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Extracellular vesicles, stem cells and neurological disorders

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Total Publications: 40; **Patent applied**: 4. **Conferences attended**: National: 12, International: 8

Recent publications

1. **Upadhya D**, Attaluri S, Dong Y, Hattiangady B, Castro OW, B, Shuai B, Liu Y, Zhang SC, Shetty AK. Grafted Human PSC-derived GABA-ergic Interneurons Directly Regulate Seizures and Specific Cognitive Tasks in a Model of Temporal Lobe Epilepsy. *npj Regenerative Medicine*. 2022; 7 (1), 1-12.
2. Sabitha KR, Divya C, Shetty AK, **Upadhya D**. Delineating the neurodevelopmental pathology of lysosomal storage diseases using patient-derived induced pluripotent stem cells. *Stem Cells and Development*. 2022; 31 (9-10), 221-238.
3. Attaluri S, Upadhya R, Kodali M, Madhu LN, **Upadhya D**, Shuai B, Shetty AK. Brain-Specific Increase in Leukotriene Signaling Accompanies Chronic Neuroinflammation and Cognitive Impairment in a Model of Gulf War Illness. *Frontiers in Immunology*. 2022;13:853000.
4. Chakraborty A, Hegde S, Praharaj SK, Prabhu K, Patole C, Shetty AK, Mayya SS, Acharya RV, Hande HM, Prabhu MM, **Upadhya D**. Age Related Prevalence of Mild Cognitive Impairment in Type 2 Diabetes Mellitus Patients in the Indian Population and Association of Serum Lipids With Cognitive Dysfunction. *Frontiers in Endocrinology*. 2021 Dec 31; 12: 798652.
5. Ni H, Biagini G, **Upadhya D**, Capuano A. Editorial: Endocrine Modulators of Neurological Processes: Potential Treatment Targets of Pediatric Neurological Diseases *Frontiers in Endocrinology*. 12: 655290
6. Sabitha KR, Shetty AK, **Upadhya D**. Patient-derived iPSC modeling of rare neurodevelopmental disorders: Molecular pathophysiology and prospective therapies. *Neuroscience and Biobehavioral Reviews*. 2021 Feb;121: 201-219.
7. Shetty AK, Attaluri S, Kodali M, Shuai B, Shetty GA, **Upadhya D**, Hattiangady B, Madhu LN, Upadhya R, Bates A, Rao X. Monosodium luminol reinstates redox homeostasis, improves cognition, mood and neurogenesis, and alleviates neuro- and systemic inflammation in a model of Gulf War Illness. *Redox Biology*. 2020:101389.
8. **Upadhya D,** Shetty AK. Promise of extracellular vesicles for diagnosis and treatment of epilepsy *Epilepsy &Behaviour*. 2019; 106499.
9. **Upadhya D**, Hattiangady B, Castro OW, et al. Human induced pluripotent stem cell-derived MGE cell grafting after status epilepticus attenuates chronic epilepsy and comorbidities via synaptic integration. *Proceedings of the National Academy of Sciences, USA*. 2019;116:287–296.

10. **Upadhya D**, Kodali M, Gitai D, et al. A Model of Chronic Temporal Lobe Epilepsy Presenting Constantly Rhythmic and Robust Spontaneous Seizures, Co-morbidities and Hippocampal Neuropathology. *Aging &Disease*. 2019;10: 915–936.
11. **Upadhya D,** Shetty AK. Extracellular Vesicles as Therapeutics for Brain Injury and Disease. *Current Pharmaceutical Design*. 2019;25:3500–3505
12. **Upadhya D,** Castro OW, Upadhya R, Shetty AK. Prospects of Cannabidiol for Easing Status Epilepticus-Induced Epileptogenesis and Related Comorbidities. *Molecular Neurobiology*. 2018; 55(8):6956–6964.
13. Castro OW, **Upadhya D***, Kodali M, Shetty AK Resveratrol for Easing Status Epilepticus Induced Brain Injury, Inflammation, Epileptogenesis, and Cognitive and Memory Dysfunction- Are We There Yet? *Frontiers in Neurology* 2017; 8, 603. **(*equal contribution)**
14. Shetty GA, Hattiangady B, **Upadhya D**, Bates A, Attaluri S, Shuai B, Kodali MK, Shetty AK. Chronic Oxidative Stress, Mitochondrial Dysfunction, Nrf2 Activation and Inflammation in the Hippocampus Accompany Heightened Systemic Inflammation and Oxidative Stress in Gulf War Illness. *Frontiers in Molecular Neuroscience*. 2017; 10:182
15. Long Q*, **Upadhya D*,** Kim DK, Hattiangady B, An SY, Prockop DJ, Shetty AK. Intranasal MSC-Derived A1-Exosomes Decrease Inflammation and Preserve Neurogenesis in the Hippocampus as well as Prevent Memory Dysfunction after Status Epilepticus. *Proceedings of the National Academy of Sciences, USA* 2017 Apr 25;114(17):E3536-E3545 **(*equal contribution**)
16. **Upadhya D**, Hattiangady B, Shetty GA, Zanirati G, Kodali M. Shetty AK. Neural stem cell or human induced pluripotent stem cell derived GABA-ergic progenitor cell grafting in an animal model of chronic temporal lobe epilepsy. *Current protocols in stem cell biology*. 2016: 38:2D.7.1-2D.7.47.
17. Shetty AK and **Upadhya D**. GABA-ergic cell therapy for epilepsy: Advances, limitations and challenges. *Neuroscience and Biobehavioral Reviews*. 2016; 62:35-47.
18. Zhang J, **Upadhya D**, Lu L, Reneker LW. Fibroblast growth factor receptor 2 (FGFR2) Is required for corneal epithelial cell proliferation and differentiation during embryonic development. *PLoS ONE* 2015;10(1):e0117089
19. **Upadhya D**, Ogata M and Reneker LW. MAPK1 is required for establishing the pattern of cell proliferation and for cell survival during lens development. *Development* 2013; 140(7):1573-82

Education and training

- Postdoctoral training: Four years in the USA: University of Missouri (2010-2012) and Texas A&M University (2015-2017)
- Ph. D: Kasturba Medical College, Manipal University, Manipal, India (2005-2010).
- Post-Graduation: Masters in Medical Biochemistry from Kasturba Medical College, Manipal University, India (1997-2000).

Awards and honors

- Neuroscience grant reviewer for 2022
    - National Science Centre, Poland
    - Graduate Women In Science, United States of America
- Nanotechnology grant reviewer for Department of Biotechnology, Govt of India, 2022
- Editorial board member, Aging and Disease and several Frontier journals
- Member of International Society for Extracellular Vesicles, United States.
- Senior Research Associateship- Texas A&M University, 2015-2017
- Postdoctoral fellowship -University of Missouri, 2010-2012
- Senior Research Fellowship-Indian Council of Medical Research, 2006-2009

Reviewer for journals

Aging & Disease, Aging Cell, Biomedicine and Pharmacotherapy, Bioscience Reports, Brain Sciences, Cells, Computational and Structural Biotechnology Journal, Current Pharmaceutical Design, Epilepsy and Behavior, Expert Opinion in Pharmacotherapy, Food and Nutrition, Frontiers in Immunology, Heliyon, International Journal of Molecular Sciences, Journal of Experimental Neuroscience, JoVE, Metabolites, Neurobiology of Disease, Pharmacological Reports, Scientific Reports, Stem cells, etc.

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