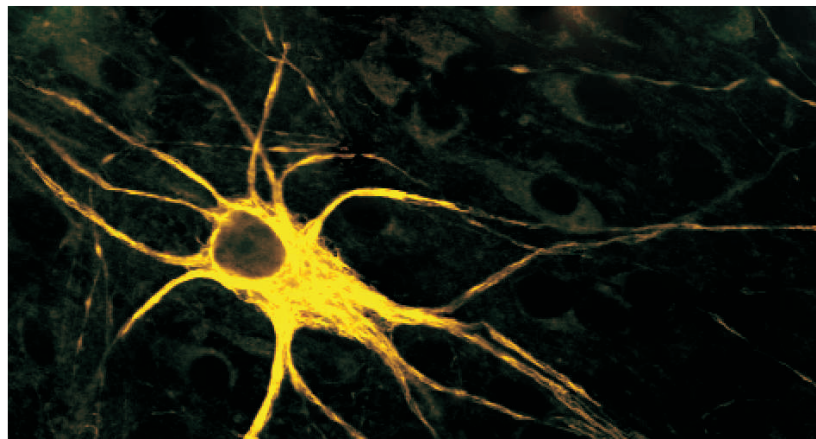
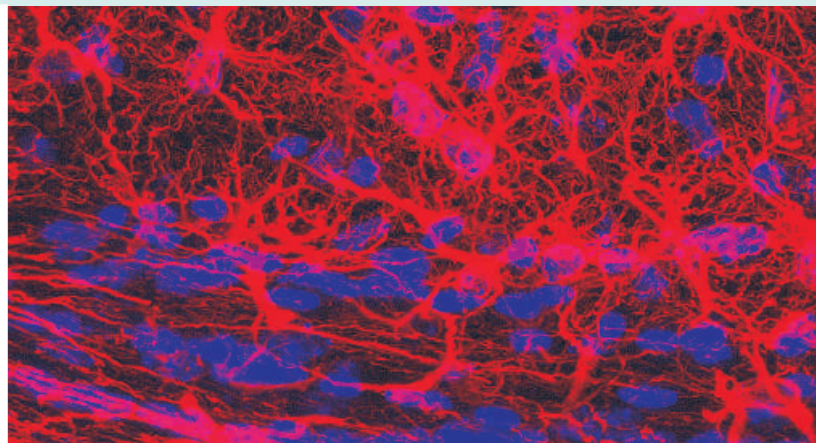


VOLUME | 16 | JULY | 2009

ISSN 0972-7531

Annals of Neurosciences

Official Journal of Indian Academy of Neurosciences



PUBLISHED QUARTERLY

www.neuroscienceacademy.org.in

Editor-in-Chief

Akshay Anand, Ph.D
Neuroscience Research Lab
Department of Neurology,
Institute Stem Cell Facility
Post Graduate Institute of Medical
Education and Research, Chandigarh
Tel.: +91-172-2756090
Fax: +91-172-2748399
E-mail : akshay1anand@rediffmail.com

Past Editor

Rakesh Shukla, D.M

Founding Editor

J.N. Sinha, Ph.D

Co-Editors

Executive Editor
Anand Swaroop, Ph.D

Senior Editors
Denis English, Ph.D
S Prabhakar, D.M
Colin Masters, M.D, Ph.D
Youdim Moussa, Ph.D
P. Joshi, Ph.D
Ante Padijen, M.D, D.Sc
Y. K Gupta, M.D

Associate Editors
Shashi Bala Singh, Ph.D
Pankaj Seth, Ph.D
S Ganesh, Ph.D
Kanchan Mukherjee, M.Ch
V. Kale, Ph.D
Ursula M. Gehling, M.D

Editorial Advisory

Walter Bradley, D.M, F.R.C.P
Mriganka Sur, F.R.S
Obaid Siddiqi, Ph.D, FNASc
S C Lakhotia, Ph.D, FNASc
Peter Andrews, Ph.D
Keiji Tanaka, Ph.D
Martin Schwab, Ph.D
Hector H Garcia, M.D, Ph.D
Tom Isaacs
K. Satyanarayana, Ph.D
Zhen-Ge Luo, Ph.D
Adhibato Rao, Ph.D
R K Vasishtha, M.D
Bimla Nehru, Ph.D
Nibedita Lenka, Ph.D
Rakesh Biswas, M.D
Nusrat Shafiq, D.M

Asok Mukhopadhyay, Ph.D
F. Islam, Ph.D
Paramjeet Singh, M.D
Almaz Aldashev, Ph.D
Stefan Gluck, M.D, Ph.D
G. U. Gurudatta, Ph.D
R.A.P. Alcalá, Ph.D
Nihar Ranjan, Ph.D

Statistical Consultant
Suresh Sharma, Ph.D

IP Consultants
Pavan Duggal
Michael Coblenz

Scientific Integrity Advisor
A. Suroliya, Ph.D

Ombudsman
M.R.S. Rao, Ph.D

Disclaimer : The Printer, editors and academy can not be held responsible for errors and consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Printer and editors, neither does the publication of advertisements constitute any endorsement by the Printer and Editors of the products advertised. The Journal does not take responsibility of publishing articles in the order accepted which would be decided by the Editor in Chief. However this decision would not be arbitrary and will depend on thematic issues, topical developments and content of accepted papers as well as available space.

Photocopying : No part of this publication may be reproduced, stored transmitted in any form or by any means without the prior permission in writing from the copyright holder. For personal use, single photocopies of single article may be made. This consent does not extend to other types of copying such as copying for general distribution and for resale.

Declaration by Authors : The corresponding author should agree, by the act of submission, that the copyright of the manuscript, was in fact transferred to the journal and would be done so without any remuneration from the Journal, such transfer being irrevocable after publication. Authors hold the right to withdraw any manuscript from consideration for publication for any reason until the issue was copyset for publication, after which the manuscripts would be retracted. On behalf of all authors the submitting author should either be the corresponding author or if not, the corresponding author should assert by submission of any and all manuscripts for review that the manuscript is not under consideration elsewhere. That all individuals who participated in the study in a material manner are listed as authors, or if not, why. That all authors have reviewed and agree with the content, presentation, organization, data and interpretation of the data or the manuscript as well as their position within the authorship list, that no individual who either holds or claims any authorship right has been excluded and if not, explain, that the facts of the paper are true and honest and that all experiments that require institutional or governmental approval have been submitted, evaluated and awarded required approvals including but not limited to human experimentation and clinical trials, animal use, use of toxic chemicals and radioactive elements, regulators pertaining to any and all aspects of ICMR-DBT guidelines of stem cell research if applicable, or any other regulation pertinent to the study. On behalf of all authors, the corresponding author agrees to be listed as such, and all other authors consent to this listing. The listed corresponding author on behalf of all authors by submission of the paper for review or publication testifies that he or she is reasonably certain that the data presented are accurate, has no reason to question the validity of any fact, statement

or experimental result presented in the paper, has directly participated in all aspects of the study has not copied the work or any aspect of it from another source, has not reviewed any paper that presents substantially identical results and has in fact not accepted that paper for publication or is aware that the paper is no longer being evaluated for publication unless that paper is referred to by reference of footnote in the submitted manuscript, that any and all future allegations of scientific misconduct or fraud that arise from either the submission or publication of the paper shall be relayed to the editor in chief in timely manner and that the proceedings of any investigation will be communicated as they evolve, that the journal reserves the right to publish such information if that information is in fact in the public domain and to comment upon it as the findings if invalid relate to the science communicated by the Journal.

Electronic storage or usages : For store or use of electronically any material contained in this journal, including any article or part of article the permission of Editor-in-Chief is required.

Information for subscribers : Annals of neurosciences publishes in 4 issues per year. Subscription prices for year 2009 are Rupees Four Hundred in India/ Forty Dollars or Twenty Five Ponds abroad. The subscription should be sent to The Editor, Annals of Neuro-sciences, Neuroscience Research Lab, Department of Neurology, Post Graduate Institute of Medical Education and Research, Chandigarh-160012. The claim for issues not received, should be set within 3 months of publication of the issue concerned. Later claims will not be entertained.

Delivery terms and legal title : Prices include delivery of print journals to the recipient's address. Recipient is responsible for paying any important duties or taxes that arise from delivery.

Journal customer services : For ordering information, claims and any enquiry concerning your journal subscription please contact the editorial office at the new address shown below.

Design and Layout : Neel Kamal Sharma

Printer : Annals of Neurosciences is printed by Azad Hind Stores Pvt. Ltd., Sector 17-E, Chandigarh-160 017.

Address : Editor, Annals of Neurosciences, Neuroscience Research Lab
Deptt. of Neurology, PGIMER, Chandigarh – 160 012.
Tel.: +91-172-2756090; Fax: +91-172-2748399
E-mail : annalsneuroscience@gmail.com, akshay1anand@rediffmail.com

Genomic Platforms

Performance that Sets the Industry Standard....

Next Generation Sequencing



SOLiD™ Systems

Genetic Analyzers



3500/3500xl Genetic Analyzer
No one else offers the full
sequence....

Real Time PCR Platforms



StepOne™ Real Time PCR System

**Remarkably Simple System.
Simply Remarkable Results.**



Contact us:



Gurgaon

Plot No. 372, Udyog Vihar, Phase-II,
Gurgaon, Haryana-122 016.
Tel.: +91-124-284 3000.
Fax: +91-124-284 3398/ 99.

Thane

201, Nand Chambers,
LBS Marg, Thane -400 602.
Tel.: +91-22-2598 6288/ 6262.
Fax: +91-22-2533 5940.

Kolkata

165-A, S P Mukherjee Road,
Kolkata-700 026.
Tel.: +91-33-2466 1396/ 3362.
Fax: +91-33-2466 1352.

Chennai

B-1, Alsa Regency,
165 Eldams Road, Alwarpet,
Chennai-600 018.
Tel.: +91-44-2432 7437/ 0352.
Fax: +91-44-2434 6328.

Bangalore

105, Bhimajyothi Colony,
West of Chord Road,
Basaveshwaranagar
Bangalore -560 079.
Ph: 080 - 2323 0912/ 16/ 18
Fax: 080 - 2323 0917

Hyderabad

6-3-1090/1/1, 1st Floor,
Uma Hyderabad House,
Somajiguda, Raj Bhavan
Road,
Hyderabad - 500 082.
Tel.: 040 - 23316613
Fax: 040 - 23316669

Email: mcbmarketing@labindia.com

Annals of Neurosciences

Official Journal of Indian Academy of Neurosciences

VOLUME | 16 | JULY | 2009

Editorial

- 97 **Advancements in Stem Cell Research: An Indian Perspective**
Nibedita Lenka and Akshay Anand

New Focus

- 99 **Dr Stephen Hawking's disability advice**
Stephen Hawking

Commentary

- 101 **Commentary on Professor Stephen Hawking's disability advice**
Walter G Bradley

Research Article

- 103 **Biochemical estimation of antioxidant enzyme in cerebellum of ageing albino rats vis a vis effect of celastus paniculatus**
Kamal Saini, A Chaudhary and R K Sharma

Journal Club

- 106 **Proteomic analysis of mouse hypothalamus under simulated microgravity. Neurochemical Research 2008; 33: 2335-2341**
Rupa Muthaian
- 108 **Human umbilical cord blood treatment in a mouse model of ALS : optimization of cell dose**
PLoS ONE 2009; 3(6) : e2494
Avijit Banik

Classics

- 110 **Discourse on the method of rightly conducting the reason and seeking truth in the sciences**
Rene Descartes

Comprehensive Review

- 119 **Memory – mechanisms, tools and aids**
Manish Saraf

Case Report

- 123 **Neuro-ophthalmic complications of acute paranasal sinusitis a surgical emergency**
Saroj Gupta and Rashmi Goyal

Book Review

- 125 **Women and Victimization**
TK Logan, Robert Walker, Carol Jordan and Carl Leukefeld
Theodore M. Godlaski

Molecular Shots

Immunostaining pictures

- 127 R Mallika
NII, New Delhi

People and Views

- 129 **Letters to Editor**

Memorandum

- 130 **Knowledge to equity**

