

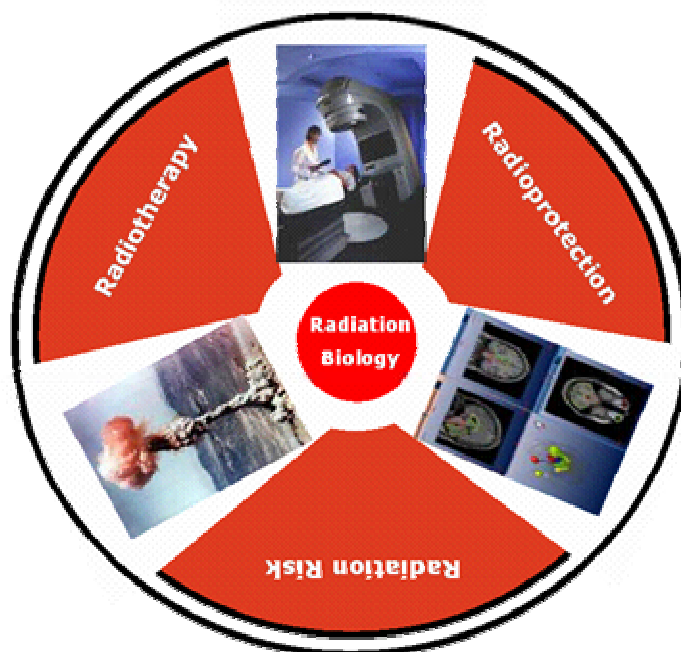


RADIATION SCIENCE TODAY

A Quarterly eNewsletter

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Web page: www.freewebs.com/isrbenewsletter/

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EDITORIAL

Untangling the Mystery of Chromosome Capping and Efforts for Global Nuclear Disarmament Awarded - Nobel Prize 2009 in Physiology or Medicine and Peace

'All's well that ends well' a saying brings cheers this year in scientific community especially to biologists. It is not the end but expansion of horizons of biological / medical sciences with this year's Nobel Prize in Physiology or Medicine awarded to three scientists (Elizabeth Blackburn, Carol Greider and Jack Szostak) for solving the mystery how the chromosomes protected against degradation¹. It is in fact the cap (end) of chromosome, the telomere, which once thought redundant, helps chromosomes against shortening during cell division and decides the age of cell / organism. They discovered that a unique DNA sequence in the telomeres and an enzyme that forms them- telomerase, protects the chromosomes from degradation. After limited cell division of normal cells in our body, they directed towards senescence (aging) through telomere. In contrary, the cancer cells preserve their telomeres through increased telomerase activity for indefinite division and life. The knowledge not only helps us to understand the basic biology for regulation of cell division but also provides new approaches how to treat cancer. In fact, the knowledge opened new areas of research in how cell responds stress conditions including radiation induced cancer induction²⁻⁵.

Nobel peace prize of this year credited to 44th President of United States Barack H. Obama for his extraordinary efforts to strengthen international diplomacy and cooperation between peoples⁶. Probably no one knew at the time of his sworn in the beginning of the year that before the end of the year, his policies would have impact enough to bag the Nobel Prize of Peace. This prize received some criticism that the award is for his aspirations rather than his achievements, his promise rather than his performance⁷⁻⁸. Whatever, criticism the award may face, efforts of Obama are independently applauded by some of the leading scientific journals for his to say goodbye to the chemical processing of spent nuclear fuel, which could be used to purify material for nuclear weapons⁹. The decision to halt commercial nuclear recycling sends a clear message for his commitment for nuclear non-proliferation. It might be visible clearly that the Nobel prize for peace credited to Obama are his determination for non-proliferation and to persuade all nations for peaceful nuclear world. It is hoped that his policies would bring more peaceful applications of nuclear technology in coming days. It may be said beyond doubt that like other Nobel prizes of the year, the Prize in Physiology or Medicine and Peace justify the words of Alfred Nobel's will¹⁰ '.....shall be annually distributed in the form of prizes to those who, during the preceding year, shall have conferred the greatest benefit on mankind...'.
greatest benefit on mankind...'.

B. N. Pandey, Editor

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http://nobelprize.org/alfred_nobel/will/short_testamente.html

1. PROFILE of

Dr H.C. Goel

Dr H.C. Goel has received his Master's degree in Zoology in 1964 from Agra University (I class with IST position) Agra (U.P.) and Ph.D. in Cancer Biology (Radiation carcinogenesis) from Agra University, Agra (U.P.). He has served as Lecturer in Zoology at Agra University (July 1964- Feb 1968) and taught graduate / postgraduate students subjects like Genetics, Cell Biology and Fundamental Comparative Anatomy. He joined Defense Research and Development Organization as Scientist in Feb.1968 and worked on various aspects of Radiation Biology Radiation Protection, control of vectors, microbes and parasites related to human and animal disease. He Retired as Director Grade Scientist (Scientist 'G') from INMAS, Delhi, in Sept 2003. Further, he served as UGC Visiting Professor (2004-2005), Department of Microbiology, C.C.S. University, Meerut (U.P.) and Research Consultant, Department of Bioscience, Jamia Millia Islamia, New Delhi. He has guided 12 research students for their Ph.D. degree. Dr Goel has published more than 100 research papers in peer reviewed International research journals in the area of Photochemical for pest control, Radiation injury, Radio-carcinogenesis and their modification, Herbal radioprotection. He has Edited several publications in the form of five Books and contributed chapters in several books written by other scientists and academicians. Presented a number of research papers in international meetings abroad (Germany, Netherlands, France, U.K., Russia, South Korea). He is recipient of **Senior DAAD fellowship** at Munster, Germany (1990). He has served as Member of several scientific societies, scientific and selection committees of DRDO, BARC and various universities. He has received **DRDO Technology Award** in 2002. His research interests are in the areas of Herbs in amelioration of human disease; Nuclear and Biological Disaster Management. Presently he is writing a monograph "**Herbs in Radioprotection**", a DRDO sponsored project and presently he is serving as Director, Amity Center for Radiation Biology, Amity University, Noida (U.P.)



2. Article

Bio-prospective and nutraceutical values of *Ipomoea aquatica* Forsk. From North eastern Terai region of U.P.

A.K. Dwivedi*, Bobby Srivastava and V.N. Pandey

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This study was undertaken to study the possibilities of utilizing *Ipomoea aquatica* Forsk, freshwater aquatic green biomass, of North Eastern U.P. as a potential source of protein yield and nutraceuticals. This plant has being used by the local people of North-Eastern region of U.P. as a leafy vegetable and antidote to opium poisoning. The leaves of *I. aquatica* Forsk was found to have the suitable proteinaceous nutraceutical value due to their edibility and higher values for extractability of LPC (leaf protein concentrates), protein nitrogen, and total nitrogen content in LPC with medicinal properties. The efficacy of four different methods of coagulating LPC (i.e. coagulation by lactobacillus lactis, heat coagulation at pH 4.5, precipitation by NaCl and heat coagulation at natural pH) of the leaf extract was tested for the maximum yield. Chemical composition of LPC of the selected plant have been determined by investigating their contents of amino acid, crude fibre, starch, ether extractive and total soluble sugar. The calorific value of LPC of the above mentioned species have also been determined. The result shows that the LPC sample has considerable high calorific values.

The biofunctional plant parts i.e. leaf sample of above mentioned species appreciably rich in biofunctional antioxidants molecules. This indicates the importance of biofunctional plant parts i.e. leaf could be exploited as a potent source of dietary food protein and reservoir of many biofunctional secondary metabolites, which can be used as preventive drugs for many diseases including cancer, nutraceutical, pharmaceutical and industrial uses, after removal of its anti-nutritional factors. Multidimensional/polyvalent utilization of *I. aquatica* viz. food, feed, fodder, protein, environmental cleaner, substratum for periphyton growth, biofertilizer, support for organic farming and carp culture, leafy vegetable, feed for many fishes, reservoir of biofunctional molecules and antihyperglycemic properties.



Fig. 1. Vegetation of *I. aquatica*



Fig. 2. Flowering twig of *I. aquatica*

3. Letter from President, ISRB

Highlights of Recent Activities & Future Plans of ISRB

Dear Members of ISRB,

It is my immense pleasure to write to you after New **Executive Council (2009-11)** took over in April 2009. It has been our contentment to notice the growth and scientific activities of ISRB in various areas in recent few years. These activities have been very much helpful for the Society to dissipate the knowledge about recent developments and research activities in Radiation Biology and Allied Sciences to ISRB Members/Non-Members, young researchers/students and even to common people living in remote villages/cities. Especially, some of Workshops and Awareness Programs have been very popular in Students to percolate the right knowledge/concepts to young generation and common people. Due to these activities, the visibility of Society has also improved tremendously in recent years, which got reflected through wide coverage by electronic media/newspapers, large number of participation in Conferences/Meetings, joining of a big number as Life Members etc. However, there is still good scope to add/strengthen scientific activities to make Society scientifically stronger in future.

A brief account of the **recent activities** and **future plans** of Society are as following:

- 1) **ISRB Update:** An update of ISRB was prepared and released during ICRB 2008 at Jaipur with the valuable help of all the members. It gives a significant reflection / recognition for all the activities conducted by the society in the past. Even if, it was difficult to compile all the information for the last 18 years, but, it could be done with all possible information available, with active support of some of our Members.
- 2) **Awareness Programmes /Seminars / Summer school/ Workshop:** Nine Radiation Awareness Programmes, Seminars, Summer School and Workshop were organized (2004-08) in various parts of country in different Universities/ institutes. All these were very well attended by U.G/ P.G students, research scholars, faculty members and NGOs. **National Seminar on Health Impact of Radiation: Current status and future prospects** organized at Jaipur was attended by 320 participants, and it was inaugurated by 2 Vice- Chancellors.
- 3) **Journal:** Society has encouraged and adopted Indian Journal of Radiation Research as its official publication. The Journal is published tri monthly from Mumbai and has an editorial board of eminent scientists from various countries of the world. It contains research articles from reputed research laboratories within country and from abroad.
- 4) **eNewsletter:** Beginning January 2008, Society has started '**Radiation Science Today**' an enewsletter with a view to inform members speedily and effectively about the recent research progress in Radiation, Cancer biology and allied sciences, forthcoming National and International Conferences, updated information about the honors/ awards received by ISRB members. The recent issue of enewsletter **Issue 7, July-October, 2009** has just released. The previous and current issues of the eNewsletter are available on web page: <http://www.freewebs.com/isrbenewsletter/>. We have been regularly receiving several encouraging emails from Foreign and Indian Scientists about its valuable and useful contents. A feed back cum survey form had been distributed during ICRB 2008 meeting and online afterwards to get response from the readers for this enewsletter. It was matter of great satisfaction that the enewsletter received high visibility and recognition among its readers. However, it is our constant effort to further improve it to make more useful to the readers.

- 5) **Pre-Conference Satellite Workshop:** A Pre-conference Satellite Workshop on 'Radiation induced Bystander Effects and their implications in Cancer Research' was organized in Jaipur on 9th Nov. 2008 along with Indo-Shastri Institute, Canada. It was attended by more than 30 overseas and 220 Indian Scientists.
- 6) **ICRB-2008: International Conference on Radiation Biology and Translational Research on Radiation Oncology** was organized at Jaipur, 10-12 Nov. 2008. A report of the same has been published in *Journal Molecular and Cellular Pharmacology*, 2: 103-111 (2009) and *Radiation Science today*, issue 5 (2009). This conference had a grand success academically and socially both with the support of all ISRB members. It was inaugurated by honorable Governor of Rajasthan Shri S. K. Singh and attended by a large number of senior and junior scientists (140 overseas and 456 Indians). Several renowned scientists/ clinicians from 22 countries presented their research findings. 21 Symposia were organized on various aspects of radiation biology and cancer research. More than 300 abstracts were received & published which reflects the International credibility of the society and the organizers. We have received 227 e-mails from overseas and Indian participants for its grand success as unforgettable event.
- 7) **Post Conference Satellite Meeting:** A post conference satellite meeting was organized at Allahabad on 13-14 Nov. 2008 and it was attended by large number of participants including several overseas scientists.
- 8) **New Membership to ISRB:** It is our constant effort to encourage young and active researchers working in Radiation Biology from different Institutes / Universities from India and abroad to join the Society, which would keep our Society growing. It is our immense pleasure to mention that about 60 new members (radiobiologists, radiation physicists and clinicians) have joined the society during recent past years. ISRB is working to issue **Life Membership Cards** to all Members very soon.
- 9) **Essay Competition:** A **National Essay Competition** on the topic '**Radiation: Boon & Curse**' was organized by the Society on 6th August 2009 at Govt. Dungar P.G. College, Bikaner, (Rajasthan). An overwhelm response was received and more than 160 participants from various institutes/ colleges participated in the same.
- 10) **Popular Lectures:** The popular lecturers, workshops, one day symposium, science – quiz, essay etc. will also be organized by the society in due course of time. Members interested to organize such activities at their Institutes are welcomed.
- 11) **Web page:** The website of ISRB will be activated / reinitiated with all the possible contents.
- 12) **ICRB-2010:** The biennial conference of the society (ICRB -2010) is being organized in Nov. 2010 at Chennai. The preliminary preparations are already in progress.
- 13) **Updating/completion of ISRB accounts:** Attempts will be made to update / complete the audit of the accounts of ISRB soon. The ISRB bank account at Delhi will be made functional by changing the past signatories.
- 14) **Association with National/International Bodies:** The Society will endeavor to co-operate and establish / continue its association with other National and International bodies.

We look forward your valuable suggestions to improve the activities of ISRB.

With best wishes,

Dr. P. K. Goyal

President, Indian Society for Radiation Biology (2009-11)

4. FROM ARCHIVES OF RADIATION SCIENCES

Paper: The Effect of Total Body Irradiation on the Labeling of Circulating Mouse Lymphocytes with Tritiated Thymidine

Source: Blood, 1965, Volume 25, pages 749-758

Author: D. M. Whitelaw

Laboratory: Department of Medicine, University of Toronto, and Ontario Cancer Institute, Toronto, Ontario, Canada

Highlights of the paper: In this research article, effect of whole body gamma irradiation (WBI) was studied in C3H mice in proliferating and non-proliferating lymphocytes circulating in blood. An interesting approach was employed to differentiate the dividing and non-dividing, and young and mature lymphocytes by labeling the lymphocytes with tritiated thymidine. Authors could not find differential sensitivity between labeled and unlabeled, or new and old lymphocytes suggesting that older cells are not necessarily get killed after radiation exposure. These experiments also suggest that the generation of new lymphocytes is directly related to the level of circulating small lymphocytes and may possibly depend on transformation of small lymphocytes to large proliferating cells.

Significance of the paper: The paper provides important knowledge in differentiation of radio-sensitivity of proliferating and non-proliferating lymphocytes. Moreover, the paper describes the technique to employ labeling of tritiated thymidine, to distinguish the proliferating and mature cell populations under in *in vivo* conditions. Now, it has been established that understanding the radio-sensitivity of lymphocytes have significant implication in illustrating mechanism of health effects of radiation exposure. The paper may be considered one of the foundation paper in the series, which gained substantial knowledge in due course of time.

by

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Note: Interested readers may submit the similar articles. This column is aimed to highlight the salient points and significance of a seminal research article/event in radiation biology and allied sciences, which has in further changed substantially the understanding in that particular research field.

5. NEWS AND VIEWS

Radiation and Cancer Biology

Radiation Protection

- Gamma and beta doses in human organs due to radon progeny in human lung
<http://rpd.oxfordjournals.org/cgi/content/abstract/135/3/197?etoc>
- Protective Effects of Dietary Antioxidants on Proton Total-Body Irradiation-Mediated Hematopoietic Cell and Animal Survival
<http://www.bioone.org/doi/abs/10.1667/RR1708.1>
- Radiation Protection in Newer Medical Imaging Technologies: PET/CT
<http://rpd.oxfordjournals.org/cgi/content/extract/135/3/216?etoc>
- The epistemological basis of radiological protection: two initiatives of the search for the truth about the biological effects of low doses of ionising radiation
<http://www.inderscience.com/offer.php?id=28535>
- Synthetic Protection Short Interfering RNA Screen Reveals Glyburide as a Novel Radioprotector
<http://www.bioone.org/doi/abs/10.1667/RR1674.1>

Space Radiation

- Too much radiation for astronauts to make it to Mars
<http://www.newscientist.com/article/mg20327266.100-too-much-radiation-for-astronauts-to-make-it-to-mars.html?DCMP=NLC-nletter&nsref=mg20327266.100>
- Space radiation hits record high
<http://www.newscientist.com/article/dn17882-space-radiation-hits-record-high.html?DCMP=NLC-nletter&nsref=dn17882>

Low Dose Radiobiology

- Assessing cancer risks of low-dose radiation
<http://www.nature.com/nrc/journal/v9/n8/abs/nrc2677.html?lang=en>

- Dose response relationships for chromosome aberrations induced by low doses of alpha-particle radiation
<http://rpd.oxfordjournals.org/cgi/content/abstract/135/4/268?etoc>
- Assessing cancer risks of low-dose radiation
<http://www.nature.com/nrc/journal/v9/n8/abs/nrc2677.html?lang=en>
- Low-dose radiation risk and the linear no-threshold model
http://www.inderscience.com/search/index.php?action=record&rec_id=28534

Radiation exposure and management

- Radiation Metabolomics. 3. Biomarker Discovery in the Urine of Gamma-Irradiated Rats Using a Simplified Metabolomics Protocol of Gas Chromatography-Mass Spectrometry Combined with Random Forests Machine Learning Algorithm
<http://www.bioone.org/doi/abs/10.1667/RR1796.1>
- Validation of the cytokinesis-block micronucleus (CBMN) assay for use as a triage biological dosimetry tool
<http://rpd.oxfordjournals.org/cgi/content/abstract/135/4/232?etoc>

Radiation and Adaptive Response

- Genotypic sex determination enabled adaptive radiations of extinct marine reptiles
<http://www.nature.com/nature/journal/v461/n7262/abs/nature08350.html?lang=en>

Cancer Radiotherapy

- Molecular fingerprinting of radiation resistant tumors: Can we apprehend and rehabilitate the suspects?
<http://www.biomedcentral.com/1471-2407/9/225/abstract>
- Radiation-induced cancer after radiotherapy for non-Hodgkin's lymphoma of the head and neck: a retrospective study
<http://www.ro-journal.com/content/4/1/21>

- External beam radiation results in minimal changes in post void residual urine volumes during the treatment of clinically localized prostate cancer
<http://www.ro-journal.com/content/4/1/26>
- Target splitting in radiation therapy for lung cancer: further developments and exemplary treatment plans
<http://www.ro-journal.com/content/4/1/30>
- Thresholds for therapies: highlights of the St Gallen International Expert Consensus on the Primary Therapy of Early Breast Cancer 2009
<http://annonc.oxfordjournals.org/cgi/content/abstract/20/8/1319?etoc>
- Residual breast cancers after conventional therapy display mesenchymal as well as tumor-initiating features
<http://www.pnas.org/content/106/33/13820.abstract?etoc>
- Identification, molecular characterization, clinical prognosis, and therapeutic targeting of human bladder tumor-initiating cells
<http://www.pnas.org/content/106/33/14016.abstract?etoc>

Cancer Biology and Therapy

- The role of apoptotic cell death in the radiosensitising effect of gemcitabine
<http://www.nature.com/bjc/journal/v101/n4/abs/6605145a.html>
- Survivin counteracts the therapeutic effect of microtubule destabilizers by stabilizing tubulin polymers
<http://www.molecular-cancer.com/content/8/1/43>
- Fatty fish and fish omega-3 fatty acid intakes decrease the breast cancer risk: a case-control study
<http://www.biomedcentral.com/1471-2407/9/216/abstract>
- Oxidative stress induced lung cancer and COPD: opportunities for epigenetic therapy
<http://www3.interscience.wiley.com/journal/122500363/abstract?CRTRY=1&SRETRY=0>
- Signal integration by JNK and p38 MAPK pathways in cancer development

- <http://www.nature.com/nrc/journal/v9/n8/abs/nrc2694.html?lang=en>
- CYP2D6 and tamoxifen: DNA matters in breast cancer
<http://www.nature.com/nrc/journal/v9/n8/abs/nrc2683.html?lang=en>
 - Crosstalk of Notch with p53 and p63 in cancer growth control
<http://www.nature.com/nrc/journal/v9/n8/abs/nrc2675.html?lang=en>
 - Low expression of a few genes indicates good prognosis in estrogen receptor positive breast cancer
<http://www.biomedcentral.com/1471-2407/9/243/abstract>
 - GLUT1 gene is a potential hypoxic marker in colorectal cancer patients
<http://www.biomedcentral.com/1471-2407/9/241/abstract>
 - Mechanical strain induces involution-associated events in mammary epithelial cells
<http://www.biomedcentral.com/1471-2121/10/55/abstract>
 - Geographic disparities in colorectal cancer survival
<http://www.ij-healthgeographics.com/content/8/1/48>
 - The BRC repeats of human BRCA2 differentially regulate RAD51 binding on single- versus double-stranded DNA to stimulate strand exchange
<http://www.pnas.org/content/106/32/13254.abstract?etoc>
 - Pivotal role of dihydrofolate reductase knockdown in the anticancer activity of 2-hydroxyoleic acid
<http://www.pnas.org/content/106/33/13754.abstract?etoc>
 - Cancer cells don't need a map to travel
<http://www.newscientist.com/article/dn17635-cancer-cells-dont-need-a-map-to-travel.html?DCMP=NLC-nletter&nsref=dn17635>
 - A gene expression profile for detection of sufficient tumour cells in breast tumour tissue: microarray diagnosis eligibility
<http://www.biomedcentral.com/1755-8794/2/52/abstract>
 - Avoidable global cancer deaths and total deaths from smoking
<http://www.nature.com/nrc/journal/v9/n9/abs/nrc2703.html?lang=en>

- Cervical cancer vaccination: more good than harm
<http://www.newscientist.com/blogs/shortsharpscience/2009/09/cervical-cancer-vaccination-mo.html?DCMP=NLC-nletter&nsref=blog2>

Nuclear Technology & Safety

Radiation Safety

- Is your city prepared for a home-made nuke?
<http://www.newscientist.com/article/mg20327163.900-who-will-survive-a-nuclear-attack.html?DCMP=NLC-nletter&nsref=mg20327163.900>
- Nuclear watchdog and WHO move forward against cancer
<http://www.nature.com/nm/journal/v15/n7/full/nm0709-713b.html>
- A preliminary study of issues and practices concerning pregnancy and ionising radiation
<http://rpd.oxfordjournals.org/cgi/content/abstract/135/2/79?etoc>
- Occupational radiation doses among diagnostic radiation workers in South Korea, 1996–2006
<http://rpd.oxfordjournals.org/cgi/content/abstract/136/1/50?etoc>
- Distribution of uranium in drinking water and associated age-dependent radiation dose in India
<http://rpd.oxfordjournals.org/cgi/content/abstract/136/2/108?etoc>
- Gene Expression Changes in Medical Workers Exposed to Radiation
<http://www.bioone.org/doi/abs/10.1667/RR1545.1>

Nuclear Technology

- Production of radioactive isotopes proves problematic
<http://www.nature.com/nm/journal/v15/n8/full/nm0809-826b.html>
- Dangerous nuclear whispers
<http://www.nature.com/nature/journal/v461/n7260/full/461011a.html>

- Imaging the Function of P-Glycoprotein With Radiotracers:
Pharmacokinetics and In Vivo Applications
<http://www.nature.com/clpt/journal/v86/n4/abs/clpt2009138a.html>
- Nuclear energy: The hybrid returns
<http://www.nature.com/news/2009/090701/full/460025a.html>
- Nuclear Waste Management in the United States—Starting Over
http://www.sciencemag.org/cgi/content/summary/325/5937/151?sa_campaign=Email/toc/10-July-2009/10.1126/science.1174594
- Adieu to nuclear recycling
<http://www.nature.com/nature/journal/v460/n7252/full/460152b.html>

Science and Society

Indian Science and Technology

- Science in the Future of India
http://www.sciencemag.org/cgi/content/summary/325/5937/126?sa_campaign=Email/toc/10-July-2009/10.1126/science.1177202
- Satellite-based estimates of groundwater depletion in India
<http://www.nature.com/nature/journal/v460/n7258/abs/nature08238.html?lang=en>
Video link
<http://www.nature.com/nature/videoarchive/indianhotspot/>
- India's first lunar probe fails after less than a year
<http://www.newscientist.com/article/dn17715-indias-first-lunar-probe-fails-after-less-than-a-year.html?DCMP=NLC-nletter&nsref=dn17715>
- Indian scientists rejoice as Chandrayaan-1 traces water on moon
<http://timesofindia.indiatimes.com/news/india/Chandrayaan-finds-water-on-Moons-surface/articleshow/5049459.cms>
- Reconstructing Indian population history
<http://in.mg50.mail.yahoo.com/dc/launch?gx=1&.rand=35fmi289nfvcr>

Science in General

- Sharing global CO₂ emission reductions among one billion high emitters
<http://www.pnas.org/content/106/29/11884.abstract?etoc>
- Pathogenesis and Transmission of Swine-Origin 2009 A(H1N1) Influenza Virus in Ferrets
<http://www.sciencemag.org/cgi/content/abstract/325/5939/481>
- Transmission and Pathogenesis of Swine-Origin 2009 A(H1N1) Influenza Viruses in Ferrets and Mice
<http://www.sciencemag.org/cgi/content/abstract/325/5939/484>
- Effects of UMTS Cellular Phones on Human Hearing: Results of the European Project "EMFnEAR"
<http://www.bioone.org/doi/abs/10.1667/RR1679.1>
- Measurement and analysis of radiofrequency radiations from some mobile phone base stations in Ghana
<http://rpd.oxfordjournals.org/cgi/content/abstract/135/4/256?etoc>
- Avoidable global cancer deaths and total deaths from smoking
<http://www.nature.com/nrc/journal/v9/n9/abs/nrc2703.html?lang=en>

Nobel Prize 2009- Hearty Congratulations to all Nobel Prize winners 2009!!!

Subject	Awardees	Prize for
Physiology or Medicine	Elizabeth H. Blackburn Morris Herzstein Endowed Chair in Biology and Physiology, University of California San Francisco, USA	for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase
	Carol W. Greider Dept of Molecular Biology and Genetics, Johns Hopkins Medicine, Baltimore, USA	
	Jack W. Szostak Department of Molecular Biology Center for Computational and Integrative Biology Harvard University, Boston, MA, USA	
Chemistry	Venkatraman Ramakrishnan MRC Laboratory of Molecular Biology Cambridge, United Kingdom (born, Chidambaram, TN, India)	studies of the structure and function of the ribosome
	Thomas A. Steitz Yale University, New Haven, CT, USA	
	Ada E. Yonath Weizmann Institute of Science, Rehovot, Israel	
Physics	Charles K. Kao Standard Telecommunication Laboratories Harlow, United Kingdom; Chinese University of Hong Kong, China	transmission of light in fibers for optical communication
	Willard S. Boyle Bell Laboratories, Murray Hill, NJ, USA	imaging semiconductor circuit – the CCD sensor
	George E. Smith Bell Laboratories, Murray Hill, NJ, USA	
Peace	Barack H. Obama 44th President of the United States of America	for his extraordinary efforts to strengthen international diplomacy and cooperation between peoples
Economics	Elinor Ostrom USA	for her analysis of economic governance, especially the commons
	Oliver E. Williamson USA	for his analysis of economic governance, especially the boundaries of the firm
Literature	Herta Müller Germany	who, with the concentration of poetry and the frankness of prose, depicts the landscape of the dispossessed

The further details of award may be found on

http://nobelprize.org/nobel_prizes/lists/2009.html

6. LETTERS FROM THE READERS

- I have gone through the recent issue of radiation science today. I am glad to know that you have been awarded "Young Scientist Award" and "Best Poster Award".

-**Dr. S. N. Pandey**, Reader, Department of Physics, Motilal Nehru National Institute of Technology, Allahabad -211 004, India.

9. AWARDS/HONORS TO ISRB MEMBERS

Name of the ISRB Member	Affiliation	Award/Honors	Year/Period
Dr B. N. Pandey	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085, India	Young Scientist Award by Asian Association of Radiation Research for outstanding contribution in Radiation Research. The Award was conferred during Second Asian Congress of Radiation Research, Seoul, S. Korea, May 17-20, 2009	2009
Dr B. N. Pandey	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085, India	Best Poster Award by during Second Asian Congress of Radiation Research, Seoul, S. Korea, May 17-20, 2009 for abstract ' Role of Oxidative Stress and Apoptotic Death in Radiation Induced Bystander Effect in Human Normal and Tumor cells with Implications to improvement in Cancer Radiotherapy ' by B. N. Pandey, A. Kumar, M. Ali and K. P. Mishra	2009

July-September

Issue: 7

Year: 2009

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- Congratulations for the gigantic work and improving and making the newsletter day by day very useful. It gives so much material and links, keeps busy over months.

Accept my congratulation for Young Scientist award and best paper award, Korea meeting.

May I request you to kindly delete the name of late Dr. AL Bhatia from the ISRB executive list as he is no more.

-**Dr. Arun Chougule**, Department of Radiotherapy, SMS Medical College, Jaipur

- Thank you very much for regularly sending Radiation Science Today. The Journal is very much informative and useful to the community. I would also like contribute article for the journal.

-**Dr P M Dongre**, Head, Department of Biophysics, University of Mumbai, Mumbai

- Read the latest issue of the News letter. It is great. Keep it up.

-**Prof. Ganesh C. Jagetia**, Head, Department of Zoology, Mizoram University, Aizawl

October-December

Issue: 8

Year: 2009

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7. UPCOMING CONFERENCE & WORKSHOP OF ISRB

International Conference on Radiation Biology 2010

International Conference on Radiation Biology, 2010 (ICRB-2010) would be organized at Shri Ramachandra Medical College and Research Institute, Shri Ramachandra University, Porur, Chennai (Madras), India. The Conference would provide unique opportunity to participants for scientific presentations and interaction with eminent scientists from India and abroad. In addition, Chennai and surroundings cities, are famous for its historical monuments, temples, traditional culture, and are attractive tourist sites in India.

Date of Conference: To be announced, likely to be in Nov. 2010

Abstract submission deadline: To be announced

Registration deadline: To be announced

Awards:

Indian Society for radiation Biology (ISRB) has the following awards. Details would be announced in due course of time.

- **Life time Achievement Award** : 1
- **M. R. Raju Award** : 1
- **Young Scientists Award** : 3
- **Poster Award** : 5

Contact Person: Dr Solomon F.D. Paul, Email: wise_soly@yahoo.com

For more details, abstract submission, registration and time to time update about the Conference please contact on the email or see update in upcoming issues of eNewsletter.

8. UPCOMING MEETINGS/ WORKSHOPS

- **15th International Symposium on Microdosimetry**
October 25-30, 2009, Verona, Italy
<http://agenda.infn.it/conferenceDisplay.py?confId=914>
- **American Society for Radiation Oncology (ASRO) 51st Annual Meeting**,
November 1-5, 2009, Chicago, IL.
<http://www.astro.org/Meetings/AnnualMeetings/>
- **Transcriptional Mechanisms of Early Lymphocyte Development Symposium**,
The Salk Institute, La Jolla, California November 5-6, 2009
<http://www.abcam.com/go.cfm?v=6194208&p=3863>

- **51st Annual Meeting of American Society for Radiation Oncology (ASRO)**, November 1-5, 2009, Chicago, IL.
<http://www.astro.org/Meetings/AnnualMeetings/>
- **16th Annual Meeting Society for Free Radical and Radiation Biology and Medicine (SFRBM)**, November 18 - 22, 2009, San Francisco, CA.
www.sfrbm.org/annualMeetings.cfm
- **International Symposium on Emerging Trends in Biomedical and Nanobiotechnology: Relevance to Human Health**, Acharya Nagarjuna University, Guntur, India December 19-21, 2009, Contact Person: Prof.K.R.S.Sambasiva Rao, Director, Centre for Biotechnology, Acharya Nagarjuna University, Nagarjunanagar - 522 510, Guntur, A.P., India, Email- krssrao@yahoo.com,
www.isebnhome.blogspot.com
- **Gordon Research Conferences in 2009**
<http://www.grc.org/>
- **9th International Microbeam Workshop**, July 15-17, 2010, Darmstadt, Germany

https://www.gsi.de/forschung/bio/conferences/microbeam9_e.html
- **International Conference on Radiation Biology, 2010 (ICRB-2010)**, Shri Ramachandra Medical College and Research Institute, Shri Ramachandra University, Porur, Chennai (Madras), India

Date of Conference: To be announced, likely to be in Nov. 2010
Abstract submission deadline: To be announced
Registration deadline: To be announced

Contact Person: Dr Solomon F.D. Paul, Email: wise_soly@yahoo.com
- **14th International Congress for Radiation Research 2011**, August 2011 in Warsaw, Poland.
http://www.ptbr.org.pl/icrr2011/icrr2011_venue.htm

Important Notice: Are you organizing any Workshop/Meeting related to Radiation Research or in related research areas? You can add the announcement of event to this eNewsletter **free of cost!!** The announcement would reach to ISRB Community as well many more in India and abroad. The details of announcement may be communicated to: isrb_enewsletter@yahoo.co.in

9. AWARDS/HONORS TO ISRB MEMBERS

Name of the ISRB Member	Affiliation	Award/Honors	Year/Period
Prof. A. B. Prasad	Center for Bioinformatics, Jerath Compound, Hinoo, Ranchi, Jharkhand, India	-Introduced Plenary speaker 10th International conference of Environmental Mutagen, Florence, Italy August 20-25, 2009 -Visiting Professor, Department of Biotechnology, Birla Institute of technology, Mesra, Ranchi, Jharkhand.	August 2009
Dr. Arun Chougule	Department of Radiotherapy Incharge telemedicine SMS Medical College & Hospital Jaipur - 302004	Appointed " Dean, Faculty of Paramedical Sciences, Rajasthan University of Health Sciences [RUHS], Jaipur -Member, Board of Management RUHS	
Prof. Ganesh Chandra Jagetia	Professor in Zoology, School of Life Sciences, Mizoram University, Aizawl	Appointed Dean School of Life Sciences, Mizoram University, Aizawl	July 18, 2009.
Dr. N. Rajendra Prasad	Department of Biochemistry & Biotechnology Annamalai University, Annamalai Nagar	DBT-Overseas Associateship Award at Armed Forces Radiobiology Research Institute, Bethesda, USA	2008-2009 (April 9 to July 19 th 2009)

***Congratulations to the Member of Indian Society for Radiation Biology for prestigious Awards and Honors!!
May God bless all of you many more in future!!***

10. CAREER FORUM

Positions and Fellowships

- **NIH Director's New Innovator (DP2) Award program** to support new investigators of exceptional creativity, which have the potential to produce a major impact on broad, important problems in biomedical and behavioral research. For more information visit the link <http://nihroadmap.nih.gov/newinnovator/> and to view the 2009 Program Announcement <http://grants.nih.gov/grants/guide/pa-files/PA-09-013.html>.

- **POSITION VACANT for Senior Lecturer / Assistant Professor Field of specialization: Radiation Biology / Toxicology**

Job Description: Applications are invited for faculty positions at the level of Senior Lecturer and Assistant Professor in the areas of Radiation biology / Toxicology at Manipal Life Sciences Centre, Manipal a constituent institution of Manipal University. The responsibilities include establishing a successful extramurally supported research program, teaching radiobiology and biotechnology.

The candidates with Ph.D. or equivalent degree in an associated field are eligible for the above said position. Candidates with Radiation biology / Toxicology background with hands-on experience in molecular biology techniques are preferred. The successful candidate will join the Radiobiology & Toxicology division focusing on basic and translational research in Radiobiology and Toxicology. Positions are open until it is filled. Interested applicants may submit their detailed CV to: **The Deputy Registrar**, HR, Manipal University, Manipal 576 104, Karnataka, India, Email: jobs@manipal.edu

- **Post doctoral Fellowship**

<http://www.nature.com/naturejobs/science/jobs/53406>

- **Postdoctoral position in immunology**

<http://www.nature.com/naturejobs/science/jobs/61323>

- **Postdoctoral Fellowship in Stem Cell Biology**

<http://www.nature.com/naturejobs/science/jobs/56183>

- **Postdoctoral Fellow - Cell Signalling**

<http://www.nature.com/naturejobs/science/jobs/63000>

- **Postdoctoral Fellowships for Training in Cancer Research**

International Agency for Research on Cancer

Fellowships for junior scientists working in medical or allied sciences and, who wish to pursue their career in cancer research

<http://www.iarc.fr/ENG/Fellowships/postdoc.php>

- **Postdoctoral Research Fellowship**

Post Doctoral Fellowship at MGH/Harvard Medical School, Boston, MA, USA to investigate DNA damage checkpoint signaling is regulated by epigenetic mechanisms, novel protein modifications and targeted protein degradation and investigate how the checkpoint can be exploited in targeted cancer therapy.

<http://www.nature.com/naturejobs/science/jobs/84411>

- **INRA is recruiting engineers and technicians, scientists**

http://www.international.inra.fr/join_us

- **DOE Puts Up \$85 Million for Grants to Young Scientists**

The U.S. Department of Energy (DOE) has committed \$85 million next year for a new program to help 50 young scientists establish their research careers. It is the latest

federal agency to try to lend a hand to this vulnerable population.

<http://www.sciencemag.org/cgi/content/summary/325/5939/375>

Grants and Awards

- Looking for **Grants, Funds, Fellowships** related to **Radiation Research**, visit the Radiation Research Web page or following link

http://www.radres.org/ECOMradres/timssnet/common/tnt_JobsFundingandFellowships.cfm

- **Pre- and Post Doctoral Fellowships from NIH**
<http://grants.nih.gov/training/extramural.htm>
- **AACR-Gertrude B. Elion Cancer Research Award**
<http://www.aacr.org/default.aspx?p=3859>
- **AACR Career Development Awards**
<http://www.aacr.org/default.aspx?p=3858>
- **AACR seeks nominations of outstanding scientists for prestigious Landon-AACR Prizes for Basic & Translational Cancer Research.**
Call for nominations now open through August 25, 2008
For information, visit <http://www.aacr.org/page13893.aspx>
- **Science Foundation Ireland, (SFI)**

The national foundation for excellence in scientific research is investing in academic researchers and research teams who are most likely to generate new knowledge, leading edge technologies, and competitive enterprises.

www.sfi.ie

- **Pancreatic cancer research centre funding over 2 million dollars**

Please view individual grant mechanisms for eligibility and deadlines.

Grants provide funding for outstanding pancreatic cancer research.

<http://www.aacr.org/home/scientists/research-funding--fellowships.aspx>

Article related to career issues

- **Support for Tenure-Track Jobs in Biomedical Sciences**

<http://www.sciencemag.org/cgi/content/summary/324/5923/27a>

- **Japan's postdocs open to alternative work**

<http://www.nature.com/naturejobs/2009/090423/full/nj7241-1062a.html>

- Biotech job projections bleak

<http://www.nature.com/naturejobs/2009/090423/full/nj7241-1062b.html>

- Take a scientist to work?

<http://www.nature.com/naturejobs/2009/090423/full/nj7241-1063b.html>

- Going nuclear-Opportunities in nuclear industry

- <http://www.nature.com/naturejobs/2009/090507/full/nj7243-124a.html>

- Nuclear revival

<http://www.nature.com/naturejobs/2009/090611/full/nj7248-877d.html>

Important Web Sites

- AACR Research Fellowships

<http://www.aacr.org/default.aspx?p=3860>

- **GrantsNet** is resource to find funds for training in the sciences and undergraduate science education. Through the support of HHMI and AAAS, this service is completely free.

http://www.grantsnet.org/start.cfm?session_id=844615

- **Naturejobs** the career magazine from Nature with the hottest science jobs and details of career related issues.

<http://www.nature.com/naturejobs/index.html>

- **Post Doc Jobs**, a site providing opportunities about Post Doc Jobs. It is a platform to bring students, Professionals and Research Institutes together.

<http://www.postdocjobs.com/>

- **Science's Next Wave** is a weekly online publication that covers scientific training, career development, and the science job market. *Next Wave* is published by *SCIENCE* magazine and the American Association for the Advancement of Science.

<http://nextwave.sciencemag.org/?CFID=789744&CFTOKEN=78870222>

- The National Academy of Sciences offers Research Associateship Awards to doctoral level scientists and engineers (US and foreign nationals). For more information go to

<http://sites.nationalacademies.org/pga/RAP/index.htm>

Important Notice: If you have any vacancy in your laboratory/Institute, you can advertise the post through this eNewsletter. In addition, any award in these fields may be also announced. **It is absolutely free!!** The advertisement would reach to Members of ISRB and many more, who may be interested about the vacancy. The details of vacancy may be communicated to: isrb_enewsletter@yahoo.co.in.

11. ARTICLES OF THE ISSUE

- **Assessing cancer risks of low-dose radiation**

Low dose radiation and associated cancer risk is matter of debate, which has been supported by Linear No-Threshold model. The article published in *Nature Reviews Cancer*, Vol. 9, 2009 by Mullenders et al. provides a good discussion about differential response of low and high dose radiation in terms of cancer risk.

<http://www.nature.com/nrc/journal/v9/n8/abs/nrc2677.html?lang=en>

- **Protective Effects of Dietary Antioxidants on Proton Total-Body Irradiation-Mediated Hematopoietic Cell and Animal Survival**

Management against damaging effects of radiation exposure involves radio-protectors and dietary antioxidants. The present paper published in *Radiation Research* 172(2):175-186. 2009 by Wambi et al. shows role of dietary supplements consisting of selenomethionine, vitamin C, vitamin E succinate, α -lipoic acid and N-acetyl cysteine in experimental animals.

<http://www.bioone.org/doi/abs/10.1667/RR1708.1>

12. OPEN ACCESS ARTICLES/SERIES OF ARTICLES

ARTICLES SERIES

- **Free Access to Featured *Cell Research* Articles**

Featured articles cover topics including but not limited to: apoptosis, stem cells, cell growth and differentiation, signal transduction, immunology, neurosciences and much more!

http://www.nature.com/content/cr/best_of/index.html

- Therapeutic resistance

<http://www.nature.com/nrc/series/therapeutic/index.html>

ARTICLES

- Targeting the ubiquitin system in cancer therapy

<http://www.nature.com/nature/journal/v458/n7237/abs/nature07960.html?lang=en>

- Bench-to-bedside review: Inhaled nitric oxide therapy in adults

<http://ccforum.com/content/13/3/221/?mkt=197312>

- Biomarkers of response and resistance to antiangiogenic therapy

<http://www.nature.com/nrclinonc/journal/v6/n6/abs/nrclinonc.2009.63.html>

- Eleven years disease-free: role of chemotherapy in metastatic BRCA2-related breast cancer

<http://www.nature.com/nrclinonc/journal/v6/n8/full/nrclinonc.2009.90.html>

- Pivotal role of dihydrofolate reductase knockdown in the anticancer activity of 2-hydroxyoleic acid

<http://www.pnas.org/content/106/33/13754.abstract?etoc>

- Residual breast cancers after conventional therapy display mesenchymal as well as tumor-initiating features

<http://www.pnas.org/content/106/33/13820.abstract?etoc>

- Tumor biology and cancer therapy – an evolving relationship

<http://www.biosignaling.com/content/7/1/19>

- A gene expression profile for detection of sufficient tumour cells in breast tumour tissue: microarray diagnosis eligibility

<http://www.biomedcentral.com/1755-8794/2/52/abstract>

- Target splitting in radiation therapy for lung cancer: further developments and exemplary treatment plans

<http://www.ro-journal.com/content/4/1/30>

Note: Some of the open access articles are only for limited period.

13. USEFUL LINKS

- **Radiation Research Podcast**

You can listen, the telephone interviews to author(s) of selected paper published each month from the latest issue of international scientific journal **Radiation Research**, official journal of the Radiation Research Society. In addition, you can also listen, the interviews by eminent scientists in radiation research about the current topics. Log on to

<http://lsmr1.lbl.gov:8080/xwiki/bin/view/Radiation+Research+Society/>

Or Look for Journal Podcast under category 'Journal' and then 'Journal Podcast' on following web page

<http://www.radres.org/podcast/>

Or Look for 'Radiation Research Podcast' in Google Search

- **Radiation Research Society SIT Discussion Board**

Another site, which may attract you to get information related to Scientific Meetings, vacancies and discussion in Radiation Sciences.

<http://www.radres.org/ECOMradres/timssnet/phpBB2/index.php>

- **Science's Next Wave** is a weekly online publication that covers scientific training, career development, and the science job market. *Next Wave* is published by *SCIENCE* magazine and the American Association for the Advancement of Science.

<http://nextwave.sciencemag.org/?CFID=789744&CFTOKEN=78870222>

- **Link to related other Professional / Academic Societies related to Radiation Biology and Oncology**

http://www.radres.org/ECOMradres/timssnet/common/tnt_RelatedSocieties.cfm

- **Nuclear India**

A publication by Department of Atomic Energy, Government of India about nuclear energy and various other related issues

<http://www.dae.gov.in/ni/nimain.htm>

14. IMPORTANT JOURNALS

- Annals of Oncology
<http://annonc.oxfordjournals.org/>
- Acta Oncologia
<http://www.informaworld.com/smpp/title~content=g779470932~db=all>
- BMC Cancer
<http://www.biomedcentral.com/bmccancer/>
- Cancer Epidemiology Biomarkers & Prevention
<http://cebp.aacrjournals.org/>
- Cancer Prevention Research
<http://cancerpreventionresearch.aacrjournals.org/>
- Cancer Research
<http://cancerres.aacrjournals.org/>
- Cell Growth and Differentiation
<http://cgd.aacrjournals.org/>
- Clinical Cancer Research
<http://clincancerres.aacrjournals.org/>
- Clinica Chimica Acta
http://www.elsevier.com/wps/find/journaldescription.cws_home/506018/description#description
- Free Radical Biology and Medicine
http://www.elsevier.com/wps/find/journaldescription.cws_home/525469/description#description
- Free Radical Research

<http://www.tandf.co.uk/journals/authors/gfrrauth.asp>

- **Indian Journal of Radiation Research**

For manuscript submission and, subscription and free sample copy of the Journal contact, Editor: Dr K. P. Mishra, Email: mishra_kaushala@rediffmail.com, Assistant Editor: Dr. H. D. Sarma Email: hdsarma1162@yahoo.com

- **International Journal of Radiation Biology**

<http://www.informaworld.com/smpp/title~content=t713697337>

- **International Journal of Radiation Oncology, Biology and Physics**

http://www.elsevier.com/wps/find/journaldescription.cws_home/525471/description#description

- **Iranian Journal of Radiation Research**

<http://www.ijrr.com/>

- **Journal of Cancer Research and Therapeutics**

<http://www.cancerjournal.net/>

- **Journal of Experimental and Clinical Cancer Research**

<http://www.jeccr.com/>

- **Journal of Radiation Research**

http://www.journalarchive.jst.go.jp/english/jnltop_en.php?cdjournal=jrr1960

- **Molecular Cancer Research**

<http://mcr.aacrjournals.org/>

- **Molecular Cancer Therapeutics**

<http://mct.aacrjournals.org/>

- **Radiation Measurements**

http://www.elsevier.com/wps/find/journaldescription.cws_home/286/description#description

- **Radiation Oncology**

<http://www.ro-journal.com/>

- Radiation Physics and Chemistry

http://www.elsevier.com/wps/find/journaldescription.cws_home/331/description#description

- Radiation Protection Dosimetry

<http://rpd.oxfordjournals.org/>

- Radiation Research

<http://www.rrjournal.org/perlserv/?request=get-archive>

- Radiotherapy and Oncology

http://www.elsevier.com/wps/find/journaldescription.cws_home/506042/description#description

15. RECENT BOOKS

- Cancer and the Search for Selective Biochemical Inhibitors

by E J Hoffman, Publisher: CRC Press, 2007; 2nd Edn.

<http://www.nature.com/bjc/journal/v100/n7/abs/6604993a.html>

- Radiation Protection in Newer Medical Imaging Technologies: PET/CT

<http://rpd.oxfordjournals.org/cgi/content/extract/135/3/216?etoc>

- Ionising radiation exposure of the population of the United States: NCRP Report No. 160

<http://rpd.oxfordjournals.org/cgi/content/extract/136/2/136?etoc>

16. NOTICE BOARD

- **Update your email and contact address**

Dear Members of ISRB,

The enewsletter would be send to ISRB Members by email only. If your email address is getting changed or you have any other preferred email, please communicate to us as soon as possible on isrb_enewsletter@yahoo.co.in. In case, any other ISRB Member, who is not receiving eNewsletter, please intimate us his/her email address.

In addition, if any other friend or colleague is interested to receive the eNewsletter, please let us know his/her email address to be included in our mailing list. The eNewsletter is free to ISRB Members as well as non-Members too. **The subscription of eNewsletter is absolutely free!!!**

In addition, it is frequent problem to communicate with ISRB members due to change in address. If your contact address has been changed please intimate to Secretary, ISRB. This would help us to reach you and communicate, when ever needed.

- **Join ISRB**

Are you/your colleague/friend working in Radiation Research or related field and still not a Member of Indian Society for Radiation Biology? Join ISRB.

As Member of ISRB, (a) you would join with scientific community working in Radiation Research and related research areas. (b) You are entitled to participate in Meeting/Workshops of ISRB at reduced Registration Fee (c) Your interaction with Scientists and experts from India and abroad would help in your career.

To be a Member of ISRB, fill the attached application form (in last of eNewsletter) along with Membership fee to Secretary, ISRB. For details, contact Secretary or any of the Office Bearers of ISRB as given below.

The application form can be download from following link <http://www.freewebs.com/isrbnewsletter/ISRB%20Membership%20Application%20Form.pdf>

• Awards / Honors to ISRB Members

Editorial Board 'Radiation Science Today' is pleased to launch a new column "AWARDS/HONORS to ISRB Members". We hope the column would make us more aware with each other about our awards/ scientific achievements.

This column is only for Members of Indian Society for Radiation Biology. If you are Member of ISRB and received any award or scientific honor, you are requested to send details of same in following format on email address: isrb_enewsletter@yahoo.co.in, with **subject line:** Awards/Honors.

To avoid the verification of Membership and any ambiguity from non-ISRB Members, a line of statement is requested that 'I am a Member / Life Member of Indian Society for Radiation Biology'.

Details of award or scientific recognition can be submitted in prescribed format provided below as when received, which would be included in next upcoming issue of the eNewsletter.

Please circulate the announcement to your colleagues and friends, who are Members of ISRB. Please provide complete information to avoid unnecessary delay in publication in eNewsletter.

Name and Present Address of ISRB Member	Affiliation (if any)	Name of Award/Honor	Year/Period

Statement: I am Member/Life Member of Indian Society for Radiation Biology.

Name of the ISRB Member:

• You can contribute in this eNewsletter

You can send your contribution, which may be included in this eNewsletter under 'Reader's Column'

Brief scientific article (maximum 1000 words, if reference needed, in 'International Journal of Radiation Biology' style) may be submitted for publication in eNewsletter. Your article may fall under following subject category: (i) radiation sciences or related research areas; (ii) your opinion on any scientific issue, technique or some general topics; (iii) any major finding or research concept from the archives of radiation sciences. The article should be original. It would be published in eNewsletter after general screening/reviewing of the article by the Editorial Board.

For any further clarification or submission of any article write to Editor on email address: isrb_enewsletter@yahoo.co

In addition, if you come across any recent journal / books published in radiation and related research areas, please send us the details of the book/journal on our email: isrb_enewsletter@yahoo.co. The details of books/journal would be included in the eNewsletter **free of cost!!!**

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Web page: www.freewebs.com/isrbenewsletter/		

INDIAN SOCIETY FOR RADIATION BIOLOGY

Executive Council (2009-11)

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Dr. G. C. Jagetia (Vice-President)	Department of Zoology, Aizwal, India
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Dr. M. Bala (Secretary)	Department of Radiation Biology, Institute of Nuclear Medicine & Allied Sciences Brig. S. K. Mazumdar Marg, Delhi, India
Dr. B. N. Pandey (Treasurer)	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085, India
Dr. A. Chaugle (Member)	Department of Radiotherapy, SMS Medical College, Jaipur, India
Dr. H. D. Sarma (Member)	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085, India
Dr. H. N. Bhilwade (Member)	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085, India
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Dr. S. P. Mishra (Member)	Kamala Nehru Hospital, Allahabad, India
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INDIAN SOCIETY FOR RADIATION BIOLOGY

(Regd. No. 5-19927, dt. May 5, 1989)

H.O.: Institute of Nuclear Medicine & Allied Sciences, Lucknow Road, New Delhi-110 054

Application for Membership

To:

Secretary

Indian Society for Radiation Biology (ISRB)

Dear Sir,

I wish to apply for Life/ Annual/Membership for the Indian Society for Radiation Biology. My particulars are given below:

1. Full Name (Block Letters)

.....

2. Present Position/Title

.....

3. Date of Birth ...

.....

4. Academic qualifications:

DegreeUniversityYear

.....

.....

.....

.....

.....

.....

5. Field of Specialization

.....

6. Research Interest

.....

.....

7. Address: Official:

.....

Tel...Fax: E-mail

.....

Permanent

.....

8. Registration Fee: Annual Membership : Rs. 100.00 Foreign members: US\$ 10
 Life Membership : Rs 1000.00 Foreign members: US\$ 100

Bank transfer/Draft/Cheque No.Date:Drawn on Bank.

.....in favour of 'Indian Society for Radiation Biology' is enclosed.

Place: Date:..... Signature:

Proposed byMembership No. and Signature

Seconded by Membership No. and Signature

For Use of ISRB Secretariat Only

Membership No.Type of Membership

Membership approved/not approved by Executive Council in its meeting held

on.....

Payment received vide on

.....

Secretary/Treasurer:

President, Indian Society for Radiation Biology

Please mail the Application for Membership along with two recent passport size photographs to: Dr Madhubala, Secretary, ISRB, Department of Radiation Biology, Institute of Nuclear Medicine & Allied Sciences Brig. S. K. Mazumdar Marg, Delhi, India, India. E-mail: balainma44@hotmail.com; bala44@gmail.com