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Jiwaji University, Gwalior 474 011, India
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EDUCATION:

Kurukshetra University, Kurukshetra

Ph.D.: 1986; Ph.D. thesis: Influence of centrophenoxine on the neuronal lipofuscin in ageing and senile rats: A histochemical study
M.Phil.: 1982; Zoology with Distinction in dissertation
M.Sc.: 1981; Zoology

Utkal University, Bhubaneswar

B.Sc. (H): 1978; Zoology Hons. with distinction

CURRICULA DEVELOPMENT:

1. M.Sc. Neuroscience: Developed a M.Sc. Neuroscience programme for the first time at any Indian University. Leading to establishment of India's 1st University Teaching Department of Neuroscience.
2. Bioinformatics Centre: Established the Bioinformatics Centre with Department of Biotechnology, Govt. of India support at Jiwaji University, Gwalior

HONOURS:

1. Fellow of the National Academy of Sciences, India (FNASc.)
2. Fellow of the Collegium Internationale Neuro-Psychopharmacologicum (FCINP)
3. Fellow of the Indian Academy of Neurosciences (FIAN)

AWARDS:

1. K.T. Shetty Memorial Oration of the Indian Academy of Neurosciences, 2012.
2. Defence Research and Establishment Award (Best Paper Award for Biological Sciences) 2010
3. A.V. Tilak Award of the Association of Gerontology (India) for the best research paper-1988

GRANTS:

National Initiative:

Project Coordinator, DBT National Initiative on Glial Cell Research in Health and Disease, Department of Biotechnology, Govt. of India. Participating Institutes: CCMB, CDRI, JNU, JU, NBRC and NIMHANS

Research Fellowships:

1. ICMR Junior Research Fellowship (17.7.81- 20.3.84)
2. ICMR Senior Research Fellowship (21.3.84- 4.5.85)
3. ICMR Research Associateship (5.5.85- 31.12.86)
4. UGC Research Associateship (4.2.87- 4.12.87)
5. DST Young Scientist Project (5.12.87- 2.1.89)

Research Projects Completed: 09 (CSIR=1, DRDE=1, DST=3, DBT=3, ICMR=1)

Research projects in hand: 06 (DBT=5, ICMR=1)

RESEARCH SUPERVISION:

Ph.D. Awarded=19; Submitted= 03; Working = 07; M.Phil. Awarded = 06

RESEARCH EXPERIENCE: 33 years

RESEARCH PUBLICATIONS: 68

TEACHING EXPERIENCE: 25 years; Post-graduate

POST-DOCTORAL STUDY ABROAD:

1. Worked at the MRC Neurochemical Pathology Unit, Newcastle as Biotechnology Overseas Associate during 1st March 1996 to 28th February 1997.
2. Worked at 1st Institute of Anatomy, University of Cologne, Cologne, Germany during 1st December 2000 to 28th February 2001 as INSA-DFG exchange of Scientist Fellow

VISITING LECTURER:

Visiting Lecturer in the MRC Neurochemical Pathology Unit, School of Neuroscience and Psychiatry, University of Newcastle upon Tyne, Newcastle, 1996-97. (From 1st March, 1996 until 28th February, 1997)

VISITS ABROAD ON SCIENTIFIC PURPOSES:

1. Univ. of **Newcastle upon Tyne, UK**
2. University of Queensland, **Australia**
3. Nat. Univ. of Singapore, **Singapore**
4. Univ. of Cologne, **Cologne, Germany**

AWARDS TO DR. PATRO'S STUDENTS/ CO-INVESTIGATOR WHERE HE IS AN AUTHOR:

1. Dr. Nisha Patro: '**Jyotsanamayee Raghunath Bhattacharya Prize**' for Best Paper published in 2009-10 by the Indian Academy of Neurosciences.
2. Dr. Kapil Saxena: '**Professor S. S. Parmar Research Foundation Award**' for **best poster presentation at 22nd Annual Conference of Indian Academy of Neurosciences at Hyderabad Central University, Hyderabad (6th – 8th May 2004).**
3. **Mr. Amit: 'Professor S. S. Parmar Research Foundation Award' for best poster presentation in International Conference on Recent Advances in Neuroscience and 27th Annual Meeting of Indian Academy of Neuroscience, Jaipur (18th -20th Dec 2009).**
4. Mr. Rakesh Kumar Banote: **Best Oral presentation** in National Conference on Herbal Medicine held at Bharthiyar University, Coimbatore (8-9th Sept 2010).
5. Miss Arpita Sharma: **Organiser's award for Best Poster presentation** in The 5th Congress of FAONS and 28th Annual Meeting of the Indian Academy of Neurosciences (IAN) held at IITR, Lucknow (25th -28th Nov 2010).
6. Mrs. Surya Tripathi: '**Best Poster presentation in FAONS Satellite Symposium on Glial Cells in Health and Disease**' held at School of Studies in Neuroscience, Jiwaji University, Gwalior (30th Nov -1st Dec 2010)
7. Miss Arpita Sharma: '**Best Poster presentation in 98th Indian Science Congress**' held at SRM University, Chennai (3rd -7th Jan 2011).

LIFE MEMBERSHIPS:

National Academy of Sciences, India
Indian Academy of Neuroscience
Association of Gerontology (India)
Society of Toxicology (India)
Indian Society of Cell Biologists

INDIAN ACADEMY OF NEUROSCIENCE: Dean (2009-2011); Vice-President (1999-2000, 2005-2008); General Secretary (2001-2004)

MEMBERSHIP IN EDITORIAL BOARDS:

1. Member, Editorial Board of the Journal 'Ageing and Society' published by Calcutta Metropolitan Institute of Gerontology, Calcutta.
2. Advisor, Editorial Board, 'Toxicology International' published by Society of Toxicology, India

CONFERENCE, SYMPOSIA, WORKSHOP, ETC. ATTENDED:

National: 30; International: 12; Workshop/Training Courses attended:07

ADMINISTRATIVE EXPERIENCE:

1. Head, School of Studies in Zoology, Jiwaji University, Gwalior
2. Founder Coordinator-Head of School of Studies in Neuroscience since 2000. This Department is supported by DBT, Govt. of India.
3. Coordinator of the DBT Bioinformatics Centre, JU, Gwalior.
4. Sectional Chairman for development of National level Biotechnology Syllabus for PG courses supported by the DBT, Govt. of India.
5. Member in several Task Force and Project Review Committees of the Dept. of Biotechnology and the Indian Council of Medical Research, GOI.

RESEARCH PROJECTS COMPLETED: 09

1. **Department of Science and Technology Young Scientist** Project: *Influence of certain geroprotectors on neuronal ageing in environmentally stressed and ageing albino rats* (Principal Investigator: I. K. Patro).
2. **Council of Scientific and Industrial Research** Project: *Studies on antioxidant nutritional influences on autoxidation, lipofuscin accumulation and ageing of albino rats/mice* (Principal Investigator: Professor S.P. Sharma, Kurukshetra University, Kurukshetra; Co-Investigator: I.K. Patro).
3. **Defence Research and Development Establishment** (Gwalior) Research Project: *Influence of organophosphorus compounds on developing nervous system of rats: Histopathology and Histochemical ipopolysacc of AchE* (In collaboration with Dr. S.C. Pant and Dr. S. DasGupta of DRDE, Gwalior).
4. **Department of Science and Technology**, New Delhi Research Project: *Experimental manipulation of longevity, lipofuscin formation and neuron loss in mouse brain* (Principal Investigator: I.K. Patro).
5. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on *Studies on role of microglial activation in neuronal apoptosis* (Principal Investigator: I.K. Patro).
6. **Department of Science and Technology**, Govt. of India, New Delhi Research Project on *Studies on immunophilin ligands as novel modulators of glial activity and mediators of neuroprotection* (Principal Investigator: I.K. Patro)
7. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on *Role of microglia in adult neurogenesis* (Principal Investigator: I.K. Patro)
8. **Indian Council of Medical Research**, Govt. of India, New Delhi Research Project on *Aging of microglia* (Principal Investigator: I.K. Patro)
9. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on *Phenotypic alterations in astroglia and microglia in the brain- in response to tuberculous pathology in association with HIV/AIDS* (Project Coordinator: I.K. Patro; In collaboration with NIMHANS, Bangalore)

RESEARCH PROJECTS IN HAND: 06

1. **Indian Council of Medical Research**, Govt. of India, New Delhi Research Project on *Impact of maternal exposure to deltamethrin during geatation on cerebellar organization and cognitive development of the new born* (Principal Investigator: I.K. Patro)
2. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on *Chikunguniya fever: Study on neuropathogenecity of novel ECSA virus genotype with and without A226V mutation in a small animal (mice) model* (Principal Investigator: I.K. Patro, Co-Principal Investigator: Dr. M.M. Parida, DRDE, Gwalior)

3. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on Neuroimmunological and cognitive implications of perinatal bacterial (lipopolysaccharide) infection during aging (Principal Investigator: I.K. Patro, Co-Principal Investigator: Dr. P.K. Tiwari)
4. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on Impact of maternal protein malnutrition on the genesis, differentiation and maturation of astrocytes and oligodendrocytes (Principal Investigator: I.K. Patro, Co-Principal Investigator: Dr. P.K. Tiwari)
5. **Department of Biotechnology**, Govt. of India, New Delhi Research Project on Perinatal viral infection: Neuroimmunological, molecular and cognitive consequences during development, adulthood and senility in rats (Multi-centric Project: Principal Investigators: I.K. Patro, Dr. M.K. Thakur, BHU, Varanasi, Dr. V.K. Khanna, IITR, Lucknow)
6. **Department of Biotechnology**, Govt. of India, New Delhi **National Initiative on Glial Cell Research in Health and Disease**, Programme Coordinator.

Ph.D. SUPERVISION:

S.No.	Name of the Student	Title of the Thesis
AWARDED		
1.	Dr. Suresh Kumar Bhardwaj (1996)	Influence of citiolone on age-related changes in mouse spinal cord and spinal ganglia
2.	Dr. Praveena Singhal (1996)	Formation and removal of lipofuscin and its role in neuron loss in brainstem of ageing mice
3.	Dr. Munmun Chattopadhyay (1997)	Effect of flunarizine on ageing and injured neurons
4.	Dr. Manisha Bajpai (2006)	Studies of neurodegenerative changes following facial nerve transection
5.	Dr. Vandana Shrivastava (2006)	Influence of flunarizine on pyrethroids induced developmental neurotoxicity
6.	Dr. Kapil Saxena (2008)	Studies on the impact of FK506 on central glial response following peripheral nerve injury
7.	Dr. Sarika Kushwah (2009)	Age related changes in astrocytes and microglia in the hippocampus and striate cortex
8.	Dr. Anchal Gusain (2009)	Studies on the potential role of calcineurin in cerebral ischemia/reperfusion injury
9.	Dr. Meghna Saxena (2010)	Studies on influence of deltamethrin on glial responses during postnatal development of rat cerebellar cortex
10.	Dr. Pawan Kumar (2010)	Therapeutic properties of spirulina plantesis in collagen induced arthritis (CIA) in rats
11.	Dr. Mohsin Khan (2011)	Therapeutic and prophylactic potential of certain antiviral compounds and recombinant vaccine candidates against chikungunya virus
12.	Dr. Gunjan Saxena (2011)	Role of cholinergic system and mitochondria in caspase mediated apoptotic cell death in the experimental models of dementia
13.	Dr. Biswajit Mishra (2012)	Design, synthesis and evaluation of peptide based antimicrobial compounds therapeutics against multidrug resistant strains

14.	Dr. Rekha Dhanwani (2012)	Studies on basic patho-biology of chikungunya virus: Implications of oxidative stress and related pathways in chikungunya pathogenesis
15.	Dr. Surya Tripathi (2013)	Astroglia and microglial alteration in human brain disorders
16.	Dr. Amit (2013)	Studies on the influence of neuroinflammation on neurodegeneration and neuroregeneration in a rat model of viral encephalitis
17.	Dr. P. Vijayabhaskar (2013)	Deltamethrin developmental neurotoxicity in cerebral cortex
18.	Dr. S. Swarnkar (2013)	Cellular and molecular studies on the rotenone induced neurotoxicity
19.	Mr. Kamendra Kumar (2014)	Influence of maternal exposure to Deltamethrin during gestation on postnatal development rat cerebellum
Submitted		
20.	Mrs. Arpita Sharma (2013)	Influence of Minocycline on bacterial endotoxin lipopolysaccharide induced neuroinflammation associated cerebral degeneration
21.	Miss. Shashi Sharma (2014)	Molecular detection and characterization of novel swine flu virus
22.	Miss. Divyasha Saxena (2014)	Molecular detection and characterization of west Nile virus
Working		
23.	Mrs. Raj Priya	Studies on neuropathogenesis and hostpathogen interaction of novel ECSA chikungunya virus genotypes with and without A226V mutation
24.	Mr. Shashank Tiwari	Aging changes in glia and its impact on neuroprotection following peripheral nerve injury
25.	Miss Aarti Nagayach	Glial changes in STZ induced diabetic rat brain
26.	Mrs. Kavita Singh	Impact of early life bacterial (LPS) infection on developing and aging brain
27.	Mr. Aljaz Naik	Gliogenesis in rat brain
28.	Mr. Brijendra Singh	Viral infection and glial response in rat brain
29.	Ms. Dipika Chaudhury	Genesis and recruitment of microglia in developing rat brain

ORGANIZATION OF SYMPOSIA, WORKSHOPS, ETC.: Total: 13

1. National Symposium on Biology of Ageing, 29th-31st October, 1993 (Organising Secretary)
2. National Conference on Gerontology and Symposium on Molecular Markers of Ageing, 7th-9th April, 1997 (Jt. Secretary)
3. Short-term Training Workshop on Cloning and Expression of Animal Genes, 15th July – 4th August, 1997 (Coordinator)
4. Sixth Neuroscience Society of India Workshop on Techniques in Neuroscience, 8th-20th December, 1997 (Course Organizer)
5. National Symposium on Frontiers of Neuroscience, 8th December, 1997 (Organizer)

6. Workshop on Morphometric Evaluation of Brain for Neurotoxicological Studies, 3rd-5th December, 1999 (Organizing Secretary)
7. 'Neuroscience 2000 and Beyond': 17th Annual Conference of Indian Academy of Neurosciences, Annual Meeting of Neuroscience Society of India, National Symposium on Cellular and Molecular Basis of Brain Function, 6th-8th December 1999 (Organizing Secretary)
8. 'World Brain Awareness Week 2000' at Gwalior, 13th -19th March, 2000 (Coordinator)
9. 'World Brain Awareness Week 2001' at Gwalior, 12th -18th March, 2001 (Coordinator)
10. Seminar on 'Planning and Presentation of Research Proposals' 10th August, 2001 (Organizing Secretary)
11. 'Neuroscience: From Basic to Clinic' 23rd Annual Conference of Indian Academy of Neurosciences, 28th-30th January, 2005 (Organizing Secretary)
12. National Symposium on 'Glial Neurobiology' 23rd October, 2007 (Organizing Secretary)
13. Satellite Symposium of The 5th Congress of Federation of Asian-Oceanian Neuroscience Societies on 'Glial Cells in Health and Disease, November 30 – December 01, 2010 (Organizing Secretary)

PUBLICATIONS:

Papers published in peer-reviewed journals:

1. Nagayach, Aarti, Patro, Nisha and Patro, I. (2014) Astrocytic and microglial response in experimentally induced rat brain. **Metab. Brain Dis.** DOI: 10.1007/s11011-014-9562-z. **(Impact Factor- 2.333)**
2. Tripathy, Surya, Patro, I., Mahadevan, A., Patro, Nisha, Philip, M. and Shankar, S.K. (2014) Astroglial and microglial alterations in tuberculous and cryptococcal meningitis and its relation to HIV co-infection- A morphometric study on human brain. **J. Infect. Dev. Ctries.** (Accepted). **(Impact Factor- 1.2)**
3. Priya, Raj, Patro, I.K. and Parida, M.M. (2014) TLR3 mediated immune response in mice brain following infection Chikungunya virus. **Virus Res.** (Accepted). **(Impact Factor- 2.745)**
4. Priya, Raj, Dhanwani, R., Patro, I.K., Rao, P.V. and Parida, M.M. (2013) Differential regulation of TLR mediated innate immune response of mouse neuronal cells following infection with novel ECSA genotype of Chikungunya virus with and without E1:A226V mutation. **Infect. Genet. Evol.**, 20: 396- 406. **(Impact Factor- 2.768)**
5. Saxena D, Kumar JS, Parida M, Sivakumar RR, Patro IK. (2013) Development and evaluation of NS1 specific monoclonal antibody based antigen capture ELISA and its implications in clinical diagnosis of West Nile virus infection. **J Clin Virol.**, 58(3):528-34. **(Impact Factor- 3.287)**
6. Patro, N., Kumar, K. and Patro, I. (2013) Quick Golgi method: modified for high clarity and better neuronal anatomy. **Indian J. Exp. Biol.**, 51 (9): 685-693. **(Impact Factor- 1.295)**
7. Patro, Nisha, Singh, Kavita and Patro, I. (2013) Differential microglial and astrocytic response to bacterial and viral infection in the developing hippocampus of neonatal rats. **Indian J. Exp. Biol.**, 51(8): 606-614. **(Impact Factor- 1.295)**
8. Kumar, K., Patro, Nisha and Patro, I. (2013) Impaired Structural and Functional Development of Cerebellum Following Gestational Exposure of Deltamethrin in Rats: Role of Reelin. **Cell. Mol. Neurobiol.**, 33(5):731-46 **(Impact Factor: 2.423, Cited by 1)**
9. Sharma, Shashi, Joshi, G., Dash, P.K., Thomas, M., Athmaram, T.N., Kumar, J.S., Desai, A., Ravi, A., Patro, I.K., Rao and P.V., Parida, M.M. (2013) Molecular epidemiology and complete genome characterization of H1N1pdm virus from India. **PLOS ONE**, 8(2): e56364. doi:10.1371/journal.pone.0056364. **(Impact Factor – 4.4, Cited by 2)**
10. Mishra, B, Leishangthem, G.D., Gill, K., Singh, A.K., Das, S., Singh, K., Xess, I., Dinda, A., Kapil, A., Patro, I.K. and Dey, Sharmistha (2013) A novel antimicrobial peptide derived from modified N-terminal domain of bovine lactoferrin: Design, synthesis, activity against multidrug-resistant bacteria and Candida. **Biochimica et Biophysica Acta**, 1828 (2013) 677–686. **(Impact Factor – 4.66, Cited by 5)**
11. Swarnkar, S., Goswami, P., Kamat, P.K., Patro, I.K., Singh, Sarika and Nath, C. (2013) Rotenone induced neurotoxicity in rat brain areas: A study on neuronal and neuronal supportive cells. **Neuroscience**, 230,172–183. **(Impact Factor – 3.458, Cited by 1)**
12. Swarnkar, Supriya, Singh, S., Goswami, P., Mathur, R., Patro, I.K. and Nath, C. (2012) Astrocyte activation: A key step in rotenone induced cytotoxicity and DNA damage.

Neurochem. Res., 37(10):2178-89 (Impact Factor: 2.24, Cited by 5)

13. Swarnkar, Supriya, Goswami, P., Kamat, P.K., Gupta, S., Patro, I.K., Singh, S. and Nath, C. (2012) Rotenone-induced apoptosis and role of calcium: a study on Neuro-2a cells. **Arch Toxicol.**, 86(9):1387-97. (Impact Factor: 4.041, Cited by 5)
14. Dhanwani, Rekha, Khan, M., Bhaskar, A.S.B., Singh, Rajpriya, Patro, Ishan, Rao, P.V.L. and Parida, M. (2012) Characterization of Chikungunya virus infection in human neuroblastoma SH-SY5Y cells: Role of apoptosis in neuronal cell death. **Virus Res.**, 163: 417- 686. (Impact Factor: 2.905, Cited by 4)
15. Patro, N., Sharma, Arpita, Karaya, K. and Patro I. (2011) *Spirulina platensis* protects neurons via suppression of glial activation and peripheral sensitization leading to restoration of motor function in collagen-induced arthritic rats. **Indian J. Exp. Biol.**, 49:739-748. (Impact Factor- 1.295, Cited by 1)
16. Saxena, Gunjan, Patro, I.K. and Nath, C. (2011) ICV STZ induced impairment in memory and neuronal mitochondrial function: A protective role of nicotinic receptor **Behav. Brain Res.**, 224(1): 50-57. (Impact Factor: 3.393, Cited by 11)
17. Swarnkar, Supriya, Singh, Sarika, Sharma, S., Mathur, R, Patro, I.K. and Nath, C. (2011) Rotenone induced neurotoxicity in rat brain areas: A histopathological study. **Neuroscience Letters**, 495:178-182. (Impact Factor: 2.055, Cited by 9)
18. Khan, M., Dhanwani, R., Patro, I.K., Rao, P.V.L. and Parida, M.M. (2011) Cellular IMPDH enzyme activity is a potential target for the inhibition of Chikungunya virus replication and virus induced apoptosis in cultured mammalian cells. **Antiviral Res.**, 89: 1-8. (Impact Factor: 4.439, Cited by 14)
19. Khan Z., Khan, N., Tiwari, R.P., Patro, I.K., Prasad, G.B.K.S. and Bisen, P.S. (2010) Down-regulation of surviving by oxaliplatin diminishes radioresistance of head and neck squamous carcinoma cells. **Radiother. Oncol.**, 96: 267-273. (Impact Factor: 4.831, Cited by 26)
20. Swarnkar, S., Singh, S., Mathur, R., Patro, I.K. and Nath, C. (2010) A study to correlate rotenone induced biochemical changes and cerebral damage in brain areas with neuromuscular coordination in rats. **Toxicology**, 272: 17–22. (Impact Factor: 3.641, Cited by 14)
21. Mishra, B., Srivastava V.K., Chaudhry, R., Somvanshi, R.K., Singh, A.K., Gill, K., Somvanshi, R., Patro, I.K. and Dey, S. (2010) SD-8, a novel therapeutic agent active against multidrug-resistant Gram positive cocci. **Amino Acids**, 39: 1493-1505. (Impact Factor: 4.106, Cited by 4)
22. Patro, Nisha, Nagayach, Aarti and Patro, I.K. (2010) Iba1 expressing microglia in the dorsal root ganglia become activated following peripheral nerve injury in rats. **Indian J. Exp. Biol.**, 48: 110-116. (Impact Factor: 1.295, Cited by 14)
23. Patro, I.K., Amit, Shrivastava, M., Bhumika, S. and Patro N. (2010) Poly I:C induced microglial activation impairs motor activity in adult rats. **Indian J. Exp. Biol.**, 48: 104-109. (Impact Factor- 1.295, Cited by 6)
24. Shrivastava, Meghna, Patro, Nisha, Kumar, K. and Patro, I.K (2009) Changes in pain sensitivity with age, differ in male and female Wistar rats, *Rattus norvegicus* (Berkenhout). **Proc. Nat. Acad. Sci. India, Sect. B**, 79(III): 235-239.
25. Kumar, N., Singh, S., Patro, Nisha and Patro, I.K. (2009) Evaluation of protective efficacy of *Spirulina platensis* against collagen induced arthritis in rats. **Inflammopharmacology**, 17(3): 181-190. (Cited by 19)

26. Patro, Nisha, Shrivastava, Meghna, Tripathi, Surya and Patro, I.K. (2009) S100 β upregulation: A possible mechanism of deltamethrin toxicity and motor coordination deficits. **Neurotoxicol. Teratol**, **31**:169-176. **(Impact Factor: 3.274, Cited by 11)**
27. Patro, I.K., Saxena, K., Tiwari, S. and Patro, N. (2008) FK-506 helps motor coordination recovery following sciatic nerve transection in the young but not in the senile rats. **Int. J. Neuroprotec. Neuroregen.**, **4(2)**:145-150.
28. Saxena, K., Patro, N. and Patro, I.K. (2007) FK506 protects neurons following peripheral nerve injury via immunosuppression. **Cell. Mol. Neurobiol.**, **27**:1049-1057. **(Impact Factor: 2.423, Cited by 11)**
29. Patro, N. and Patro, I.K. (2005) Effects of deltamethrin on granule cell migration during post-natal development of rat cerebellum. **Indian J. Exp. Biol.**, **43**: 158-162. **(Impact Factor- 1.295, Cited by 7)**
30. Verma, D., Ray, S.B., Patro, I.K. and Wadhwa, S. (2005) Enhanced analgesic effect of morphine-nimodipine combination after intraspinal administration as compared to systemic administration in mice. **J. Biosci.**, **30**: 101-107. **(Impact Factor: 1.888, Cited by 2)**
31. Vimal, S., Sissodia, S.S., Meena, P., Barber, S., Shukla, S., Saxena, A., Patro, Nisha, Patro, I.K. and Bhatnagar, M. (2005) Antioxidant effects of *Asparagus racemosus* wild and *Withania somnifera* Dunel in rat brain. **Annals Neuroscience**, **12**: 67-70. **(Cited by 2)**
32. Singh, N., Patro, I.K. et al. (2004) Biochemical status of antioxidant defence enzymes in geriatric persons suffering from hypertension and ischaemic heart disease. **Indian J. Cardiol.**, **7**: 41-43.
33. Patro, Nisha and Patro, I.K. (2003) Effect of immuneactivator (Poly I:C) on the rat cerebral cortex. **J. Tissue Res.**, **3(2)**: 71-75. **(Cited by 5)**
34. Patro, Nisha, Gupta, Praveena and Patro, I.K. (2002) Lipofuscin in cell aging and cell death. **Indian J. Gerontol.**, **16**: 45-68. **(Cited by 2)**
35. Patro, I.K., Chattopadhyay, M. and Patro, Nisha (1999) Flunarizine enhances functional recovery following sciatic nerve crush lesion in rats. **Neuroscience Letters**, **263**: 97-100. **(Impact Factor: 2.055, Cited by 45)**
36. Patro, Nisha, Mishra, S.K., Chattopadhyay, M. and Patro, I.K. (1997) Neurotoxicological effects of deltamethrin on the postnatal development of cerebellum of rat. **J. Biosci.**, **22**: 117-130. **(Impact Factor: 1.888, Cited by 16)**
37. Patro, I.K., Patro, Nisha, Singhal, P. and Bhardwaj, S.K. (1996) Simultaneous demonstration of microscopic anatomy, Nissl, lipofuscin and cytological changes using a combination method and fluorescence technique. **Acta Histochem. Cytochem.**, **29(3)**: 193-197. **(Impact Factor: 1.68, Cited by 2)**
38. Patro, I.K., Bhardwaj, S.K., Patro, Nisha and Singhal, P. (1994) Relationship between lifespan potential, specific metabolic rate and lipofuscin accumulation in neurons. **J. Neurochem.**, **63 (Suppl. 2)**: 10. **(Impact Factor: 4.206)**
39. Patro, I.K., Patro, Nisha, Tiwari, B. and Singhal, P. (1994) Vascular changes in post-natal rat brain following experimental exposure to deltamethrin. **J. Neurochem.**, **63 (Suppl. 2)**: 29. **(Impact Factor: 4.206)**
40. Patro, Nisha, Patro, I.K. and Mathur, R. (1993) Changes in the properties of cardiac lipofuscin with age and environmental manipulation. **Asian J. Exptl. Sci.**, **7**:57-60. **(Cited by 6)**

41. James T.J., Sharma, S.P., Gupta, S.K. and Patro, I.K. (1992) 'Dark' cell formation under protein malnutrition: Process of conversion and concept of 'semi-dark' type Purkinje cells. **Indian J. Exptl. Biol.**, **30**: 470-473. (Impact Factor: 1.295, Cited by 7)
42. Patro, Nisha, Patro, I.K. and Mathur, R. (1992) Age-pigments as possible markers of environmental damage; CoCl₂ induced lipofuscin accumulation in myocardium. **Geobios**, **19**: 231-234. (Cited by 5)
43. Patro, Nisha, Sharma, S.P. and Patro, I.K. (1992) Lipofuscin accumulation in aging myocardium and its reversal by meclorphenoxate. **Indian J. Med. Res. (B)**, **96**: 192-198. (Impact Factor: 1.516, Cited by 10)
44. Patro, I.K., Patro, Nisha, Sharma, S.P. and James, T.J. (1991) Influence of centrophenoxine on the nucleo-cytoplasmic interaction in senile neurons. **Indian J. Gerontol.**, **5(1)**: 1-11.
45. Patro, I.K., Sharma, S.P. and Patro, Nisha (1989) Formation and maturation of neuronal lipofuscin. **Proc. Nat. Acad. Sci. (India)**, **59(B) III**: 287-293. (Cited by 3)
46. Patro, I.K., Sharma, S.P., Patro, Nisha, Kataria, Asha and Upma (1988) Histopathological disruption of the cervical (spinal) central canal of white rats under restraint stress. **Nat. Acad. Sci. Letters**, **11(4)**: 127-129. (Impact Factor: 0.043)
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