient of **Biotechnology department merit scholarship**, Mumbai university (2007-2008) and (2008-2009).
8. Recipient of **Bharat Petroleum Corporation Limited Merit scholarship** (2002-2007).

Memberships:

1. Member of ISSRF (Indian Society for Study of Reproduction & Fertility) and was a part of the event organizing committee for ISSRF 2013
2. Member of AusBiotech and have volunteered in organization of the International BioFest 2016.
3. Member of Society for Reproductive Biology (SRB), Australia

Community & Cultural contributions:

1. Trained in Indian classical dance forms, Bharatnatyam and Mohiniattam. I performed at various events across India and won numerous awards and recognition.
2. Recipient of **Cultural talent search scholarship**, Centre for Cultural Resources and Training, Ministry of Tourism and Culture, India (1998-2001).
3. Taught Indian dance forms to children (2003 to 2008).
4. Actively participated in various community welfare events and fundraising events.

Professional Referees:

1. **Professor Kate Loveland, NHMRC Senior Research Fellow and Centre Head,** Centre for Reproductive Health, Hudson Institute of Medical research, Monash University, Clayton VIC 3168, Melbourne
   Email Address: kate.loveland@hudson.org.au
   Contact No. +61 399029337

2. **Dr. Pradeep Kumar G, Scientist G**, Molecular Reproduction Unit, Rajiv Gandhi Centre for Biotechnology, Thycaud P.O., Trivandrum 695014
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   Contact No. 0091-471-2529459

3. **Dr. Malini Laloraya, Scientist F**, Molecular Reproduction Unit, Rajiv Gandhi Centre for Biotechnology, Thycaud P.O., Trivandrum 695014
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