

## Anvita Kale

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### Education

**Ph.D in Biochemistry**, Bharati Vidyapeeth University, Pune, June 2011.

**M.Sc in Biochemistry (65%)**, University of Pune, Pune, May 1995.

**B.Sc (90%)**, Osmania University, Hyderabad, May 1993.

### Employment Details

- IRSHA (Interactive Research School For Health affairs), Bharati Vidyapeeth University, Pune –**Assistant Professor** (July 2016 to date)
- IRSHA (Interactive Research School For Health affairs), Bharati Vidyapeeth University, Pune –**Scientist** (July 2008 to June 2016)
- IRSHA (Interactive Research School for Health affairs), Bharati Vidyapeeth University, Pune - **Project Assistant**. (April '01 – June 2008)
- Dr.Golwilkar Pathology Lab, Pune, - **Technician** (Jan 2000-Dec'2000)
- Specialty Ranbaxy Ltd, Mumbai,- **Scientific Officer**(Oct'97 – Jul'99)
- Dr.Reddy's Research Foundation, Hyderabad, **Senior Pharmacologist** (May'96 – March'97)

### Fellowships

- Recipient of CSIR (Council for Industrial and Scientific Research fellowship) 1994 December.  
*This is a national fellowship awarded for training in methods of research under the expert guidance of faculty members /scientists working in University Departments/ National Laboratories and Institutes in various fields of Science & Technology and Medical Sciences in India.*
- Recipient of NCL fellowship for the period of 1993-1995 for Masters in Biochemistry from Pune University.  
*This is a national merit fellowship is awarded to 10 candidates annually based on a national examination conducted for over 5000 students.*

### Awards

- Recipient of the **best poster award (for experimental nutrition)** for the paper titled “short and long term effects of maternal butter consumption on adult wistar rat offspring cardiometabolic and neurodevelopmental health” and authors Shruti Jawale, Sadhana Joshi, Anvita Kale \*at the 50<sup>th</sup> National Conference by the Nutrition Society of India is being organized at Hyderabad from the 15th to 17th of November 2018.
- Recipient of the Seva Gaurav Puraskar” **Best Researcher Award**”, Bharati Vidyapeeth Deemed University, 26<sup>th</sup> April 2016.

- Recipient of the **best poster award (for experimental nutrition)** for the paper titled “*Association Of One-Carbon Metabolism (Reduced Folic Acid, Vitamin B<sub>12</sub>), Docosahexaenoic Acid And Homocysteine Concentrations In Patients With Schizophrenia*” and authors **Kale A**, Naphade N, Sapkale S, Kamaraju M, Pillai A, Joshi S, Mahadik S at the 41<sup>st</sup> Annual meet of the Nutrition Society of India. 20<sup>th</sup> and 21<sup>st</sup> Nov 2009 at Hyderabad.
- Recipient of **RAMANATHAN AWARD** for the best oral presentation for the paper titled “*Essential Polyunsaturated Fatty Acids and Nerve Growth Factor Levels In First Episode Schizophrenia*” and authors **Kale A**, Joshi S, Naphade N, Sapkale S, Raju MSVK, Pillai A, Mahadik S in the Free Communication Session of the 39<sup>th</sup> National Conference of the Nutrition Society of India held at National Institute of Nutrition, Nov 15<sup>th</sup>-16<sup>th</sup> 2007 at Hyderabad.
- The **best poster award (for experimental nutrition)** was awarded to the paper titled “*Sensitivity Of Fetus To Of Alpha Linolenic Acid – An Essential Omega Three Fatty Acid*” and authors Rao SS, **Kale AA**, Joshi SR, Mahadik SP at the XXXVI Annual meet of the Nutrition Society of India This award was instituted by the organizers CFTRI, DFRL and University of Mysore., 5<sup>th</sup> - 6<sup>th</sup> Nov 2004 at Mysore.

### Memberships

- Life member of Nutrition Society of India, India
- Life member of Society for the natal effects on health in adults (SNEHA), India

### NAAC, NIRF, UGC Coordinator for the institute since 2015 -2023

### Lectures

I have taken MSc Medical Biotechnology lectures at Rajiv Gandhi Institute of Information Technology & Bio-Technology (RGITBT), Bharati Vidyapeeth, Katraj Pune in the year 2013; 2017, 2021, 2022 and also was called as external examiner for MSc Biochemistry and Medical Biotechnology Practical's

### Research Grants as Principal Investigator (Extramural Grant)

Exploring the efficacy of Omega 3 fatty acid supplementation to a maternal high fat diet deficient in Vitamin B<sub>12</sub> in Ameliorating the risk for impaired brain development and metabolic syndrome in the offspring funded by Indian Council for Medical Research (ICMR), India.(Dec 2013-Nov-2016).

### Research Grants as Principal Investigator (Intramural Grant)

Exploring the Role of Postnatal Omega-3 Fatty Acid Supplementation on Neuropeptide Y Levels and Cognitive Performance in Offspring subjected to Maternal Separation using a Rat Model (2021-2022), funded by Bharati Vidyapeeth Deemed to be University

### Research Grants as Co-Investigator

1. Centre for Advanced Research “ Investigating mechanisms leading to preeclampsia” funded by Indian Council for Medical Research (ICMR), India.(March 2017- Feb 2022).
2. Maternal micronutrient status, inflammatory markers and Risk for non-communicable diseases in the offspring in a preeclamptic rat model funded by department of biotechnology (DBT), India. (March 2013-April 2016).
3. Multigenerational effects of vitamin B<sub>12</sub> deficiency/supplementation on brain development and metabolic syndrome variables in a rat model funded by department of science and technology (DST), India. (Aug 2012-Nov 2015).
4. Role of maternal micronutrients on brain neurotrophic factors and cognitive development in Wistar rat offspring, funded by department of biotechnology (DBT), India. (March 2010-Feb 2013).

**Training** at St. John's Medical College Dr. Srinivasan, Dean, Division of Mental Health and Neurosciences Professor, Department of Psychiatry to gain basic understanding of various cognitive tests for assessing cognitive tests in children in 2012 June.

**Publications: (Total No: 40; Total Impact Factor: 100.692; Avg Impact Factor: 2.96; Book Chapter: 1)**

1. Akriti Sahay, **Anvita Kale** and Sadhana Joshi. Role of Neurotrophins in Pregnancy and Offspring Brain Development. *Neuropeptides*. 2020 Oct;83:102075. (IF: 2.411) **Sopus, WOS, Pubmed**
2. Vaishali Kasture, **Anvita Kale**, Karuna Randhir, Deepali Sundrani, Sadhana Joshi \* Effect of maternal omega-3 fatty acids and vitamin E supplementation on placental apoptotic markers in rat model of early and late onset preeclampsia. *Life Sciences* 2019 Dec 15;239:117038. (IF:3.448) **Sopus, WOS, Pubmed**
3. Vaishali Kasture, Deepali Sundrani, Surabhi Dalvi, Mayur Swamy, **Anvita Kale**, Sadhana Joshi\*. Maternal omega-3 fatty acids and vitamin E improve placental angiogenesis in late onset but not early onset preeclampsia. *Molecular and Cellular Biochemistry*. 2019 Nov;461(1-2):159-170 (IF:2.884) **Sopus, WOS, Pubmed**
4. Kasture V, Dalvi S, Swamy M, **Kale A**, Joshi S. Omega-3 fatty acids differentially influences embryotoxicity in subtypes of preeclampsia. *Clin Exp Hypertens*. 2019 Apr 9:1-8. [Epub ahead of print] (IF:1.234) **Sopus, WOS, Pubmed**
5. Shruti Jawale, Sadhana Joshi, **Anvita Kale\***. Maternal Dairy Fat Diet does not Influence Neurotrophin Levels and Cognitive Performance in the Rat Offspring at Adult Age. *International Journal of Developmental Neuroscience*. 2018 71:18-29 (IF:2.495). **Sopus, WOS, Pubmed**
6. Kemse N, **Kale A**, Chavan-Gautam P, Joshi S. Increased intake of vitamin B<sub>12</sub>, folate, and omega-3 fatty acids to improve cognitive performance in offspring born to rats with induced hypertension during pregnancy. *Food Funct*. 2018 Jul 17;9(7):3872-3883. doi: 10.1039/c8fo00467f. (IF:3.247) **Sopus, WOS, Pubmed**

7. Kemse N, Sundrani D, **Kale A**, Joshi S. Maternal Micronutrients, Omega-3 Fatty Acids and Gene Expression of Angiogenic and Inflammatory Markers in Pregnancy Induced Hypertension Rats. *Arch Med Res.* 2017 Jul;48(5):414-422. doi: 10.1016/j.arcmed.2017.10.006. Epub 2017 Nov 10. (IF:2.718). [Sopus](#), [WOS](#), [Pubmed](#)
8. Rathod R, Khaire A, **Kale A**, Joshi S. A combined supplementation of vitamin B<sub>12</sub> and n-3 polyunsaturated fatty acids across two generations improves nerve growth factor and vascular endothelial growth factor levels in the rat hippocampus. *Neuroscience.* 2016 Dec 17;339:376-384. doi: 10.1016/j.neuroscience.2016.10.018. (IF: 3.231). [Sopus](#), [WOS](#), [Pubmed](#)
9. Khaire A, Rathod R, **Kale A**, Joshi S (2016). Vitamin B<sub>12</sub> Deficiency across Three Generations Adversely Influences Long Chain Polyunsaturated Fatty Acid Status and Cardiometabolic Markers in Rats. *Archives of Medical Research.* 2016 Aug;47(6):427-435. (IF:2.219) [Sopus](#), [WOS](#), [Pubmed](#)
10. Jawale S, Pulwale A, Joshi S, **Kale A**. Maternal high fat diet deficient in vitamin B<sub>12</sub> influences long chain polyunsaturated fatty acid composition in rats. *J Matern Fetal Neonatal Med.* 2016 Nov 21:1-9. [Epub ahead of print] (IF:1.089) [Sopus](#), [WOS](#), [Pubmed](#)
11. Rathod RS, Khaire AA, **Kale AA**, Joshi SR. Effect of vitamin B<sub>12</sub> and omega-3 fatty acid supplementation on brain neurotrophins and cognition in rats: A multigeneration study. *Biochimie.* 2016 Sep-Oct;128-129:201-8. doi: 10.1016/j.biochi.2016.08.009. (IF:3.017) (Scopus, WOS)
12. Khaire A, Rathod R, Randhir K, **Kale A**, Joshi S. A combined supplementation of vitamin B<sub>12</sub> and omega-3 fatty acids across two generations improves cardiometabolic variables in rats. *Food Funct.* 2016 Sep 14;7(9):3910-9. doi: 10.1039/c6fo00148c. (IF: 2.686). [Sopus](#), [WOS](#), [Pubmed](#)
13. Kemse NG, **Kale AA**, Joshi SR (2016). Maternal supplementation of omega-3 fatty acids and micronutrients reduces cardiometabolic variables in pregnancy induced hypertension rats. *Life Sciences.* Jun 15;155:85-93. (IF: 2.685). [Sopus](#), [WOS](#), [Pubmed](#)
14. Kemse NG, **Kale AA**, Joshi SR. Supplementation of maternal omega-3 fatty acids to pregnancy induced hypertension Wistar rats improves IL10 and VEGF levels. *Prostaglandins Leukot Essent Fatty Acids.* 2016 Jan;104:25-32. doi: 10.1016/j.plefa.2015.11.003. (IF: 3.155). (Scopus, WOS)
15. Rathod R, **Kale A**, Joshi S. Novel insights into the effect of vitamin B<sub>12</sub> and omega-3 fatty acids on brain function. *J Biomed Sci.* 2016 Jan 25;23:17. doi: 10.1186/s12929-016-0241-8. Review. (IF: 2.736). [Sopus](#), [WOS](#), [Pubmed](#)
16. Rathod RS, Khaire AA, **Kale AA**, Joshi SR. Beneficial effects of omega-3 fatty acids and vitamin B<sub>12</sub> supplementation on brain docosahexaenoic acid, brain derived neurotrophic factor, and cognitive performance in the second-generation Wistar rats. *Biofactors.* 2015 Jul-Aug;41(4):261-72. doi: 10.1002/biof.1222. (IF: 4.504). (Scopus, WOS)
17. Khaire AA, **Kale AA**, Joshi SR. Maternal omega-3 fatty acids and micronutrients modulate fetal lipid metabolism: A review. *Prostaglandins Leukot Essent Fatty Acids.* 2015 Jul;98:49-55. doi: 10.1016/j.plefa.2015.04.007. Review. (IF: 3.155). (Scopus, WOS)
18. Rathod RS, Khaire AA, **Kale AA**, Joshi SR. Maternal omega-3 fatty acid supplementation to a vitamin B<sub>12</sub> deficient diet normalizes angiogenic markers in the pup brain at birth. *Int J Dev Neurosci.* 2015 Jun;43:43-9. doi: 10.1016/j.ijdevneu.2015.04.006. (IF: 2.380) (Scopus, WOS)
19. Khaire A, Rathod R, **Kale A**, Joshi S. Vitamin B<sub>12</sub> and omega-3 fatty acids together regulate lipid metabolism in Wistar rats. *Prostaglandins Leukot Essent Fatty Acids.* 2015 Aug;99:7-17. doi: 10.1016/j.plefa.2015.04.006. (IF: 3.155). [Sopus](#), [WOS](#), [Pubmed](#)
20. Khaire A, Rathod R, Kemse N, **Kale A**, Joshi S. Supplementation with omega-3 fatty acids during gestation and lactation to a vitamin B<sub>12</sub>-deficient or -supplemented diet improves pregnancy outcome and metabolic variables in Wistar rats. *Reprod Fertil Dev.* 2015 Jan;27(2):341-50. doi: 10.1071/RD13306. (IF: 2.400). [Sopus](#), [WOS](#), [Pubmed](#)
21. Sable P, Randhir K, **Kale A**, Chavan-Gautam P, Joshi S. Maternal micronutrients and brain

- global methylation patterns in the offspring. *Nutr Neurosci.* 2015 Jan;18(1):30-6. doi: 10.1179/1476830513Y.0000000097. (IF: 2.616) [Sopus](#), [WOS](#), [Pubmed](#)
22. Kemse NG, **Kale AA**, Joshi SR. A combined supplementation of omega-3 fatty acids and micronutrients (folic acid, vitamin B<sub>12</sub>) reduces oxidative stress markers in a rat model of pregnancy induced hypertension. *PLoS One.* 2014 Nov 18;9(11):e111902. doi: 10.1371/journal.pone.0111902. (IF: 3.057). (Scopus, WOS)
  23. Rathod R, Khaire A, Kemse N, **Kale A**, Joshi S. Maternal omega-3 fatty acid supplementation on vitamin B<sub>12</sub> rich diet improves brain omega-3 fatty acids, neurotrophins and cognition in the Wistar rat offspring. *Brain Dev.* 2014 Nov;36(10):853-63. doi: 10.1016/j.braindev.2013.12.007. (IF: 1.785). [Sopus](#), [WOS](#), [Pubmed](#)
  24. Khot V, **Kale A**, Joshi A, Chavan-Gautam P, Joshi S. Expression of genes encoding enzymes involved in the one carbon cycle in rat placenta is determined by maternal micronutrients (folic acid, vitamin B<sub>12</sub>) and omega-3 fatty acids. *Biomed Res Int.* 2014;2014:613078. doi: 0.1155/2014/613078. (IF: 1.579) [Sopus](#), [WOS](#), [Pubmed](#)
  25. Sable P, **Kale A**, Joshi A, Joshi S. Maternal micronutrient imbalance alters gene expression of BDNF, NGF, TrkB and CREB in the offspring brain at an adult age. *Int J Dev Neurosci.* 2014 May;34:24-32. doi: 10.1016/j.ijdevneu.2014.01.003. (IF: 2.380) [Sopus](#), [WOS](#), [Pubmed](#)
  26. Roy S, Sable P, Khaire A, Randhir K, **Kale A**, Joshi S. Effect of maternal micronutrients (folic acid and vitamin B<sub>12</sub>) and omega 3 fatty acids on indices of brain oxidative stress in the offspring. *Brain Dev.* 2014 Mar;36(3):219-27. doi: 10.1016/j.braindev.2013.03.004. (IF: 1.785). [Sopus](#), [WOS](#), [Pubmed](#)
  27. Sable PS, **Kale AA**, Joshi SR. Prenatal omega-3 fatty acid supplementation to a micronutrient imbalanced diet protects brain neurotrophins in both the cortex and hippocampus in the adult rat offspring. *Metabolism.* 2013 Nov;62(11):1607-22. doi: 10.1016/j.metabol.2013.06.002. (IF: 4.375) (Scopus, WOS)
  28. Roy S, **Kale A**, Dangat K, Sable P, Kulkarni A, Joshi S. Maternal micronutrients (folic acid and vitamin B<sub>12</sub>) and omega 3 fatty acids: implications for neurodevelopmental risk in the rat offspring. *Brain Dev.* 2012 Jan;34(1):64-71. doi: 10.1016/j.braindev.2011.01.002. (IF: 1.785) [Sopus](#), [WOS](#), [Pubmed](#)
  29. Sable P, Dangat K, **Kale A**, Joshi S (2011). Altered brain neurotrophins at birth: consequence of Imbalance in maternal folic acid and vitamin B<sub>12</sub> metabolism. *Neuroscience* Sept: 190:127-34 (IF: 3.327) [Sopus](#), [WOS](#), [Pubmed](#)
  30. Dangat KD, **Kale AA**, Joshi SR. Maternal supplementation of omega 3 fatty acids to micronutrient-imbalanced diet improves lactation in rat. *Metabolism.* 2011 Sep;60(9):1318-24. doi: 10.1016/j.metabol.2011.02.001. (IF: 4.375)
  31. Kulkarni A, Dangat K, **Kale A**, Sable P, Chavan-Gautam P, Joshi S. Effects of altered maternal folic acid, vitamin B<sub>12</sub> and docosahexaenoic acid on placental global DNA methylation patterns in Wistar rats. *PLoS One.* 2011 Mar 10;6(3):e17706. doi: 10.1371/journal.pone.0017706. (IF: 3.057) [Sopus](#), [WOS](#), [Pubmed](#)
  32. Kilari A, Mehendale S, Pisal H, Panchanadikar T, **Kale A**, Joshi S. Nerve growth factor, birth outcome and pre-eclampsia. *Int J Dev Neurosci.* 2011 Feb;29(1):71-5. doi: 10.1016/j.ijdevneu.2010.09.001. (IF: 2.380). [Sopus](#), [WOS](#), [Pubmed](#)
  33. **Kale A**, Naphade N, Sapkale S, Kamaraju M, Pillai A, Joshi S, Mahadik S. Reduced folic acid, vitamin B<sub>12</sub> and docosahexaenoic acid and increased homocysteine and cortisol in never-medicated schizophrenia patients: implications for altered one-carbon metabolism. *Psychiatry Res.* 2010 Jan 30;175(1-2):47-53. doi: 10.1016/j.psychres.2009.01.013. (IF: 2.682). [Sopus](#), [WOS](#), [Pubmed](#)
  34. Pillai A, **Kale A**, Joshi S, Naphade N, Raju MS, Nasrallah H, Mahadik SP. Decreased BDNF levels in CSF of drug-naive first-episode psychotic subjects: correlation with plasma BDNF and psychopathology. *Int J Neuropsychopharmacol.* 2010 May;13(4):535-9. doi: 10.1017/S1461145709991015. (IF: 4.009). [Sopus](#), [WOS](#), [Pubmed](#)

35. **Kale A**, Joshi S, Pillai A, Naphade N, Raju M, Nasrallah H, Mahadik SP. Reduced cerebrospinal fluid and plasma nerve growth factor in drug-naïve psychotic patients. *Schizophr Res.* 2009 Dec;115(2-3):209-14. doi: 10.1016/j.schres.2009.07.022. (IF: 4.748). [Sopus](#), [WOS](#), [Pubmed](#)
36. **Kale A**, Joshi S, Naphade N, Sapkale S, Raju MS, Pillai A, Nasrallah H, Mahadik SP. Opposite changes in predominantly docosahexaenoic acid (DHA) in cerebrospinal fluid and red blood cells from never-medicated first-episode psychotic patients. *Schizophr Res.* 2008 Jan;98(1-3):295-301. (IF: 4.748). [Sopus](#), [WOS](#), [Pubmed](#)
37. Rao SS, **Kale AA**, Joshi SR, Mahadik SP. Sensitivity of fetus and pups to excess levels of maternal intakes of alpha linolenic acid at marginal protein levels in Wistar rats. *Reprod Toxicol.* 2007 Nov-Dec;24(3-4):333-42. (IF: 2.771).
38. Rao S, Joshi S, **Kale A**, Hegde M, Mahadik S. Maternal folic acid supplementation to dams on marginal protein level alters brain fatty acid levels of their adult offspring. *Metabolism.* 2006 May;55(5):628-34. (IF: 4.375)
39. Joshi S, Rao S, Girigosavi S, Daware M, **Kale A**, Hegde M. Differential effects of fish oil and folic acid supplementation during pregnancy in rats on cognitive performance and serum glucose in their offspring. *Nutrition.* 2004 May;20(5):465-72. (IF: 3.046). [Sopus](#), [WOS](#), [Pubmed](#)
40. Ranjekar PK, Hinge A, Hegde MV, Ghate M, **Kale A**, Sitasawad S, Wagh UV, Debsikdar VB, Mahadik SP. Decreased antioxidant enzymes and membrane essential polyunsaturated fatty acids in schizophrenic and bipolar mood disorder patients. *Psychiatry Res.* 2003 Dec 1;121(2):109-22. (IF: 2.682). [Sopus](#), [WOS](#), [Pubmed](#)

## Book Chapter

**Kale A**, Joshi S and Mahadik S (2011). Novel Mechanism for Oxidative Stress in Neurodevelopmental Pathophysiology and Course of Schizophrenia. In *Molecular and genetic aspects of neurodegeneration and neuroprotection*. 978-1-60805-092-(2011) Editors: Akhlaq Farooqui and Tahira Farooqui, The Ohio State University, USA. Bentham E books. USA. p. 102-120. **ISBN:** 978-1-60805-376-6

## International Conferences

1. Shruti Jawale, Sadhana Joshi, **Anvita Kale** \* “Short And Long Term Effects Of Maternal Butter Consumption On Adult Wistar Rat Offspring Cardiometabolic And Neurodevelopmental Health” 50<sup>th</sup> Annual International Conference of Nutrition Society of India held at Hyderabad, 15<sup>th</sup> -17<sup>th</sup> November, 2018 (Poster Presentation Experimental Nutrition).
2. Vaishali Kasture, Surabhi Dalvi, Mayur Swamy, **Anvita Kale**, Sadhana Joshi\* “Omega-3 Fatty Acids Differentially Influence Embryotoxicity in Subtypes of Preeclampsia” 50<sup>th</sup> Annual International Conference of Nutrition Society of India held at Hyderabad, 15<sup>th</sup> - 17<sup>th</sup> November, 2018 (Young Scientist Jr Category).
3. Kemse N, **Kale A**, Joshi S. Cognitive Performance in Offspring Born to Pregnancy Induced Hypertensive Dams Supplemented with Micronutrients and Omega-3 Fatty Acids. at the 20<sup>th</sup> Annual SNEHA INDIA International Workshop from 17<sup>th</sup>- 19<sup>th</sup> February 2017 at Interactive Research School for Health Affairs, Bharati Vidyapeeth, Pune. p.41.

4. Rathod R, Khaire A, **Kale A**, Joshi S. Effect of Maternal Vitamin B<sub>12</sub> and Omega-3 Fatty Acid Supplementation on Cognitive Performance in the Offspring Across Generations” at the 19<sup>th</sup> Annual SNEHA INDIA International Workshop from 26<sup>th</sup>- 28<sup>th</sup> February 2016 at CCMB, Hyderabad.
5. Amrita Khaire, Richa Rathod, **Anvita Kale**, Sadhana Joshi. Beneficial effects of vitamin B<sub>12</sub> and omega-3 fatty acid supplementation on cardio-metabolic variables in Wistar rats at International Congress on Obesity and Metabolic Syndrome in conjunction with the 43rd Annual Scientific Meeting of KSSO organised by ICOMES, Seoul, Korea.12<sup>th</sup>-14<sup>th</sup> November 2015.OP 3-4. p. 306.
6. Rathod R, Khaire A, Kale A, Joshi S. Maternal omega-3 fatty acid supplementation to a vitamin B<sub>12</sub> deficient diet normalizes angiogenesis marker in pup brain at birth at the 2nd International Workshop on Micronutrient and Child Health, AIIMS, New Delhi, 3<sup>th</sup> – 7<sup>th</sup> November 2014. p.53.
7. Jawale S, **Kale A**, Joshi S. Maternal omega-3 fatty acid supplementation to a high fat diet normalizes dam oxidative stress and increases placental omega 3 fatty acid levels. International conference on food technology and impact on nutrition and health. IIFANS, New Delhi, 15<sup>th</sup> - 16<sup>th</sup> October, 2014. p.41.
8. **Kale A**, Rathod R, Khaire A, Joshi S. Effect of Maternal Vitamin B<sub>12</sub> and Omega-3 Fatty Acid Supplementation on Cognitive Performance in the Offspring Across Generations” at the 18<sup>th</sup> Annual SNEHA INDIA International Workshop from 26<sup>th</sup>- 28<sup>th</sup> September 2014 at Fariyas Resort Lonavala.p. 24
9. Khot V, **Kale A**, Joshi A, Chavan-Gautam P, Joshi S. (2014) Maternal micronutrients influence placental phospholipids metabolism in wistar rats at the 18<sup>th</sup> Annual SNEHA INDIA International Workshop from 26<sup>th</sup>- 28<sup>th</sup> September 2014 at Fariyas Resort Lonavala. p.41.
10. Rathod R, Khaire A, **Kale A**, Joshi S. Omega-3 Fatty Acid Supplementation to a Vitamin B<sub>12</sub> deficient/Supplemented Diet Induces Beneficial Effects on Brain Development in the Second Generation Offspring. 4th International Conference on Updating Food Technology: A Challenge towards Public Health Nutrition (ICUFT-2014), Delhi, May 2014.p5.
11. Khaire A, Rathod R, **Kale A**, Joshi S. Maternal vitamin B<sub>12</sub> status and omega-3 fatty acids regulate lipid metabolism in wistar rat offspring. 4th International Conference on Updating Food Technology: A Challenge towards Public Health Nutrition (ICUFT-2014), Delhi, May 2014.PHN-0-05, P.103.
12. Khaire A, Rathod R, **Kale A**, Joshi S (2013). Maternal omega 3 fatty acid supplementation to vitamin B<sub>12</sub> deficient diets improves markers of metabolic syndrome in dams, at 8<sup>th</sup> World Congress on Developmental Origins of Health and Disease 17<sup>th</sup> -20<sup>th</sup> November, SUNTEC, Singapore DOHaD at Singapore 13-1493 S305
13. Kemse N, **Kale A**, Joshi S. Effect of N-Nitro-L-Arginine Methyl Ester-induced preeclampsia and micronutrient supplementation on pregnancy outcomes using Wistar rats. International Conference on Food Technology: Impact on Nutrition and Health (ICFIN-2013), Delhi, December, 2013. p.14
14. Khot V, **Kale A**, Joshi A, Chavan-Gautam P, Joshi S. Maternal micronutrient imbalance alters placental phospholipid composition by regulating the expression of phosphatidylethanolamine methyl transferase (PEMT) gene. International Conference on Food Technology: Impact on Nutrition and Health (ICFIN-2013), Delhi, December, 2013. p.15
15. Pratiksha S. Sable, **Kale A**, Sadhana R. Joshi (2013) Prenatal Omega 3 fatty acid supplementation to an altered micronutrient diet protects brain neurotrophins both in the cortex and hippocampus in the adult rat offspring 15th Annual International Workshop on the Fetal Origins of Adult Disease, Mysore 1st-3rd Feb
16. Joshi S, Sable P, Dangat K, **Kale A**. Altered brain neurotrophins at birth: consequence of

- imbalance in maternal folic acid and vitamin B<sub>12</sub> metabolism. *Journal of Developmental origins of health and disease* (2011), 2, Supp 1, S 50, PI-057 at the 7th World Congress on Developmental Origins of health and Disease, Portland, Oregon USA, September 18<sup>th</sup> -21<sup>st</sup>, 2011.
17. Sable P, **Kale A**, Dangat K, Joshi S (2010) Maternal vitamin B<sub>12</sub> alters fetal brain docosahexaenoic acid levels and brain derived neurotrophic factor levels. 15th Annual International Workshop on the Fetal Origins of Adult Disease, Garudmachi 19<sup>th</sup> -21<sup>st</sup> Nov. p.15.
  18. Dangat K, **Kale A**, Kilari A, Joshi S (2010) Reduced gastric milk volume and long chain polyunsaturated fatty acids due to maternal vitamin B<sub>12</sub> deficiency: rat model. 15th Annual International Workshop on the Fetal Origins of Adult Disease, Garudmachi 19<sup>th</sup> -21<sup>st</sup> Nov. p.23
  19. **Kale A**, Kilari A, Mehendale S, Dangat K, Yadav H, Tarlekar V, Joshi S (2009). Synergistic role of nerve growth factor and breast milk fatty acids in mothers delivering low birth weight babies at term at the 6th World Congress on Developmental Origins of health and Disease, Santiago Chile (19<sup>th</sup> -22<sup>nd</sup> Nov 2009). *Journal of Developmental origins of health and disease*, 1, Supp 1, S 208, P-6A-253
  20. Kilari A, Mehendale S, Yadav H, Dangat K, **Kale A**, Joshi S (2009) Associations of long chain polyunsaturated fatty acid concentrations with birth outcome in term Indian mothers. 6<sup>th</sup> Indo Australian biotechnology conference on nutrition and life- course evolution of non-communicable diseases 2<sup>nd</sup>-4<sup>th</sup> Sept, Hyderabad. p 53
  21. Mahadik S, Pillai A, Joshi S, **Kale A**, Naphade N, Raju MSVK, (2007) Increased oxidative stress and reduced growth factors in neurodevelopmental deficits and treatment of schizophrenia International symposium on advances in neurosciences and silver jubilee conference of Indian academy of neurosciences Nov 22<sup>nd</sup> -25<sup>th</sup> Varanasi S19, p27.

**Papers Presented at the Annual meeting of Society of Biological Psychiatry, San Diego, CA, USA from 17<sup>th</sup>-19<sup>th</sup> May 2007, USA**

22. **Kale A**, Joshi S, Naphade N, Sapkale S, Raju MSVK, Pillai A, Mahadik S (2007) Docosahexanoic Acid (DHA) Hypothesis of Schizophrenia: Altered DHA Metabolism in First-Episode Medication-Naive Psychotic Patients the Annual meeting of Society of Biological Psychiatry, San Diego, CA, USA from 17<sup>th</sup>-19<sup>th</sup> May, p 164 S
23. **Joshi S**, **Kale A**, Naphade N, Sapkale S, Raju MSVK, Pillai A, Mahadik S. (2007) Reduced Folic acid and Vitamin B<sub>12</sub>, and Increased Homocysteine Metabolism in First-Episode Medication-Naive Psychotic Patients at the Annual meeting of Society of Biological Psychiatry, San Diego, CA, USA from 17<sup>th</sup>-19<sup>th</sup> May, p 164 S.
24. Raju MSVK, Naphade N, Joshi S, **Kale A**, Sapkale S, Mahadik S (2007) Hippocampal Volume Deficits in First Episode Schizophrenia: Relationships to Symptoms and Membrane EPUFA Levels the Annual meeting of Society of Biological Psychiatry, San Diego, CA, USA from 17<sup>th</sup>-19<sup>th</sup> May, p 257 S
25. Pillai A, **Kale A**, Joshi S, Naphade N, Sapkale S, Raju MSVK, Nasrallah H, Buckley P, Mahadik S. (2007) Brain-Derived Neurotrophic Factor Levels are lower in Plasma as well as Cerebrospinal Fluid from Medication-Naive First-Episode Schizophrenic Patients the Annual meeting of Society of Biological Psychiatry, San Diego, CA, USA from 17<sup>th</sup>-19<sup>th</sup> May, p.257S

**Conference Attended**



- Attended the 20<sup>th</sup> Annual Sneha-MRC International Workshop 8<sup>th</sup> - 10<sup>th</sup> Feb, KEM Hospital Pune
- The 102<sup>nd</sup> Indian Science Congress, held at Mumbai from 3<sup>rd</sup> -7<sup>th</sup> January 2015.
- Asia Pacific Workshop on “Asian perspective on PUFA supply in pregnancy infants: review of evidence and proposed Recommendations” ” at Singapore, Nov, 2013
- World Congress-BCGIP, India & 2nd Annual Congress of Society of Fetal Medicine 2012 at New Delhi india, from 16<sup>th</sup> to 18<sup>th</sup> November

### **National Conferences (Total: 23)**

1. **Kale A\***, Joshi S.” Influence of omega 3 fatty acid supplementation during lactation and offspring brain Neuropeptide Y levels.” at the 54th Annual International Conference of Nutrition Society of India (NSI), at National Institute of Nutrition, Hyderabad, Telangana on 22nd-23rd December 2022. (Oral Presentation).
2. Kemse N, Sundrani S **Kale A**, Joshi S. “Effect Of Supplementation Of Maternal Micronutrients (Folic Acid, Vitamin B<sub>12</sub>) And Omega 3 Fatty Acids On The Expression Of Genes Involved In Angiogenesis And Inflammation In A Pregnancy Induced Hypertension Rat Model” at the 48<sup>th</sup> National Conference of the Nutrition Society of India held at St John's Research Institute, St John's National Academy of Health Sciences, Bangalore, 4<sup>th</sup> -5<sup>th</sup> November, 2016 (Oral presentation free communications).
3. **Kale A**, Jawale S, Joshi S. Reduced Brain Derived Neurotrophic factor Levels in Offspring Brain at Birth as a Consequence of Feeding a Maternal High Fat Diet Deicient in Vitamin B<sub>12</sub> at the 47<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad, 9<sup>th</sup> – 10<sup>th</sup> October, 2015 (PSEN-39).
4. Kemse N, **Kale A**, Joshi S. Maternal Omega-3 Fatty Acids Supplementation Improves IL10 and VEGF Levels in Pregnancy Induced Hypertension Wistar Rats at the 47<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad, 9<sup>th</sup> – 10<sup>th</sup> October, 2015 (Oral Presentation Young Scientist Junior Category JAEN-06)
5. Khaire A, Rathod R, **Kale A**, Joshi S\* Vitamin B<sub>12</sub> and Omega-3 Fatty Acids Positively Influence Lipid Metabolism in the Second Generation Rat Offspring at the 47<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad, 9<sup>th</sup> – 10<sup>th</sup> October, 2015 (Oral Presentation in Experimental Nutrition Category OPEN-01)
6. Jawale S, Pulwale A, **Kale A**, Joshi S. Altered Placental Long Chain Polyunsaturated Fatty Acid Levels in Dams Fed a High Fat Diet Deficient in Vitamin B<sub>12</sub> during Pregnancy at the 47<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad, 9<sup>th</sup> – 10<sup>th</sup> October, 2015 (Oral Presentation in Experimental Nutrition Category OPEN-02)
7. Rathod R, Khaire A, **Kale A**, Joshi S. Vitamin B<sub>12</sub> and Omega-3 Fatty Acids Influence Brain Nerve Growth factor and vascular Endothelial growth Factor Expression in Wistar Rat at the 47<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad, 9<sup>th</sup> – 10<sup>th</sup> October, 2015 (Oral Presentation Young Scientist Junior Category JAEN-05)
8. Khaire A, Rathod R, **Kale A**, Joshi S “Omega-3 Fatty Acid Supplementation to Vitamin B<sub>12</sub> Deficient Diet Improves Cardio-metabolic Variables: A Multigenerational Study” by at the

46<sup>th</sup> National Conference of the Nutrition Society of India held at Dayanand Medical College and Hospital, Ludhiana, Punjab Nov 7<sup>th</sup> – 8<sup>th</sup>, 2014.

9. Kemse N, **Kale A**, Joshi S. "Combined Supplementation of Maternal Micronutrients (Vitamin B12, Folic Acid) and Omega-3 Fatty Acids Improves Cognitive Performance in the Offspring Born to Dams with Preeclampsia" at the 46<sup>th</sup> National Conference of the Nutrition Society of India held at Dayanand Medical College and Hospital, Ludhiana, Punjab Nov 7<sup>th</sup> – 8<sup>th</sup>, 2014.
10. Sable P, Randhir K, **Kale A**, Chavan-Gautam P, Joshi S (2013). Maternal Micronutrients and Brain Global Methylation Patterns in the Offspring at the 45<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad, 20<sup>th</sup> – 21<sup>st</sup> November. (Poster: PSEN-18).
11. Rathod R, Khaire A, Kemse N, **Kale A**, Joshi S. (2013) Maternal Omega-3 Fatty Acid Supplementation on Vitamin B12 Rich Diet Improves Brain Omega-3 fatty acids, Neurotrophins and Cognition in the Wistar Rat Offspring. 45<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad.
12. Kemse N, Khaire A, Rathod R, **Kale A**, Joshi S. (2013) Beneficial Effects of Omega 3 Fatty Acid Supplementation In Reducing Oxidative Stress Induced by vitamin B<sub>12</sub> Deficiency In Wistar Rats. 45<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad.
13. Khot V, **Kale A**, Joshi A, Chavan-Gautam P, Joshi S. (2013) Regulation of Enzymes Involved in the One Carbon Cycle in Rat Placenta is determined by Maternal Micronutrients (Folic Acid, Vitamin B<sub>12</sub>) and Omega-3 Fatty Acids. 45<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad.
14. Khaire A, Rathod R, Kemse N, **Kale A**, Joshi S. (2013) Supplementation of Omega-3 Fatty Acids during Gestation and lactation to vitamin B<sub>12</sub> deficient/ supplemented diet improves Pregnancy Outcome and Metabolic Syndrome Variables in Wistar Rats. 45<sup>th</sup> National Conference of the Nutrition Society of India, Hyderabad.
15. Meher A, Joshi A, **Kale A**, Joshi S (2013) Preconceptional vitamin B<sub>12</sub> deficiency: alterations in reproductive cycle and placental fatty acids at the genomeet. March 8<sup>th</sup> to 11<sup>th</sup>
16. Sable P, **Kale A**, Amrita K, Joshi S (2012) Postnatal Control Diet To A Prenatal Micronutrient Imbalanced Diet Normalises The Levels Of Fatty Acids In Different Regions of the Brain In The Adult Rat Offspring at the 44<sup>th</sup> National Conference of the Nutrition Society of India, Tirupathi 16<sup>th</sup> – 17<sup>th</sup> November
17. Roy S, Sable P, Randhir K, **Kale A**, Joshi S (2012) Effect of Maternal Micronutrients (Folic acid and Vitamin B<sub>12</sub>) and Omega 3 fatty acids on Indices of Brain Oxidative Stress in the Offspring (Senior Award) at the 44<sup>th</sup> National Conference of the Nutrition Society of India, Tirupathi 16<sup>th</sup> – 17<sup>th</sup> November
18. **Kale A**, Joshi S, Naphade N, Raju MSVK. (2010) Importance of traditional diet in the etiopathology of schizophrenia National Seminar on Traditional Indian Diets and Health Care held at National Institute of Nutrition (NIN), Hyderabad 4<sup>th</sup> – 5<sup>th</sup> Feb.
19. Sable P, Roy S, **Kale A**, Dangat K, Kulkarni A, Joshi S (2010). Maternal micronutrients (folic acid and vitamin B<sub>12</sub>) and omega 3 fatty acids: Implications for neurodevelopmental

risk in the rat offspring (Junior Award) at the 42nd National Conference of the Nutrition Society of India, Mumbai 19<sup>th</sup> – 20<sup>th</sup> November. JAEN-03

20. Khadake R, Wadhvani N, Kulkarni A, **Kale A**, Dangat K, Joshi S (2010). Maternal vitamin B<sub>12</sub> deficiency leads to altered expression of maternal fatty acid desaturases at the 42<sup>nd</sup> National Conference of the Nutrition Society of India, Mumbai 19<sup>th</sup> – 20<sup>th</sup> November 2010. FC/PN/A
21. **Kale A**, Naphade N, Sapkale S, Raju MSVK, Pillai A, Joshi S, Mahadik S. (2009) Association Of One-Carbon Metabolism (Reduced Folic Acid, Vitamin B12), Docosahexaenoic Acid And Homocysteine Concentrations In Patients With Schizophrenia. 41st National Conference of Nutrition Society of India 20<sup>th</sup> -21<sup>st</sup> Nov PSCLIN -19 p 101.
22. **Kale A**, Pillai A, Joshi S, Naphade N, Raju MSVK, Mahadik S. (2008) Role of brain derived neurotrophic factor levels in the etiopathophysiology of schizophrenia. 40th National Conference of Nutrition Society of India 20<sup>th</sup> -22<sup>nd</sup> Nov PSEN- 30 p 122.
23. **Kale A, Joshi S, Naphade N, Sapkale S, Raju MSVK, Pillai A, Mahadik S. (2007) Essential Polyunsaturated Fatty Acids And Nerve Growth Factor Levels In First Episode Schizophrenia. 39th National Conference of Nutrition Society of India 15th - 17th Nov OPEN- 03 p 46.**