

RADIATION SCIENCE TODAY

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Greetings and Best Wishes to our Readers for New Year 2011!!

Radiation Science Today

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1. BIOGRAPHY of

Dr C. L. Sanders

My professional career started in 1961 when I enrolled in a M.S. program at Texas A&M, changing from a major in wildlife management to biology in 1962 after obtaining a research assistant position in the Radiobiology Laboratory. All graduate students in the lab participated in a large lifespan study in rats who received continuous whole-body exposures to ⁶⁰Co γ -rays at 2-20 mSv/d. The rats receiving 2 mSv/d lived significantly longer and had more robust reproduction than the unexposed controls. I received my Ph.D. in Biophysics from the University of Rochester in 1966 and spent the next two years as a post-doc at Hanford in Richland, WA. The next 25 years (1968-1994) were spent mostly studying the inhalation toxicology of transuranics at the Biology Department of the Pacific Northwest Laboratory in Hanford. In the mid-80s I became aware of the work of Luckey on radiation hormesis. My last project for the USDOE involved establishing a dose-response relationship for lung cancer from inhaled high-fired ²³⁹PuO₂. The result of



lifespan studies in over 4000 rats was the finding that a dose of only 1-2 mSv γ -rays to the lung prevented the formation of lung tumors from inhaled ²³⁹Pu at α -lung doses up to 15 Sv. A similar relationship has also been found for lung cancer in Mayak plutonium workers. The last six years (2004-2010), I have been a visiting professor in the Department of Nuclear & Quantum Engineering at Korea Advanced Institute of Science and Technology (KAIST) in Daejeon, South Korea, teaching biophysics, radiobiology and technical writing, doing research on radiation hormesis and participating in conferences in Korea, China, Thailand and Japan. Several of our students at KAIST have been from India.

I recently published a book: Sanders, C.L. (2010). **Radiation Hormesis and the Linear-No-Threshold Assumption**. Springer, Berlin and Heidelberg, Germany, 217 pp. ISBN: 978-3-642-03719-1. I have published three other books, **Prevention and Therapy of Cancer and Other Common Diseases: Alternative and Traditional Approaches (1995)**; **Toxicological Aspects of Energy Production (1986)**; **Ionizing Radiation: Tumorigenic and Tumoricidal Effects (1983)**, and over 100 papers in the professional literature.

I have been research scientist and project manager (1968-1991) at Battelle, Pacific Northwest Laboratory; editor of Hanford Life Sciences Symposia; member, DOE and NCRP scientific committees; adjunct professor at the University of Washington and Washington State University (1975-1995); professor and coordinator of the Biology Program, Washington State University (1992-1993); visiting scientist at the Inhalation Toxicology Research Institute, Albuquerque, NM (1993-1994). I retired in 1995 from Washington State University and started an internet business selling used books which may daughter now runs (gail@gailsbooks.com). I taught Biblical Archaeology at Eugene Bible College, Eugene, OR (1999-2000). Other experiences include part-time student, Fuller Theological Seminary and

Fort Wayne Bible College (1975-78), associate editor, Country Christian magazine (1981-1982), and professor, International Institute Christian Studies (2003-2005).

My wife and I currently live in Loveland, Colorado where I am working on a new project, provisionally entitled "*Prevention and treatment of inflammatory and proliferative diseases by ultra-low, chronic, low-LET, mixed, multi-energy, targeted ionizing radiations*". Radiation is delivered at skin surface dose-rates of 10 to 400 μ Sv/h for the periods of 4-6 weeks to resolve a variety of inflammatory, fibrotic and proliferative conditions, using indigenous, natural radioactive materials.

2. Opinion Article

Chironomid midges: an emerging model organism for radiation stress studies

Rita Mukhopadhyaya

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Bimalendu Nath

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Popularly known as food for tank fish, the larva of *Chironomus* has held its status as model organism over the past 6 decades of biological research. Its aquatic life spans a period of 30-50 days passing through 4 stages of development before emergence as adults (Fig. 1). The mosquito like but `non-biting' adult insects live 48 hours to mate and lay eggs thus completing a life cycle. Belonging to the order Diptera, the Chironomidae family of insects are very primitive. They evolved approximately 200 million years ago, and are adapted to live in extreme conditions. Several species of *Chironomus* have been isolated world wide. There are Aral, Baltic and Antarctic species as well as tropical ones. One of the prevalent Indian species is *Chironomus* ramosus and the list is growing as more DNA based phylogenetic studies are making their impact.

The fourth instar stage of *Chironomus* larva has been studied the most and still remains an excellent tool for research over various fields from physiology to toxicology and stress biology. Since the first reports in 1950, it has been an integral part of seminal discoveries like transcriptionally active puffs and Balbaini rings on giant polytene chromosomes in salivary glands as source for secretory proteins, and characterization of extracellular monomeric haemoglobin in larval haemolymph. The unassuming shy aquatic larvae (living inside organic tubes) has been shown to tolerate changing concentrations of salt, heavy metals, and oxygen content in water, wide range of temperature variation, extreme desiccation conditions as well as chronic exposure to low dose radiation. Its unique ability to tolerate to acute doses of radiation was not noticed until 1986 following the nuclear reactor accident in Chernobyl. *Chironomus* larvae were one of the prominent invertebrate fauna that survived the fall out of radioactive material in contaminated areas. This observation soon justified their existence in other radioactively contaminated areas e.g. Los Alamos, in the USA. The aspect of 'radioresistance' however did not find enough publicity for

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Chironomus in the area of basic research in radiobiology at that time. It put into records that amongst Dipteran group of insects, studied so far, the chironomids showed tolerance to maximum doses of gamma radiation. Thirty years of reports on chromosomal aberrations and heterochromatin induction in response to varied stress factors or discovering unconventional gene structure in this organism was probably saturating enough and the scientific community paid not much heed to this new feature of tolerance to high doses of gamma radiation in the *Chironomus* larva.

Resurgence of interest in *Chironomus* research surfaced once again in this last decade pressing on issues of

- 1. radiation mediated pest management
- 2. adaptation to inhabiting in uranium enriched areas
- 3. role of antioxidants
- 4. chaperonins and
- 5. biotechnology.

Access to genome sequences of several other important organisms now has opened the avenue for research in the field of functional and comparative genomics. Comparing structure and functions of genes responsible for radioresistance phenotype in certain microbes (Cyanobacteria and Deinococcus, etc) with that of this primitive eukaryotic organism can provide lead for important evolutionary findings and understanding of the mechanism of tolerance to high doses of radiation. Also, exploring the Chironomus genome to look for presence of a damage management regime as is present in these microorganisms stands justified. At 60, this simple eukaryotic organism has once again claimed its position as a model, this time for studying molecular aspects of radiation stress biology starting from exposure to various sources of radiation (rays, charged particles etc) to tolerance and therapy. Finding homology of protein sequences between fungi and Chironomus (1), or studying phosphorylation status of structural proteins (2) under stress conditions of allergy, cancer, or radiation will surely see this organism as model till its century. The availability of laboratory rearing facility for inbred strains of these larvae are the primary necessities for any genomics or proteomics study and such facilities need to be replicated as in the Department of Zoology, Pune University for the strain *Chironomus ramosus*. A systematic study on gamma radiation dosimetry conducted with cultures from this insectory is so far the only report on actual dose and determination of LD_{50} available for this Indian species (3). Levels of antioxidant enzymes (4) and stress proteins (5) measured in salivary gland cells of larvae recovering from LD_{50} dose of gamma radiation stress, clearly indicates presence of a damage management system that can tackle much higher doses of gamma radiation than its close contenders. It is just the beginning of a long journey on the *Chironomus* genome.

References

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2. François Houle et al, DAP kinase mediates the phosphorylation of tropomyosin-1 downstream of the ERK pathway, which regulates the formation of stress fibers in response to oxidative stress. Journal of *Cell Science (2007)120, 3666-3677.*

3. K.D. Datkhile et al, Gamma radiation tolerance in a tropical species of midge, *Chironomus ramosus* (Diptera:Chironomidae). *International Journal of Radiation Biology (2009) 85, 495-503.*

4. K.D. Datkhile et al, Increased level of superoxide dismutase (SOD) activity in larvae of *Chironomus ramosus* (Diptera: Chironomidae) subjected to ionizing radiation. *Comparative Biochemistry and Physiology, Part C* (2009) 149, 500-506.

5. K.D. Datkhile et al, Hsp70 expression in *Chironomus ramosus* exposed to gamma radiation. International Journal of Radiation Biology, 2011 (in press) DOI.10.3109/09553002.2010.518215







Pupa



Egg mass



Adult male



Adult female

Figure1. Different stages of life cycle of *Chironomus*.

About Authors

Rita Mukhopadhyaya

Dr Rita Mukhopadhyaya is Life science graduate from Visvabharati University, Santiniketan and Ph.D. degree in Applied Biology from the Mumbai University. She has been trained in Cancer Immunology and Molecular Biology of retrovirus mediated tumorigenesis during her doctoral and post doctoral studies from the Cancer Research Institute, Parel, Mumbai and National Cancer Institute, NIH, Bethesda, Maryland, USA. At the Molecular Biology Division, BARC, she established her laboratory for studies in Human Molecular Genetics & Genomics. Currently she is focusing her research on Radiation Stress Biology using *Deinococcus, Chironomus* and human neuroblastoma as model.



Bimalendu B. Nath

Dr Bimalendu Nath is currently teaching genetics and researching in the area of stress biology at the Center for Advanced Studies, Department of Zoology, University of Pune as Associate Professor. After graduating from Guwahati University, Assam, he continued his post-graduation in life sciences from Visva-Bharati Central University, Santiniketan, West Bengal. He received his Ph.D. from Banaras Hindu University, Varanasi and started his independent scientific career at the University of Pune using chironomid midges as model organism. Apart from his professional interest in stress biology, his areas of research include chromosomal genetics, behavioural biology, evolution and biodiversity.



3. FROM ARCHIVES OF RADIATION SCIENCES

Paper: Roentgen therapy of rheumatoid spondylitis

Source: California Medicine. Year: 1949, Vol.: 0(2), Pages:124-129 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1643599/pdf/califmed00296-0039.pdf)

Authors: Nathan M. Spishakoff and B. V. A. Low-Beer

Laboratory: Division of Radiology, University of California Medical School, San Francisco, California, USA

Highlights of the paper

Soon after discovery of X-ay, in 1898 Sokolow and Stenbeck independently reported improvement of ~100 arthritis patients they had treated with roentgen (x-ray) radiation. This paper was aimed to study role of dose distribution profile of X-ray in therapy. Moreover, the paper showed complications associated with therapy like gastro-intestinal disturbances, leucopenia and menstrual dysfunction (in female). Their results showed that the gastro-intestinal disturbances after therapy clear soon after a course of treatment, and may be moderated (if not completely controlled) by the use of vitamin B or anti-histaminic agents as pyribenzamine or benadryl. Leukopenia may occur, apparently more likely in women, without regard to age, but transient in nature.

Significance of the paper

Soon after discovery of X-ray, it might have exciting to use the technology for therapy of patients with rheumatoid spondylitis. At that time, the shielding of patients / operators might be at very initial stage and side effects associated with radiation therapy might have been not very well established. This is one of seminal paper on dose distribution of X-ray in patients while therapy of rheumatoid spondylitis and associated side effects. The information derived in these patients might have substantially assisted to know the radiation side effects, while application of radiation to treatment of cancer.

by

Badri N. Pandey

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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.

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4. NEWS AND VIEWS

Radiation and Cancer Biology

Radiation exposure and cancer risk

- Low (60 cGy) Doses of ⁵⁶Fe HZE-Particle Radiation Lead to a Persistent Reduction in the Glutamatergic Readily Releasable Pool in Rat Hippocampal Synaptosomes http://www.bioone.org/doi/abs/10.1667/RR1988.1
- Preferential Decorporation of Americium by Pulmonary Administration of DTPA Dry Powder after Inhalation of Aged PuO₂ Containing Americium in Rats http://www.bioone.org/doi/abs/10.1667/RR2203.1
- Voluntary Running Prevents Progressive Memory Decline and Increases Adult Hippocampal Neurogenesis and Growth Factor Expression after Whole-Brain Irradiation

http://cancerres.aacrjournals.org/content/early/2010/10/21/0008-5472.CAN-10-1854.abstract?papetoc

- Slowing the Increase in the Population Dose Resulting from CT Scans http://www.bioone.org/doi/abs/10.1667/RR1859.1
- MOLECULAR AND CELLULAR RADIOBIOLOGICAL EFFECTS OF AUGER EMITTING RADIONUCLIDES

http://www.ncbi.nlm.nih.gov/pubmed/21106639

Radiation induced Bystander effect

- Evidence of an adaptive response targeting DNA non-homologous end joining and its transmission to bystander cells http://cancerres.aacrjournals.org/content/early/2010/09/21/0008-5472.CAN-10-1181
- microRNAome changes in bystander three-dimensional human tissue models suggest priming of apoptotic pathways http://carcin.oxfordjournals.org/content/31/10/1882.abstract?etoc

• Bystander Cell Death and Stress Response is Inhibited by the Radical

Scavenger a1-Microglobulin in Irradiated Cell Cultures http://www.bioone.org/action/doSearch?action=runSearch&type=adv anced&result=true&prevSearch=%2Bauthorsfield%3A%28Olsson,%2 0Magnus%20G.%29

- Bystander Cell Death and Stress Response is Inhibited by the Radical Scavenger a1-Microglobulin in Irradiated Cell Cultures http://www.bioone.org/doi/abs/10.1667/RR2213.1
- Evidence of an Adaptive Response Targeting DNA Nonhomologous End Joining and Its Transmission to Bystander Cells http://cancerres.aacrjournals.org/content/early/2010/10/15/0008-5472.CAN-10-1181.abstract?papetoc
- Radioadaptive response induced by alpha-particle-induced stress communicated in vivo between zebrafish embryos. http://www.ncbi.nlm.nih.gov/pubmed/21067204
- Rescue effects in radiobiology: Unirradiated bystander cells assist irradiated cells through intercellular signal feedback. http://www.ncbi.nlm.nih.gov/pubmed/21073884
- Proteomic changes in the gills of wild-type and transgenic radiosensitive medaka following exposure to direct irradiation and to X-ray induced bystander signals.

http://www.ncbi.nlm.nih.gov/pubmed/21081182

- The Role of Mitochondria in the Radiation-Induced Bystander Effect in Human Lymphoblastoid Cells http://www.ncbi.nlm.nih.gov/pubmed/21091325
- Recipient lymphocyte infusion in MHC-matched bone marrow chimeras induces a limited lymphohematopoietic host-versus-graft reactivity but a significant antileukemic effect mediated by CD8+ T-cells and natural killer cells

http://www.ncbi.nlm.nih.gov/pubmed/21109687

 RADIATION-INDUCED PERTURBATION OF CELL-TO-CELL SIGNALLING AND COMMUNICATION http://www.ncbi.nlm.nih.gov/pubmed/21112887

- MICROBEAMS IN RADIATION BIOLOGY: REVIEW AND CRITICAL COMPARISON http://www.ncbi.nlm.nih.gov/pubmed/21113061
- LACK OF HYPER-RADIOSENSITIVITY AND INDUCED RADIORESISTANCE AND OF BYSTANDER EFFECT IN V79 CELLS AFTER PROTON IRRADIATION OF DIFFERENT ENERGIES. http://www.ncbi.nlm.nih.gov/pubmed/21113063
- Abscopal signals mediated bio-effects in low-energy ion irradiated Medicago truncatula seeds. http://www.ncbi.nlm.nih.gov/pubmed/21116098
- If Bystander Effects for Apoptosis Occur in Spleen after Low-Dose Irradiation In Vivo then the Magnitude of the Effect Falls within the Range of Normal Homeostatic Apoptosis http://www.bioone.org/doi/abs/10.1667/RR2300.1

Cancer Biology and Therapy

 Both base excision repair and O⁶-methylguanine-DNA methyltransferase protect against methylation-induced colon carcinogenesis

http://carcin.oxfordjournals.org/content/31/12/2111.abstract?etoc
(Open access)

- In silico Modeling and In vivo Efficacy of Cancer-Preventive Vaccinations http://cancerres.aacrjournals.org/content/early/2010/10/01/0008-5472.CAN-10-0701.abstract?papetoc
- Effect of ω -3 and ω -9 fatty acid rich oils on lipoxygenases and cyclooxygenases enzymes and on the growth of a mammary adenocarcinoma model

http://www.lipidworld.com/content/9/1/112

- A systematic review of PET and PET/CT in oncology: A way to personalize cancer treatment in a cost-effective manner? http://www.biomedcentral.com/1472-6963/10/283/abstract (Open Access Review)
- Pancreatic cancer and depression: myth and truth

http://www.biomedcentral.com/1471-2407/10/569/abstract (Open Access Review)

- Roles of fibroblast growth factor receptors (FGFRs) in carcinogenesis http://mcr.aacrjournals.org/content/early/2010/10/12/1541-7786.MCR-10-0168.abstract?papetoc
- Liposomal cisplatin combined with paclitaxel versus cisplatin and paclitaxel in non-small-cell lung cancer: a randomized phase III multicenter trial

http://annonc.oxfordjournals.org/content/21/11/2227.abstract?etoc

- Walls around tumours why plants do not develop cancer http://www.nature.com/nrc/journal/v10/n11/abs/nrc2942.html?lan g=en
- Cooperative functions of Chk1 and Chk2 reduce tumour susceptibility in vivo

http://www.nature.com/emboj/journal/v29/n20/abs/emboj2010218 a.html

- B1, a novel amonafide analogue, overcomes the resistance conferred by Bcl-2 in human premyelocytic leukemia HL60 cells http://mcr.aacrjournals.org/content/early/2010/11/12/1541-7786.MCR-10-0341.abstract?papetoc
- Harnessing the complexity of DNA-damage response pathways to improve cancer treatment outcomes

http://www.nature.com/onc/journal/v29/n46/abs/onc2010407a.htm I (Review)

- Imaging Cycling Tumor Hypoxia http://cancerres.aacrjournals.org/content/70/24/10019.abstract?eto c
- Free Tubulin Modulates Mitochondrial Membrane Potential in Cancer Cells

http://cancerres.aacrjournals.org/content/70/24/10192.abstract?eto c

• Cancer-associated IDH mutations: biomarker and therapeutic opportunities

http://www.nature.com/onc/journal/v29/n49/abs/onc2010444a.htm I (Review)

- Differential Sensitization of Different Prostate Cancer Cells to Apoptosis http://gan.sagepub.com/content/1/8/836.abstract?utm_source=jour nals&utm_medium=tocpage&utm_content=toc&utm_campaign=11093 49JA2
- Angiocrine factors modulate tumor proliferation and motility through EphA2 repression of Slit2 tumor suppressor function in endothelium http://cancerres.aacrjournals.org/content/early/2010/12/07/0008-5472.CAN-10-3396.abstract?papetoc
- Magnetic Iron Oxide Nanoparticles for Tumor-targeted Therapy http://www.ncbi.nlm.nih.gov/pubmed/21158723

Cancer Radiotherapy

- RARa1 control of mammary gland ductal morphogenesis and wnt1tumorigenesis http://breast-cancer-research.com/content/12/5/R79 (Open Access)
- A cell-permeable dominant-negative survivin protein induces apoptosis and sensitizes prostate cancer cells to TNF-α therapy

http://www.cancerci.com/content/10/1/36 (Open Access)

- Ionizing Radiation Activates the Nrf2 Antioxidant Response http://cancerres.aacrjournals.org/content/early/2010/10/07/0008-5472.CAN-10-0171.abstract?papetoc
- Repeat Dose Study of the Cancer Chemopreventive Agent Resveratrol in Healthy Volunteers: Safety, Pharmacokinetics and Effect on the Insulin-like Growth Factor Axis http://cancerres.aacrjournals.org/content/early/2010/10/06/0008-

5472.CAN-10-2364.abstract?papetoc

 Curcumin Enhances the Effect of Cisplatin in Suppression of Head and Neck Squamous Cell Carcinoma via Inhibition of IKKβ Protein of the NFκB Pathway

http://mct.aacrjournals.org/content/9/10/2665.abstract?etoc

• Resveratrol, a red wine polyphenol, suppresses pancreatic cancer by inhibiting leukotriene A4 hydrolase

http://cancerres.aacrjournals.org/content/early/2010/10/11/0008-5472.CAN-10-2858.abstract?papetoc

 Prevention of tumour cell dissemination in diagnostic needle procedures

http://www.nature.com/bjc/journal/v103/n11/abs/6605964a.html (Open access)

• Bcl-2 and β1-integrin predict survival in a tissue microarray of small cell lung cancer

http://www.nature.com/bjc/journal/v103/n11/abs/6605950a.html

- Oral contraceptives, reproductive history and risk of colorectal cancer in the European Prospective Investigation into Cancer and Nutrition http://www.nature.com/bjc/journal/v103/n11/abs/6605965a.html (Open Access)
- Boron neutron capture therapy induces apoptosis of glioma cells through Bcl-2/Bax http://www.biomedcentral.com/1471-2407/10/661/abstract

Cancer: Prognosis and Diagnosis

- Radioiodine remnant ablation of differentiated thyroid cancer does not further increase oxidative damage to membrane lipids - early effect http://www.thyroidresearchjournal.com/content/3/1/7 (Open Access)
- Early Detection of Recurrent Breast Cancer Using Metabolite Profiling http://cancerres.aacrjournals.org/content/early/2010/10/15/0008-5472.CAN-10-1319
- Quantum dot loaded immunomicelles for tumor imaging http://www.biomedcentral.com/1471-2342/10/22/abstract (Open Access)
- External irradiation models for intracranial 9L glioma studies http://www.jeccr.com/content/29/1/142 (Open Access)
- Radio-induced malignancies after breast cancer postoperative radiotherapy in patients with Li-Fraumeni syndrome http://www.ro-journal.com/content/5/1/104 (Open Access)

Technological advancement/note

- Luciferase expression and bioluminescence does not affect tumor cell growth *in vitro* or *in vivo* http://www.molecular-cancer.com/content/9/1/299 (Open Access)
- γ-H2AX Detection in peripheral blood lymphocytes, splenocytes, bone marrow, xenografts, and skin http://www.ncbi.nlm.nih.gov/pubmed/21057933
- Evaluation of FTIR Spectroscopy as a diagnostic tool for lung cancer using sputum

http://www.biomedcentral.com/1471-2407/10/640/abstract

- The effect of age, gender, diet and lifestyle on DNA damage measured using micronucleus frequency in human peripheral blood lymphocytes http://mutage.oxfordjournals.org/content/26/1/43.abstract?etoc
- The micronucleus assay as a biological dosimeter of *in vivo* ionising radiation exposure http://mutage.oxfordjournals.org/content/26/1/11.abstract?etoc

Nuclear Technology & Safety

Radiation Safety

- Surveillance CT scans are a source of anxiety and fear of recurrence in long-term lymphoma survivors http://annonc.oxfordjournals.org/content/21/11/2262.abstract?etoc
- A comparative study of thorium activity in NORM and high background radiation area

http://rpd.oxfordjournals.org/content/141/4/416.abstract?etoc

- Doses in human organs due to alpha, beta and gamma radiations emitted by thoron progeny in the lung http://rpd.oxfordjournals.org/content/141/4/428.abstract?etoc
- Preliminary indoor thoron measurements in high radiation background area of southeastern coastal Orissa, India http://rpd.oxfordjournals.org/content/141/4/379.abstract?etoc
- Evaluation of 25 y of environmental monitoring data around Madras Atomic Power Station (MAPS), Kalpakkam, India

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http://rpd.oxfordjournals.org/content/142/2-4/314.abstract?etoc

• Estimation of biological half-life of tritium in coastal region of India http://rpd.oxfordjournals.org/content/142/2-4/153.abstract?etoc

Nuclear Technology

- India blocks nuclear meeting http://www.nature.com/news/2010/101129/full/468613a.html
- Slowing the Increase in the Population Dose Resulting from CT Scans http://www.bioone.org/doi/abs/10.1667/RR1859.1

Science and Society

Indian Science and Technology

- India blocks nuclear meeting http://www.nature.com/news/2010/101129/full/468613a.html
- Preliminary indoor thoron measurements in high radiation background area of southeastern coastal Orissa, India http://rpd.oxfordjournals.org/content/141/4/379.abstract?etoc
- Evaluation of 25 y of environmental monitoring data around Madras Atomic Power Station (MAPS), Kalpakkam, India http://rpd.oxfordjournals.org/content/142/2-4/314.abstract?etoc

Science in General

- Pancreatic cancer and depression: myth and truth http://www.biomedcentral.com/1471-2407/10/569/abstract (Open Access Review)
- Omega-3 oil: a fishy protection for the heart http://www.nature.com/nm/journal/v16/n11/full/nm1110-1192.html
- Oral contraceptives, reproductive history and risk of colorectal cancer in the European Prospective Investigation into Cancer and Nutrition http://www.nature.com/bjc/journal/v103/n11/abs/6605965a.html (Open Access)
- Slowing the Increase in the Population Dose Resulting from CT Scans http://www.bioone.org/doi/abs/10.1667/RR1859.1

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5. ARTICLE OF THE ISSUE

• Surveillance CT scans are a source of anxiety and fear of recurrence in

long-term lymphoma survivors

The doctor-patient communication and health anxiety during follow up examinations certainly help a better care of patient, however, it puts patients on certain level of anxiety till examination report appear. Especially during cancer therapy and subsequent follow up it be matter of anxiety to patients as well as family members. This paper aimed to assess anxiety and the psychological impact of routine surveillance CT scans in long-term survivors of adult aggressive lymphoma. Results showed that routine surveillance scans exacerbate underlying anxiety symptoms and fear of recurrence in survivors of aggressive lymphoma. Such studies emphasize the need to adopt strategies to minimize follow-up imaging and to improve doctor-patient communication to address the psycho-clinical significant issue.

Read the full article on the link below:

http://annonc.oxfordjournals.org/content/21/11/2262.abstract?etoc
(Open Access)

6. ARTICLE SERIES / REVIEWS

• Targeting metabolic transformation for cancer therapy

http://www.nature.com/nrc/journal/v10/n4/abs/nrc2817.html

• Chromatin dynamics

Chromatin is involved in proofreading and repair mechanisms during replication and in response to DNA damage, ensuring the faithful inheritance of genetic and epigenetic information and maintaining genome stability. Such organization helps in maintenance of DNA integrity and flow of life. Series of articles on the topic available on link..

http://www.nature.com/nrm/series/chromatin/index.html

• Epigenetics and genetics

http://www.nature.com/nrc/series/epigenetics/index.html

• The impact of antiretroviral therapy on HPV and cervical intraepithelial neoplasia: current evidence and directions for future research

http://www.infectagentscancer.com/content/5/1/8/abstract (Open Access)

• Cancer stem cells in solid tumors: elusive or illusive?

http://www.biosignaling.com/content/8/1/6/abstract (Open access)

• Biomarkers and surrogate end points—the challenge of statistical validation

http://www.nature.com/nrclinonc/journal/v7/n6/abs/nrclinonc.2010.43.ht ml?lang=en

• Homologous recombination in cancer development, treatment and development of drug resistance

http://carcin.oxfordjournals.org/content/31/6/955.abstract?etoc (Open access)

• The uncertainty in physical measurements—an introduction to data analysis in the physics laboratory

http://rpd.oxfordjournals.org/content/140/1/101.extract?etoc

• Review and evaluation of updated research on the health effects associated with low-dose ionising radiation

http://rpd.oxfordjournals.org/content/140/2/103.abstract?etoc

• Do non-targeted effects increase or decrease low dose risk in relation to the linear-non-threshold (LNT) model?

http://www.ncbi.nlm.nih.gov/pubmed/20105434

• Adjuvant radiotherapy and chemotherapy in breast cancer: 30 year follow-up of survival

http://www.biomedcentral.com/1471-2407/10/398/abstract (Open access)

• Personalized therapies in the cancer "omics" era

http://www.molecular-cancer.com/content/9/1/202 (Open access)

• Metabolism and proliferation share common regulatory pathways in cancer cells

http://www.nature.com/onc/journal/v29/n31/abs/onc2010182a.html

• Herbs in hemato-oncological care: an evidence-based review of data on efficacy, safety, and drug interactions

http://informahealthcare.com/doi/abs/10.3109/10428194.2010.487622?jo urnalCode=lal (Open access)

• Recent advances in the biology of heavy-ion cancer therapy.

http://www.ncbi.nlm.nih.gov/pubmed/20679739

• The role of signaling pathways in the development and treatment of hepatocellular carcinoma

http://www.nature.com/onc/journal/v29/n36/abs/onc2010236a.html

• A systematic review of PET and PET/CT in oncology: A way to personalize cancer treatment in a cost-effective manner?

http://www.biomedcentral.com/1472-6963/10/283/abstract (Open Access Review)

- The clinical potential of microRNAs http://www.jhoonline.org/content/3/1/37 (Open Access Review)
- Cancer Stem Cells in the Central Nervous System A Critical Review http://cancerres.aacrjournals.org/content/early/2010/10/15/0008-5472.CAN-10-1592.abstract?papetoc
- Focus issue on breast cancer http://www.nature.com/nrclinonc/focus/breast-cancer/index.html (special issue of articles)
- The molecular biology of head and neck cancer http://www.nature.com/nrc/journal/v11/n1/abs/nrc2982.html?lang=en (Review)
- Advances in the field of nanooncology http://www.biomedcentral.com/1741-7015/8/83/abstract (Open access; Review)
- Translating p53 into the clinic http://www.nature.com/nrclinonc/journal/v8/n1/abs/nrclinonc.2010.174.h tml?lang=en (Review)

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

New

7. LETTERS FROM THE READERS

• It is a wonderful job to bring the enewsletter to this valuable standards. Efforts are highly appreciated among the readers.

- Dr B Sreedevi, RPAD, BARC, Mumbai

8. UPCOMING CONFERENCE & WORKSHOP OF ISRB

Workshop on Recent Advances in Radiation Biophysics

Date: February 28, 2011

Venue: Department of Biophysics, Mumbai University, Vidyanagari, Santacruz (E), Kalina Campus, Mumbai, 400 098, India

Contact Person: Dr P. M. Dongre, Head, Department of Biophysics, Mumbai University, Vidyanagari, Santacruz (E), Kalina Campus, Mumbai, 400 098 Email: drpmdongre@yahoo.co.in, head.biophysics@mu.ac.in

Tel: 022-26524288, +91-9969051198 (M)

For updated information visit web page: http://www.isrbindia.com/upcoming-events-of-the-society/

International Conference on Radiation Biology: (ICRB- 2012) and 11th Biennial Meeting of Indian Society for Radiation Biology Theme: Cosmic Clinical Radiation Biology in 21st Century

Mumbai, India.

Date of Conference: To be announced **Abstract submission deadline:** To be announced **Registration deadline:** To be announced

Contact details: Dr. Nagraj G. Huilgol, Chief Radiation Oncologist Department of Radiation Oncology, Dr. Balabhai Nanavati Hospital, S.V.Road, Vile Parle (W), Mumbai - 400 056. Tel : +91 22 26182255 Extn 618/692 : 261883352 (dir)
 Cell
 : +91 9820450969

 Fax
 : +91 22 26119363

 Email
 : nagrajhuilgol@gmail.com

For updated information visit web page: http://www.isrbindia.com/upcoming-events-of-the-society/

9. UPCOMING MEETINGS/ WORKSHOPS

 AACR-ACS Joint Meeting on Chemistry in Cancer Research: The Biological Chemistry of Inflammation as a Cause of Cancer, January 30-February 2, 2011, San Diego, CA, USA Early registration deadline: Monday, November 1, 2010 Abstract submission deadline: Wednesday, December 1, 2010

http://www.aacr.org/home/scientists/meetings--workshops/specialconferences/biological-chemistry-of-inflammation-as-a-cause-of-cancer--%28aacr-acs-joint-meeting%29-.aspx

• An AACR Special Conference on Targeting PI3K/mTOR Signaling in Cancer, February 24-27, 2011, Hyatt Regency San Francisco, CA, USA

Early registration deadline: Monday, November 22, 2010 Abstract submission and award application deadline: Monday, December 6, 2010

http://www.aacr.org/home/scientists/meetings--workshops/specialconferences/targeting-pi3kmtor-signaling-in-cancer.aspx

• AACR-NCI Conference on Systems Biology: Confronting the Complexity of Cancer, February 27-March 2, 2011, San Diego, CA, USA

http://www.aacr.org/home/scientists/meetings--workshops/systemsbiology-confronting-the-complexity-of-cancer.aspx

 Workshop on Recent Advances in Radiation Biophysics, organized by Department of Biophysics, Mumbai University and Indian Society for Radiation Biology February 28, 2011, Department of Biophysics, Mumbai University, Vidyanagari, Santacruz (E), Kalina Campus, Mumbai, 400 098, India

Contact Person: Dr P. M. Dongre, Head, Department of Biophysics, Mumbai University, Vidyanagari, Santacruz (E), Kalina Campus, Mumbai, 400 098 **Email**: drpmdongre@yahoo.co.in, head.biophysics@mu.ac.in; **Tel**: 022-26524288, +91-9969051198 (M)

	lanuary-March	Issue: 13	Year: 2011	22
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For updated information visit web page: http://www.isrbindia.com/upcoming-events-of-the-society/

 Stem Cells, Development, and Cancer, March 3-6, 2011, Vancouver, BC, Canada
 Early registration deadline: Monday, December 6, 2010
 Abstract submission deadline: Wednesday, December 15, 2010

http://www.aacr.org/home/scientists/meetings--workshops/specialconferences/stem-cells,-development,-and-cancer.aspx

• AACR 102nd Annual Meeting 2011, April 2-6, 2011, Orlando, FL, USA Abstract submission deadline: Monday, November 15, 2010 Early registration deadline: Friday, December 24, 2010

http://www.aacr.org/home/scientists/meetings--workshops/aacr-102ndannual-meeting-2011.aspx

• Cancer Research Imaging Camp, June 19-24, 2011, St. Louis, MO, USA Application deadline: Friday, February 11, 2010

http://imaging.cancer.gov/NewsAndMeetings/workshops/CRIC

- 12th International Wolfsberg Meeting bon Molecular Radiation
 Biology/Oncology, June 25-27, 2011 We page: www.wolfsberg-meeting.com
- 14th International Congress for Radiation Research 2011, August 28-Sept. 1, 2011, Warsaw, Poland.

http://www.icrr2011.org/

• New Horizons in Cancer Research: Biology to Prevention to Therapy, December 13-16, 2011, Gurgaon, Delhi (NCR), India

http://www.aacr.org/home/scientists/meetings--workshops/new-horizonsin-cancer-research.aspx

• ACRR Meetings & Workshops Calendar

http://www.aacr.org/home/scientists/meetings--workshops/meetings-workshops-calendar.aspx

• NASA Space Radiation Summer School, June 6-24, 2011

The goal of the course is to provide scientific and practical information to students and either new to the NASA program or to charged particle scientists who are radiobiology. At the completion of the summer school, students will have received the full complement of training required to conduct their own experiments at BNL.

Up to 15 students will be selected for the course to be held this summer at the Brookhaven National Laboratory (BNL) in Long Island, New York from June 6 – 24, 2011. Course topics will include DNA damage and repair, genotoxicity, cell cycle checkpoints and apoptosis, mutagenesis, genomic instability, epigenetics, cell and tissue signaling, neurodegeneration, systems biology, and the relationship of these processes to carcinogenesis and late degenerative effects following exposure to space radiation, as well as the space radiation environment, physics and biochemistry of charged particle interactions, track structure, dosimetry, accelerator operations, and space radiation protection. Both foreign nationals and U.S. citizens may apply to the program. All selected students must satisfy BNL and Department of Energy safety and security requirements in order to be admitted. Due to the intense nature of the course, applicants must demonstrate oral and written proficiency in the English language. Expenses for travel within the U.S. and for room and board will be covered for those selected for the program, with the exception of U.S. civil servants or employees of some government agencies.

The course curriculum as well as the participant and faculty lists from the 2010 course may be found online at: http://www.dsls.usra.edu/spacerad/2010/ Application information may be found online at http://www.dsls.usra.edu/meetings/nsrss2011/index.cfm

Deadline for Online Application: February 13, 2011 (11:59 p.m. Central Time)

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. Moreover, the information would be included to web page as and when it would be available.

10. AWARDS/HONORS TO ISRB MEMBERS

Name of the ISRB Member	Affiliation	Award/Honors	Year/ Period
Professor A. B. Prasad	Professor Emeritus Center for Bioinformatics, Jerath Compound, Hinoo, Ranchi, Jharkhand, India	 Council member, Asian Association of Environmental Mutagen Chairperson, GENETIC POLYMORPHISMS AND SENSITIVITY TO GENOTOXIC CARCINOGENS, Asian Conference of Environmental Mutagen held at Pattaya, Thiland From December 15-18, 2010 	2010
January-March	Issue: 13	Year: 2011	24

January-March

Dr Amit Kumar	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085	DAE-Young Scientist Award Conferred to him on Founder's Day for his contribution to understand Thorium toxicity under in vitro and in vivo systems	Oct. 2010
Dr B. N. Pandey	Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai 400 085	International Cancer Technology Transfer (ICRETT) Fellowship by International Union for Cancer Control, Switzerland to conduct bystander experiments using Proton Microbeam at NIRS, Chiba, Japan	Oct. 2010
Dr K. P. Mishra	Vice Chancellor, Nehru Gram Bharati University, Allahabad	Felicitation by SCRAC at Mumbai	Nov. 2010
Mr. Dev Dutt Patel	Division of Radiation Biosciences, Institute of Nuclear Medicine & Allied Sciences, New Delhi	Best Poster Award In ICRB- NISRRO 2010	November 2010

Congratulations to the Member of Indian Society for Radiation Biology for prestigious Awards and Honors!!

May God bless you many more in future!!

11. RECENT PUBLICATIONS/PATENTS OF ISRB MEMBERS

Author/Affiliation	Title	Citation	Key words
Dani Mathew ¹ , Tsutomu V. Kagiya ² and Cherupally Krishnan Krishnan Nair ^{1,*} ¹ Amala Cancer Research Centre, Thrissur, India. ² Health Research Foundation, Kinki Invention Centre, Kyoto, Japan *E-mail: ckknair@vaboo.com	Protection of gastrointestinal and haematopoietic systems by ascorbic acid-2-glucoside in mice exposed to whole- body gamma radiation	International Journal of Low Radiation (2010), Vol. 7, No. 5, page: 380-92	antioxidant defence; ascorbic acid; radioprotection; radioprotector; haematopoietic system; gastrointestinal mucosa; AsAG; ascorbic acid-2- glucoside.
Gopakumar Gopinathan Nair and <u>Cherupally</u> <u>Krishnan Krishnan</u> <u>Nair*</u>	Protection of Cellular DNA and Membrane from Gamma Radiation-Induced	Cancerbiotherapy and Radiopharmaeutica Is (2010) Vol. 25,	Radioprotector, sesamol (3,4- methylenedioxyphenol), pBR 322, DNA damage,

January-March

Year: 2011

Amala Cancer Research Centre, Thrissur 680 555, India *E-mail: ckknair@yahoo.com	Damages and Enhancement in DNA Repair by Sesamol	Number 6	DNA repair, comet assay
G. Gopakumar, Femy Martin, Sherin K. Antony, Thulasi G. Pillai and Cherupally Krishnan K. Nair* Amala Cancer Research Centre, Thrissur 680 555, India *E-mail: ckknair@yahoo.com	Preclinical studies on the use of medicinal mushroom <i>Ganoderma</i> <i>lucidum</i> as an adjuvant in radiotherapy of cancer	Current Science (2010) VOL. 99, NO. 8, page-1084- 90	Adjuvant, cancer, Ganoderma lucidum, preclinical studies, radiotherapy.
H.D. Sarma ¹ , T. Das ² , S. Banerjee ² , M. Venkatesh ² , P.B. Vidyasagar ³ , K.P. Mishra ¹ . ¹ Radiation Biology and Health Sciences Division, ² Radiopharmacetucal Division, Bhabha Atomic Research Centre, Mumbai - 400085, ³ Pune University, Pune, India *Email: mishra_kaushala@rediff mail.com	Biologic evaluation of a novel 188Re- labeled porphyrin in mice tumor model	Cancer Biother Radiopharm. 2010 Feb;25(1):47-54.	Radio-isotope and therapy; porphyrin
Lakshmy Ramachandran, ¹ Chirakkal V. Krishnan, ^{2,3} and <u>Cherupally</u> <u>Krishnan Krishnan</u> <u>Nair^{1,*}</u> ¹ Amala Cancer Research Centre, Thrissur, India. ² Garnett McKeen Laboratory Inc., Bohemia, New York. ³ Department of Chemistry, University at Stony Brook, Stony Brook, New York. *E-mail : ckknair@yahoo.com	Radioprotection by a-Lipoic Acid Palladium Complex Formulation (POLY- MVA) in Mice	Cancer Biotherapy and Radiopharmaceutic als (2010) Volume 25, Number 4, page 395-99	comet assay, POLY-MVA, radioprotection, spleen colony formation, survival

January-March

L. Rastogi ¹ , F. Shaikh ² ,	Protection against	International	DNA damage,
B. N. Pandey ¹ , A.	radiation-induced	Journal of	radioprotection, Nigella
Jagtap² , K. P. Mishra^{1,*}	oxidative damage by	Radiation Biology	sativa
¹ Radiation Biology and	an ethanolic extract	2010; 86(9):719-	Pubmed link for
Health Sciences Division,	of Nigella sativa L.	31	abstract:
Bhabha Atomic Research			http://www.ncbi.nlm.nih.
Centre, Mumbai -			gov/pubmed/20670109
400085, India			
² Bombay College of			
Pharmacy, Mumbai,			
*Email:			
mishra_kaushala@rediff			
mail.com			

12. CAREER FORUM

Postdoc Position in Radioimmunotherapy, IRCM, Montpellier, France (2011-• 13): A 2-years postdoctoral position is available at the Institut de Recherche en Cancérologie de Montpellier (IRCM, Montpellier, France; http://www.ircm.fr). The project aims at assessing the efficiency of intraperitoneal (i.p.) RIT using alpha particles emitters (APE), alone or in combination with chemotherapy (Chem), associated or not to hyperthermia in the therapy of peritoneal carcinomatosis of small size (3-5 mm) as those remaining after cytoreductive surgery. A strong background in in vivo experiments, targeted therapy, nuclear medicine and/or radiobiology, would be an advantage. Start date should be by January, 2011 and the position will be funded for 2 years. If you are interested in this position, please send an informal application with your CV, previous research experience (list of publications) and names/phone/email of least at two references to: jean-pierre.pouget@valdorel.fnclcc.fr

Last date for application submission is **November 15, 2010**. Download the brochure:

http://www.isrbindia.com/assets/Uplaods/Positions-and-Others/Postdocposition-alpha-particles-RIT-2011-13.pdf

 Temporary Assistant professors of Nanobiotechnology (two): ACHARYA NAGARJUNA UNIVERSITY; NAGARJUNA NAGAR :: GUNTUR DIST 522 510, A.P., Advt.No.ANU/TS.1/2010 Date: 19-06-2010, Nagarjunanagar REGISTRAR, Dt. 19-06-2010 ACHARYA NAGARJUNA UNIVERSITY For details visit the web page:

http://www.nagarjunauniversity.ac.in/default.asp Or Contact Prof.K.R.S.Sambasiva Rao, Professor and Head, Department of Biotechnology Acharya Nagarjuna University Nagarjunanagar - 522 510, Guntur, A.P., India Ph - 91-863-2346172(O), 2346355 (D)

(Please check the date of application submission)

- SCIENTIST POSITIONS AVAILABLE: Institute of Life Sciences, Bhubaneswar, an autonomous Institute of the Department of Biotechnology, Ministry of Science & Technology, Government of India, is an emerging multidisciplinary institute engaged in advanced research in biology. The Institute invites applications from Indian citizens for core scientific positions in various grades. Interested candidates with Ph.D/M.D. Degree and Post-Doctoral experience desirous of pursuing a dedicated research career using any or all of the following tools of biology Cell Biology, Immunology, Genomics, Proteomics, Nanotechnology, Bioinformatics and Systems Biology may send their Curriculum Vitae, list of publications, three letters of reference(s) and proposed plan of research work to the Director, Institute of Life Sciences, Nalco Square, Bhubaneswar 751 023, India. Email: ilsindia.recruitment@gmail.com , Fax: 0091-674-2300728. Last date of application: One month from the date of publication of this advertisement (Advt. No.19/2010). Please visit http://www.ils.res.in for more details.
- **JRF** position for DAE BRNS sanctioned project titled **'Development of bioinformatics** database resources for radiomodifiers and make it available on internet to user community'. Duration: three years, Eligibility: The candidates who have completed M.Sc. with at least First Class in the subject of Biophysics/Biochemistry with sound knowledge of Radiation Biology /computer programming/web designing/. For details may contact to Dr P M Dongre, Head, Department of Biophysics, University of Mumbai, Vidynagari, Santacruz (E), Kalina 400 098. Email: drpmdongre@yahoo.co.in, head.biophysics@mu.ac.in
- New
- JRF Positions in Biophysics and Biotechnology, Mumbai University, Mumbai. JRF positions are available at Department of Biophysics and Department of Biotechnology, University of Mumbai.

For details see the following links:

http://www.isrbindia.com/eNewsletter/positions-available/ http://www.mu.ac.in/biophyjrf.pdf

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_JobsFundinga ndFellowships.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

• AACR, Research Funding & Fellowships 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
- No place like home

Young Eastern European, Asian scientists are returning to their home countries to set up labs — with mixed success.

http://www.nature.com/naturejobs/2009/091001/full/nj7264-681d.html

• Why your boss is incompetent

http://www.newscientist.com/article/mg20427392.600-why-your-boss-isincompetent.html?DCMP=NLC-nletter&nsref=mg20427392.600

Gatekeeper's burden

It takes a special combination of thick skin and scientific enthusiasm to be a journal editor. Kendall Powell gets tips from a chosen few.

http://www.nature.com/naturejobs/2010/100401/full/nj7289-800a.html

- Canadian fellowships
 http://www.nature.com/naturejobs/2010/100902/full/nj7311-119b.html
- Postdocs form union http://www.nature.com/naturejobs/2010/100902/full/nj7311-119c.html
- Biomedical science: Putting research into practice http://www.nature.com/naturejobs/2010/101021/full/nj7318-995a.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
- Science careers

http://sciencecareers.sciencemag.org/tools_tips/outreach/relationships_bo oklet

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**.

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.

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_RelatedSocieti

es.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

 Video presentation titled "Radiation Hormesis and Life-Mild Radiation Stress Makes You Stronger." Video and a pdf file of the slides presented are available on link: http://dspace.lrri.org:8080/xmlui/handle/123456789/891
 One more Video Commentary related to radiation adaptive responses (hormesis) http://www.dose-response.org/conference/2010/videos.htm http://www.radiation-scott.org/phototour/radiation/radgloss.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 (Open Access Journal)
 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 Death & Disease (Open Access Journal) http://www.nature.com/cddis/index.html
- 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/d escription#description
- DNA and Cell Biology http://www.liebertpub.com/products/product.aspx?pid=13
- Free Radical Biology and Medicine http://www.elsevier.com/wps/find/journaldescription.cws_home/525469/d escription#description
- Free Radical Research http://www.tandf.co.uk/journals/authors/gfrrauth.asp
- Genome Integrity
 www.genomeintegrity.com
- Human Gene Therapy http://www.liebertpub.com/products/product.aspx?pid=19
- 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/d escription#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=jrr19 60
- 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/desc ription#description
- Radiation Oncology
 http://www.ro-journal.com/
- Radiation Physics and Chemistry http://www.elsevier.com/wps/find/journaldescription.cws_home/331/desc ription#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/d escription#description
- Science Signaling http://stke.sciencemag.org/

15. RECENT BOOKS

• A guide to cancer genetics in clinical practice http://www.nature.com/bjc/journal/v102/n12/abs/6605693a.html

- Harmonising different approaches to patient release after radionuclide therapy: iaea safety series report no. 63: 'Release of Patients after Radionuclide Therapy' http://rpd.oxfordjournals.org/content/140/4/408.extract?etoc
- Chernobyl: consequences of the catastrophe for people and the environment http://rpd.oxfordjournals.org/content/141/1/97.extract?etoc
- Chernobyl: consequences of the catastrophe for people and the environment http://rpd.oxfordjournals.org/content/141/1/101.extract?etoc
- Management of persons contaminated with radionuclides: NCRP report no. 161 (Volume 1)

http://rpd.oxfordjournals.org/content/141/2/215.extract?etoc

16. CONTENTS OF INDIAN JOURNAL OF RADIATION RESEARCH

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5. OPTIMISATION OF LIVE AND DEAD TIME FACTORS WITH CHOICE OF OTHER TIME PARAMETERS IN THE RNAA FOR TRACE ELEMENTS OF FORENSIC BALLISTICS INTEREST

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6. NITROXIDE INDUCED RADIATION PROTECTION TO CALF THYMUS DNA: A BIOPHYSICAL STUDY

Chabita Saha, S.K. Dey

17. 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 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 the web page: **www.isrbindia.com** or click on following link:

http://www.isrbindia.com/assets/Uplaods/ISRB-Membership-Application-Form.doc (MS Word Version)

http://www.isrbindia.com/assets/Uplaods/ISRB-Membership-Application-Form.pdf (PDF Version)

• Awards / Honors to ISRB Members

Editorial Board '**Radiation Science Today'** is pleased to launch a column "**AWARDS/HONORS to ISRB Members**" in the eNewsletter. 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:

• Recent publications/patents of ISRB Members

Dear Members of ISRB,

It is our pleasure to mention that in last two years, '**Radiation Science Today**' the eNewsletter published by Indian Society for Radiation Biology, has made a significant contribution to link the Members of Society working in various research fields of radiation biology and allied sciences. To further strengthen the interaction amongst Members of ISRB, we initiate a new Column '**Recent Publications of ISRB Members' beginning** from next issue of eNewsletter i.e. **Jan-March**, **2010 Issue 9**.

The publication/patents meeting following criteria would be included in the eNewsletter:

1. At least one author of citation should be Life Member of ISRB.

2. Citations only with final page number should be provided i.e. 'In Press' citations would not be considered.

3. It should be published in National/International Journals or Book/Book Chapters. No abstract or Conference Proceedings would be considered.

4. Names of ISRB Members names should be bold and underlined. The authors may provide maximum five key words. The email address of corresponding authors should be provided so that interested may contact to seek some clarification or to receive reprints.

5. Members should provide full citation(s) as and when it would be made available in the required format.

All ISRB Members are requested and encouraged to submit their recent publication(s) in format provided with **Subject Head line: Publication.** A copy of the format is provided below for your reference.

You may communicate the message to other ISRB members, if they could not receive this communication.

Authors/Affiliation/Email	Title	Citation	Key Words
Kumar A, Ali M, Mishra P, Pandey BN, Sharma P, <u>Mishra</u> <u>KP.</u> Email: mishra_kaushala@rediffmail.com Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai - 400085, India	Thorium-induced neurobehavioural and neurochemical alterations in Swiss mice.	International Journal of Radiation Biology, 2009, 85(4):338-347.	Thorium Toxicity; Neurobehavioral, neurochmeical alterations; oxidative injury
Hazra B ¹ , Pandey BN , Kumar A, Ghosh S ¹ , Kumar B ¹ , Mishra KP Email: banasrihazra@yahoo.co.in Radiation Biology and Health Sciences Division, Bhabha Atomic Research Centre, Mumbai - 400085, India ¹ Department of Pharmaceutical Technology, Jadavpur University , Kolkata , India	Plant Products in modification of cellular damage by radiation: Implications in cancer radiotherapy.	In "Herbal Drugs: A Cancer Chemopreventive and Therapeutic Perspective" (Ed.: R. Arora, INMAS, New Delhi), Publisher: Jaypee Brothers Medical Publishers, New Delhi , 2009	Cancer radiotherapy; Natural Plant Products; Apoptosis

• 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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January-March

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We hope you will find this Newsletter as a useful resource of information. However, we look forward for your active contribution and valuable comments/ suggestions for improvement of the eNewsletter on **isrb_enewsletter@yahoo.co.in** or any of the Member of Editorial Board.

You are being sent the eNewsletter since either you are member of Indian Society for Radiation Biology or identified as potential reader of the eNewsletter. If you wish to discontinue receiving the eNewsletter in future write to us: isrb_enewsletter@yahoo.co.in.

Disclaimer: Every effort has been taken to provide up-to-date and correct information in the Newsletter. However, readers are advised to check the related source of information.

Editorial Board

INDIAN SOCIETY FOR RADIATION BIOLOGY

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

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2.	Present Position/Title			
3.	. Date of Birth			
4.	Academic qualifications: Year	Degree	<u>University</u>	
_				
5.	Field of Specialization			
6.	Research Interest			

TelFax:E-mail Permanent 8. Registration Fee: Life Membership : Rs 1000.00 Foreign members: US\$ 100 Bank transfer/Draft/Cheque NoDate:Drawn on Bank. in favour of 'Indian Society for Radiation Biology' is enclosed. (Note: Outstation cheques would not be accepted. DD should be payable at Mumbai or Delhi.) Place:	7.	Address:	Official:
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	Pla	ce:	Date: Signature:
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on	
Payment received	vide on
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Please mail the Application for Membership along with 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