Vol. 4 No. 1 April - September 2012

CSIR - CDRI Newsletter

Council of Scientific & Industrial Research
www.csir.res.in

CSIR-Central Drug Research Institute
www.cdriindia.org

From the Director's Desk

I am glad to present the current issue of CSIR-CDRI Newsletter on the occasion of 70th Foundation Day of Council of Scientific and Industrial Research (CSIR). Nevertheless, the occasion again brought us an opportunity to look back in the history of our institute and memoir its distinct list of performances and achievements in the service of nation under the aegis of CSIR. The Institute has successfully metamorphosed the Indian Pharma Industry during post independence era by providing the much required economic process technologies for pharmaceutical products and contributed significantly towards making the modern healthcare affordable for all in India and other developing countries. The human resource developed by the Institute has played revitalising role for the Indian pharma industry. Several of CSIR-CDRI alumni have occupied the highest positions in the national and international institutes, academic organizations, biotech & pharma industries. Repertoire of achievements of CDRI in terms of development of new drugs and process technologies, new knowledge base, intellectual value and human resource always makes me feel pride. On this occasion, I once again acknowledge the outstanding leadership provided by my predecessors in making of this a premier drug research Institute in India.

Rich in experience and capabilities to undertake biomedical research and delivering the requisite output at par with the international standards has always remained our strength. Continuing the legacy, we performed well in all aspects during the reporting period of the current issue of Newsletter. For the year 2012, so far, we have published more than 220 research papers with average IF > 3. The number of publications with IF>5 are 20. I hope we will cross the previous records in terms of both the quality and quantity of research publications. Apart from the publications, Institute performed well in generating intellectual property rights and voluminous data towards several new leads/hits in the area of osteoporosis, cancer, thrombosis and reproductive health. It has not only enhanced our confidence but also attracting the industry partners to join with us for further collaborative development. I feel proud to announce that on the 70th Foundation Day of CSIR, 26th September 2012, CSIR-CDRI is signing a major agreement with the Kemxtree, a Nostrum company, towards licensing of CDR914K058 a rapid bone fracture healing anabolic agent, a niche in this area in the world.

The reporting period remain of historical significance as taking over the buildings and laboratories in the newly built state of the art drug research laboratory has been started off. I am very grateful to all my staff members who are taking pain with joy in making the new buildings and laboratories functional and getting it ready for inauguration and dedication to the nation in the service of mankind.

With best wishes

T. K. Chakraborty

(Tushar Kanti Chakraborty)

Contributions of CSIR-CDRI in CSIR @ 70

Important Products Developed	*Important Technologies Developed*
• *Centimizone (1972)*	• *Cyproheptadine HCl (1965)*
• *Isaptent (1972)*	• *Indomethacin (1965)*
• *Gugulipid (1986)*	• *Diamino-diphenyl sulphone (1967)*
• *Centbucridine (1987)*	• *Paracetamol (1969)*
• *Centbutindole (1987)*	• *Amitriptyline (1974)*
• *Centchroman (1991)*	• *D-propoxyphene (1974)*
• *Chandonium iodide (1994)*	• *Polymixin B (1975)*
• *Centpropazine (1996)*	• *L-Ephedrine HCL (1976)*
• *Arteether (1997)*	• *D-2-Aminobutanol (1977)*
• *Elubaquin (1999)*	• *Clonidine (1977)*
• *Bacosides Enriched Standardised Extract of Bacopa (BESEB) (2002)*	• *Oxytocin (1978)*
• *Consap Cream (2004)*	• *Cyclophosphamide (1978)*
	• *Ampicillin (1978)*
	• *Primaquine (1980)*
	• *Ibuprofen (1984)*
	• *Tamoxifen citrate (1985)*
	• *Becampicillin (1986)*
	• *Artemether (1995)*
	• *Acyclovir (1996)*
	• *Mefloquine (1997)*

SAHELI and CROCIN are the two brand names in healthcare sector in India that are based on CSIR-CDRI technologies and our proud contribution to the Nation, the former as the first "Made-in-India" drug and the other in generic class.

A Newsletter from

CSIR-CENTRAL DRUG RESEARCH INSTITUTE
COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
Chattar Manzil Palace, Mahatma Gandhi Marg, Lucknow – 226 001
New CDRI: B.S. 10/1, Sector 10, Janakipuram Extn, Sitapur Road, Lucknow – 226 021
Phone: 0522-2612411-18 (PABX)
Fax: 91-522-2623405/2623938/2629504
Website: www.cdriindia.org

CONTRIBUTIONS TO SCIENCE & TECHNOLOGY

Candidate Drugs under Advance Stages of Development

Diseases / Disorders	Candidate Drugs & Efficacy	Clinical Status	Licensees & Collaborators
Malaria	**97-78** (Antimalarial)	Phase-I Clinical pharmacokinetic studies has been completed in 16 healthy male volunteers at PGIMER, Chandigarh in collaboration with IPCA. The samples analyzed and report has been sent to IPCA	IPCA Labs., Mumbai
	99-411 (Antimalarial)	Pre-clinical data is under compilation for IND submission	IPCA Labs., Mumbai
Diabetes	**CDR134D123** (Antihyperglycemic)	Phase-I Single & Multiple Dose studies completed. Additional Quality Monograph including additional Botanical & Chemical information submitted to DGCCRAS on 2nd February, 2012. Again some additional data regarding on the source part of the plant has been sought by DGCCRAS office. This additional data has been generated and is being compiled as per their specifications and would be resubmitted soon	TVC Sky Shop Ltd., Mumbai
Diabetes & Dyslipidemia	**CDR134F194** (Antihyperglycemic)	The preparations for the drug formulation to be used in Phase-I Single Dose and Multiple Dose Clinical Trial studies from a GMP certified company is in progress and the clinical trial would commence soon.	TVC Sky Shop Ltd., Mumbai
Osteoporosis	**99-373** (Anti-osteoporotic)	Phase I Clinical Trial to be initiated	Under negotiation
	OsteoJuvenate (1020F147) (Anti-osteoporotic)	Product is being further developed as neutraceutical and dietary supplement for optimum bone health. Submitted to NMITLI for funding of Clinical trial	Natural Remedies, Bangalore

Potential New Leads

Diseases / Disorders	Lead Product & Efficacy	Status	Licensees & Collaborators
Osteoporosis	**S007-1500** (Rapid fracture healing)	Compound found safe in single dose toxicity study by oral route in rat and mice and by IM route in rat. One year stability study completed. M/s Alkem Laboratories Limited, Mumbai has accepted to take up the molecule for further development and commercialization.	Under negotiation
	CDR914K058 (Osteogenic)	Synthetic process developed by CSIR-IICT, Hyderabad. Kemxtree, USA has accepted to take up the molecule for further development and commercialization	Under negotiation
	CDR4744F004 (Osteoprotective and bone anabolic)	Standardized fraction from the renewable part of the plant has been found to have bone anabolic effect in osteopenic rats; Principal component analysis of bioactive markers completed. Further studies are under progress.	Under negotiation
Cancer	**S007-1235** (Anti-leukemic)	IC50 in K562, HL-60, U937, Kasumi1, Vero, & NIH3T3 respectively: 3.61 µM, 5.99 µM, 6.78 µM, 8.12 µM, >25 µM, > 20 µM. Activity is better than Imatinib (first gen) and Dasatinib (2nd gen). Possible mode of action established. Detailed mechanism, including identification of target and *in vivo* studies are planned further	Open for licensing
Thrombosis	**S007-867** (Antithrombotic)	Compound found safe in single dose toxicity study by oral route in rat and mice and by IM route in rat; No adverse effect on CVS, CNS & respiratory parameters.	Under negotiation
	S002-333 (Antithrombotic)	Compound found safe in single dose toxicity study by oral route in rat; Patent Granted. No significant effect on CNS, CVS and respiratory system up to 1000 mg/kg, po in rats.	Under negotiation
Diabetes & Dyslipidemia	**CDR267F018** (Antidyslipidemic)	Compound found safe in 28 day repeat dose toxicity study in Rh monkey	Open for licensing
Lipid lowering	**CDR4655K09** (Antidyslipidemic)	Efficacy established as a new class of HMG-CoA reductase and as potential lipid lowering agent	Open for licensing
Contraception	**S010-1255** (Spermicidal & Antitrichomonal)	Potent spermicidal and anti-trichomonal (against both metronidazole susceptible and resistant strains) activity established with much higher safety index compared with Nonox-9	Open for licensing
Tuberculosis	**S006-830** (Antituberculosis)	Efficacy established *in vitro* & *ex vivo*. Large scale synthesis completed. QC analysis of pure compound done and all preparations found 98% pure. Studies on molecular mechanism of action is being undertaken at CSIR-IGIB, Kolkata.	Being developed under OSDD

Editorial Board : Chairman : Dr. Tushar Kanti Chakraborty, **Editor-in-Chief :** Mr. Vinay Tripathi, **Executive Editors :** Dr. Sanjeev Yadav and Dr. Anand P.Kulkarni, **Editorial Board Members :** Dr. D N Upadhyay, Dr. Sripathi Rao Kulkarni, **Hindi Translation :**Mrs. Neelam Srivastava, **Technical Support:** Mr. Jitendra Patel, Mrs. Preeti Agarwal, Mr. Pradeep Srivastava, **Photographs:** Photography section CSIR-CDRI
Printed at Army Printing Press, 33, Nehru Road, Sadar Cantt., Lucknow. Phone: 0522-6565333

Contributions to Science & Technology

1. Investigations into an alternate approach to target mannose receptors on macrophages using 4-sulfated N-acetyl galactosamine more efficiently in comparison with mannose-decorated liposomes: An application in drug delivery (Singodia D, Verma A, Verma RK and Mishra PR, *Nanomedicine-Nanotechnology Biology and Medicine*, 2012, 8 (4), 468 – 477, IF : 6.692)

In the present study the targeting potential of two different ligands i.e palmitoyl mannose (Man-Lip) and 4-SO_4GalNAc (Sulf-Lip) to resident macrophages have been investigated after having decorated on the surface of Amphotericin B (AmB) loaded liposomes. In case of Sulf-Lip, the 4-SO4GalNAc was adsorbed through electrostatic interaction on cationic liposomes, which was confirmed by change in zeta potential from +48.2 ± 3.7 mV for Lip to +12.2 ± 1.3 mV for Sulf-Lip. The mean particle size of Sulf-Lip and Man-Lip was found to be 139.4 ± 7.4 nm and 147.4 ± 8.6 nm respectively. Flow cytometric data reveals enhanced uptake of Sulf-Lip in both J774 and RAW cell lines as compared to Man-Lip. Intracellular localization studies indicate that the fluorescence intensity of Sulf-Lip was much higher as compared to Man-Lip and Lip formulations. Sulf-Lip and Man-Lip showed significantly higher localization of AmB at all time points compared to Lip ($P<0.05$) after i.v. administration. The studies provides evidences that 4-SO_4GalNAc possess promising feature for targeting resident macrophages and its application in the conditions of leishmaniasis is in offing.

2. Treatment of *Leishmania donovani*-infected hamsters with miltefosine: Analysis of cytokine mRNA expression by real-time PCR, lymphoproliferation, nitrite production and antibody responses, (Gupta R, Kushawaha PK, Samant M, Jaiswal AK, Baharia RK and Dube A, *Journal of Antimicrobial Chemotherapy*, 2012, 67(2), 440 - 443 IF: 5.068)

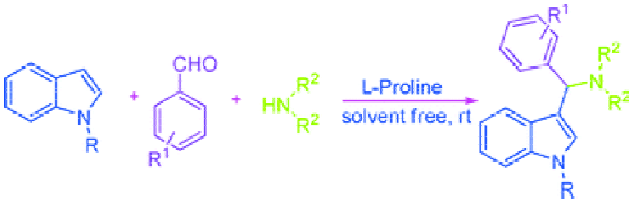
Miltefosine, an orally effective antileishmanial drug, works directly on the parasite by impairing membrane synthesis and subsequent apoptosis of the parasite and has also been reported to have macrophage-activating functions that aid parasite killing. We investigated the type of immunological responses generated in miltefosine-treated *Leishmania donovani*-infected hamsters, which simulate the clinical situation of human kala-azar. Twenty-five-day-old infected hamsters, treated with miltefosine at 40 mg/kg for 5 consecutive days, were euthanized on days 30 and 45 post treatment (p.t.) and checked for parasite clearance and for real-time analysis of mRNAs of the Th1/Th2 cytokines interferon-γ (IFN-γ), interleukin-12 (IL-12), tumour necrosis factor-α (TNF-α), inducible nitric oxide synthase (iNOS), IL-4, IL-10 and transforming growth factor-β (TGF-β), nitric oxide (NO) production, the lymphocyte transformation test (LTT) and antibody responses. Responses were compared with the normal and Leishmania-infected groups at the same time points. By day 45 p.t. there was a significant increase in the mRNA expression of iNOS, IFN-γ, IL-12 and TNF-α, whereas there were significant decreases in IL-4, IL-10 and TGF-β in cured hamsters as compared with their infected counterparts. In vitro stimulation of lymphocytes with concanavalin A and soluble Leishmania donovani antigen showed a maximum LTT response and there was a gradual increase in the NO level (~7-fold compared with infected counterparts). Anti-Leishmania IgG and IgG1 levels, found to be elevated in the infected group, decreased significantly after treatment but there was a significant increase in IgG2 isotype. Treatment of Leishmania-infected hamsters with miltefosine reverses the Th2-type response into a strong Th1-type immune response.

3. *In vivo* activity of thiophene-containing trisubstituted methanes against acute and persistent infection of non-tubercular *Mycobacterium fortuitum* in a murine infection model (Kashyap VK, Gupta RK, Shrivastava R, Srivastava BS, Srivastava R, Parai MK, Singh P, Bera S and Panda, G *Journal of Antimicrobial Chemotherapy*, 2012, 67(5), 1188 – 1197, IF: 5.068)

Mycobacterium fortuitum causes opportunist non-tubercular infection in humans. Chronic infection of *M. fortuitum* has been clinically documented and requires prolonged chemotherapy. The objectives of this study were to characterize acute and persistent infection of *M. fortuitum* in a murine infection model and to screen thiophene-containing trisubstituted methanes active against both acute and persistent infection. A murine infection model of *M. fortuitum* was used. Bacillary count, bioluminescence, disease symptoms, host immune response, drug susceptibility and mortality were measured. Reactivation of persistent bacilli was induced by dexamethasone. Trisubstituted methanes containing thiophene rings were synthesized and screened *in vitro* by agar dilution and BACTEC assay and in mice. Cytotoxicity was tested with Vero monkey kidney cells using a resazurin assay. The acute infection in mice was marked by a 3 log rise in viable counts, the appearance of disease symptoms and a rise in the Th1 immune response. Bacilli were susceptible to fluoroquinolones. This was followed by persistent infection, in which disappearance of disease symptoms, a decline in Th1 response and non-susceptibility to fluoroquinolones was observed. When the mice were immunocompromised on day 40 post-infection (persistent state) by dexamethasone, a rise in viable counts, symptoms and susceptibility to fluoroquinolones and a prominent Th1 response reappeared. Two lead compounds were found that cleared the mice of bacilli in acute infection and caused a 2.29–2.99 log reduction in cfu of persistent bacilli. The study established acute and persistent infection in mice and identified two promising anti-*M. fortuitum* compounds with a selectivity index 10.

4. L-Proline catalysed multicomponent synthesis of 3-amino alkylated indoles via a Mannich-type reaction under solvent-free conditions (Kumar A, Gupta MK and Kumar M, *Green Chemistry*, 2012, 14(2), 290 – 295, IF: 6.320)

An efficient L-proline catalyzed one-pot synthesis of 3-amino-alkylated indoles has been developed via a three-component Mannich-type reaction viz. secondary amines, aldehyde and indoles under solvent-free conditions at room temperature. Several amino acids (acidic, basic and neutral) have been screened for the reaction but the best results were obtained with L-proline.

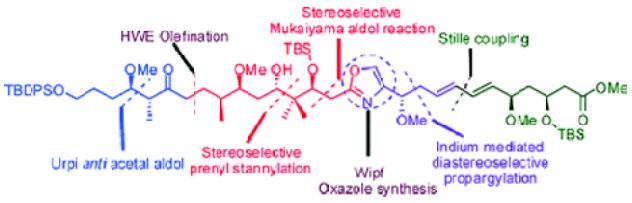


5. A simple and efficient access to new functionalized 4-Phenacylideneflavenes (Sashidhara K, Kumar A, Agarwal S, Kumar M, Kumar B and Sridhar B *Advanced Synthesis & Catalysis*, 2012, 354 (6), 1129 – 1140, (IF: 6.048)

An innovative and efficient approach toward diversity oriented synthesis of 4-phenacylideneflavenes has been developed from substituted salicylaldehydes and acetophenones using iodine under solvent free conditions. Both symmetrical and unsymmetrical functionalized 4-phenacylideneflavenes were synthesized in good to excellent yields and their mechanism of formation is discussed.

6. Stereoselective synthesis of the monomeric unit of actin binding macrolide rhizopodin (Pulukuri KK and Chakraborty TK, *Organic Letters*, 2012, 14(11), 2858 – 2861, IF : 5.862)

An efficient, scalable, and stereocontrolled synthesis of the entire carbon framework of an actin binding dimeric macrolide rhizopodin has been accomplished in its protected form. The key features of our synthesis include a titanium catalyzed anti acetal aldol reaction, a substrate controlled diastereoslelective prenyl stannylation, a Mukaiyama aldol reaction, an indium mediated diastereoselective propargylation, and an advanced stage Stille coupling reaction.



Business Development Activities

The Institute sustained to explore the business development opportunities by establishing liaison with national and international organizations and industries in order to have more public–private partnership at early stage of the development and to have collaborations for new leads. The major new contracts/assignments signed/undertaken by the Institute during reporting period are as follows:

Details	Client/Collaborator	Date of Signing the Agreement
Memorandum of Understanding signed for joint R&D		
Identification of urinary biomarkers for diagnosis, prognosis and follow up of patients with SLE nephritis.	SGPGI, Lucknow JIPMER, Pondicherry NIMS, Hyderabad	23.02.2012
Identification and characterization of uterine-specific blood biomarkers for monitoring uterine receptivity	CSIR-CDRI and CSMMU, Lucknow	09.04.2012
Nitrous oxide and Cu toxicity	SGPGI, Lucknow	21.05.2012
Development of lymphatic targeted nanoparticulate drug delivery system as novel anti-wolbachial combination chemotherapy for the treatment of Lymphatic Filariasis	Jamia Hamdard, New Delhi	25.07.2012
Memorandum of Agreement		
"Regulation of Pancreatin: A novel approach to control Diabetes"	DBT, New Delhi	29.06.2012
Confidential Disclosure Agreement		
Synthetic compound S002-333 and S007-867 (Antithrombotic)	M/s Alkem Laboratories Limited, Mumbai	26.04.2012
Synthetic oral rapid fracture healing agent S007-1500 (Pteroheal)	M/s Alkem Laboratories Limited, Mumbai	16.05.2012
Material Transfer Agreement		
13018: pcDNA3-TLR4-YFP 13643: pcDNA3-TLR10-YFP 12243: PLOX-gfp-iresTK 1774: PBaBe-neo-hTERT 14753: HA GSK3 beta wt pcDNA3 14754: HA GSK3 beta S9A pcDNA3	Addgene, USA	10.04.2012
17413: pENTR1A-FKBP12DD C-term (w350-2) 17415: pENTR4-FKBP12DD N-term B (w385-4)	Addgene, USA	11.04.2012
pLX304	Addgene, USA	29.06.2012
Four (4) male and four female (4) female Chromogranin A conditional KO mice and sixteen (16) control mice	University of California, San Diego	12.07.2012
Plasmids pET303-hpold1 and pCOLA-hpold234	The University of Washington, Seattle, Washington, USA	12.07.2012

New Projects Undertaken

Identification of urinary biomarkers for diagnosis, prognosis and follow up of patients with SLE nephritis

The project is being implemented jointly by CDRI Lucknow, SGPGIMS Lucknow, JIPMER Puducherry and NIMS Hyderabad. It envisages identification, through comparative proteomics, the urinary biomarker(s) that can help in diagnosis, prognosis and follow-up of patients with nephritis due to Systemic Lupus Erythematosus (SLE). Presently kidney biopsy is the gold standard. However, it is an invasive procedure and cannot be done repeatedly. Thus identification of a reliable urinary marker(s) will be useful for patients, especially for children, as it will be non-invasive.

PI: Dr SK Sinha

Chief Scientist, Drug Target Discovery and Development Division

Funding agency: DBT

Approved budget (CDRI component) = Rs 29.55 Lakh

Study of brain insulin/insulin receptor in glial cell during neuroinflamation (National initiative on glial cell research in health and disease)

The proposed project aims to explore the role of astroglial insulin signalling in neuroinflammation and memory deficit. Changes in insulin/IR signalling will be studied in neuroinflammation induced in astroglial cells, C6, by Lipopolysaccharide (LPS). It also aims to study of changes in insulin/IR signalling in C6, the treated by STZ, an agent that disturbs insulin/IR signalling and impair learning and memory. These studies will certainly throw light on modulation of astroglial insulin/IR signalling during conditions associated with neurodegeneration i.e. neuroinflammation and impairment of learning and memory.

PI: Dr. Rakesh Shukla

Chief Scientist, Pharmacology Division

Funding agency: DBT

Approved budget: Rs. 32.25 lakh

Protein translation in organelles of *plasmodium falciparum* (Indo-Spain Research Project)

This Indo-Spain joint project will help to identify initiation and release factors (IFs and RFs) that mediate protein translation in the Apicoplast and mitochondria of *Plasmodium falciparum*. It will be helpful to characterize the effects of translation inhibitory compounds on *Plasmodium* organelles and to study the organellar distribution of Plasmodium aminoacyl-tRNA synthetases, focusing more specifically on those enzymes of unclear localization or that accumulate *Plasmodium*-specific features. The project would help in sharing the complementary expertise between collaborating labs in biochemical and cellular aspects of protein synthesis analysis.

PI: Dr. Saman Habib

Principal Scientist, MSB Division

Funding agency: DST

Approved budget: Rs. 41.98 lakh

Solution structure and dynamics of Unc-60 ADF/ Cofilin proteins of *Caenorhabditis elegans*

To further understand the structural, dynamics and biochemical features involved in G- and F-actin binding and regulation of actin dynamics, the project propose to structurally and functionally characterize the Unc-60A and Unc-60B ADF/Coflin proteins from *C. elegans* using NMR spectroscopy and to determine the thermodynamic parameters for binding of the wild-type and several of mutant proteins to G-actin using ITC. The structural and

functional results will be analysed together with molecular docking studies.

PI: Dr. Ashish Arora

Senior Scientist, MSB Division

Funding agency: DBT (National Bioscience Award for Career Development 2011)

Approved budget: Rs. 09.00 lakh

Development of antidyslipidemic agents from *Aegle Marmelos* (BAEL) and *Trigonella foenum graeucum* (METHI)

Aim of this research proposal is to isolate the large quantities of active compounds that are Ageline and 4-hydroxyisoleucine from the plant material. Few derivatives of the Ageline and 4-hydroxyisoleucine will be synthesized and evaluated their *in-vivo* antidyslipidemic activity. In addition to this we also synthesize tha analogues of the Ageline and 4-hydroxyisoleucine in our laboratory to develop a novel lead moleculre for the treatment of dyslipidemia.

PI: Dr. T. Narender

Senior Scientist, MPC Division

Funding agency: ICMR

Approved budget: Rs. 9.13 lakh (Ist year)

Enhancing functional repertoire of RNAPII

The epigenetic modifications of RNA Polymerase II (RNAPII) (by CDK7, CDK9, glycosylases etc) are thought to selectively bind different protein complexes that participate in RNA biogenesis and export. However these modifications changes in response to stress and in disease condition. This project proposes to implement a strategy to functionally characterize RNAPII interacting proteins and its functional correlations with other gene regulatory activities. The project may help establish the mechanistic link between transcription and post transcription events which are seamlessly integrated.

PI: Dr. Md. Sohail Akhtar

Senior Scientist, MSB Division

Funding agency: DBT

Approved budget: Rs. 69.95 lakh (CDRI Share Rs.28.25 lakh)

Natural modulators of GLUT-4 translocation for the treatment of insulin resistance

Insulin resistance is the major defect underlying the development of type-2 diabetes and metabolic syndrome. There has been considerable interest in insulin-sensitizing agents to counteract insulin resistance and interventions with ability to stimulate GLUT-4 translocation might be useful for the treatment of the disease. The project aims to investigate plant derived molecule with ability to modulate GLUT-4 translocation leading to increased insulin sensitivity. Proposed targeted approach to investigate the active chemical molecule/s with ability to counteract insulin resistance from selected antidiabetic plants and optimize their biological efficacy by chemistry-based approaches.

PI: Dr. Akhilesh Tamrakar

Scientist, Biochemistry

Funding agency: ICMR

Approved budget: Rs. 09.60 lakh

Role of innate immune component in inflammation induced insulin resistance

The objectives of proposed project are to evaluate the effect of chronic and acute activation of innante immune components (PRRs) on insulin action in major insulin-sensitive cells under *in vitro* conditions, to determine major inflammatory pathways activated and their role in induction of tissue specific insulin resistance and to establish innate immune components as therapeutic target for insulin resistance and related metabolic disorders.

PI: Dr. Akhilesh Tamrakar

Scientist, Biochemistry

Funding agency: DST, SERB

Approved budget: Rs. 17.60

To study the activation of glial cells in chronic hypertension

Project aims to study the role of hypertension in glial cell activation and neuroinflammation in experimental models of renovascular hypertension and endocrine hypertension. To find out the role of Renin angiotensin system (RAS) in glial cell activation and neuroinflammation, the effect of ACE inhibitor/AT1 receptor blocker on astrocytes and microglia will be studied.

PI: Dr. Kashif Hanif

Scientist, Pharmacology Division

Funding agency: DBT

Approved budget: Rs. 28.00 lakh

Antioxidant capacity of astrocytes and neurotrophic factors in aging: Age and gender analysis (National initiative on Glial cell research in health and diseses

Brain is most susceptible to oxidative stress. Astrocytes and neurotrophic factors play significant role in neuroprotection. The present proposal intends to evaluate the morphological, historical alterations, antioxidant capacity of astrocyte and neurotrophic factors in aging. Study will be perform in cerebral cortex, hippocampus and mid brain of different age groups of both genders.

PI: Dr. Sarika Singh

Scientist, Toxicology Division

Funding agency: DBT

Approved budget: Rs. 39.77 lakh

Novel genetic and epigenetic targets for breast cancer prevention and therapy: A mechanistic approach with bioactive dietary supplements

The proposed study aim to evaluate the epigenetic and genetic mechanism involved in the reactivation of tumor suppression genes such as *p53*, *$p21^{WAF1/CIP1}$ (p21)* and *$p16^{INK4a}$(p16)* by combination of bioactive dietary supplements in estrogen receptor-positive [ER(+)] and estrogen receptor-negative [ER(-)] human breast cancer cells and study of proteiomics profile of breast cancer prevention and project also aim to seek novel epigenetic targets of bioactive food components in ER(+) and ER (-) human breast cancers through the Methylated-CpG Island Recovery Assay (MIRA) coupled Microarray.

PI: Dr. Syed Musthapa M.

Senior Scientist, Endocrinology Division

Funding agency: DST

Approved budget: Rs. 23.00 lakh

Regulation of Pancreastatin: A vival approach to control diabetes

The specific aims of the proposed project are synthesis of PST inhibitor peptides, development of diabetic animal models, pharmacological activity analysis, mechanism of action and evaluation of pharmacokinetic and metabolic profile.

PI: Dr. Jiaur R. Gayen

Scientist, Pharmacokinetics & Metabolism Division

Funding agency: DBT

Approved budget: Rs. 41.19 lakh

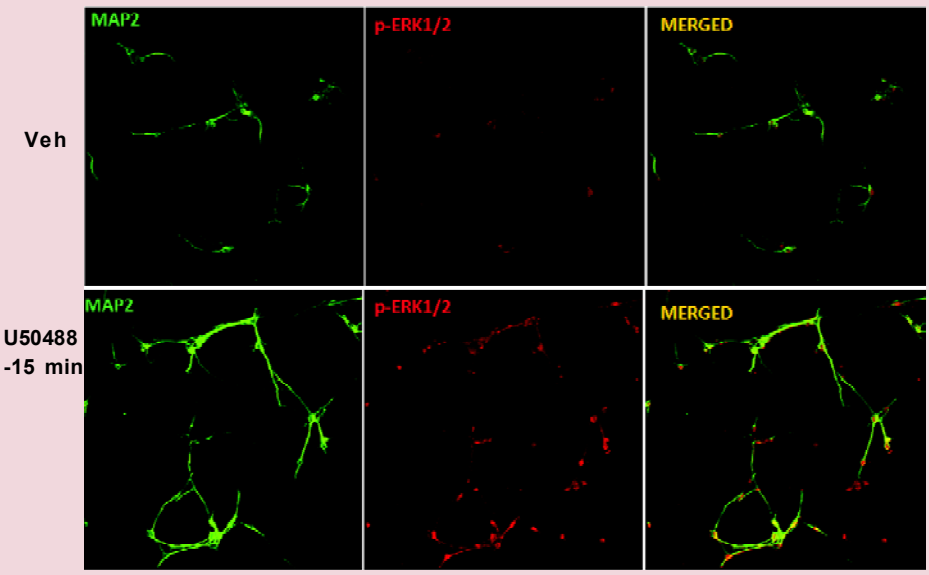
New Facilities Established

Perkin Elimer, Spectrum -II FTIR (Range: 4000-450 cm-1)

Primary neuronal culture for screening novel drug candidates.

A new model system has been developed to screen the novel drug candidate for the treatment of neuropathic pain and neuro-inflammatory diseases. This is one of the most relevant and useful model system that are being used for drug screening against GPCRs and neurotrophin receptors that are implicated in Neuropathic conditions.

Following is an example picture where primary cortical neurons prepared from neonatal (post natal day 1) mice and treated for 15 min with or without kappa opioid receptor (KOR) selective agonist U50488. Thereafter, cells were stained with pan neuronal marker MAP2 and Phopho-ERK1/2 (pan activation marker of KOR expressing neurons). This picture illustrates that primary cortical neurons shown below are healthy and functional, which can also be used for drug screening.



Some Important Publications

(April - September 2012)

Biological Sciences

Authors	Title	Journal, Vol., Issue, Page No.	IF (2011)
Tripathi, Sushil K.; Goyal, Ritu; Kashyap, Mahendra P.; Pant, Aditya B.; Haq, Wahajul; Kumar, Pradeep; Gupta and Kailash C	Depolymerized chitosans functionalized with bPEI as carriers of nucleic acids and tuftsin-tethered conjugate for macrophage targeting	**Biomaterials, 2012,** 33 (16), 1209-4219	**7.404**
Singodia, D; Verma, A; Verma, RK and Mishra, PR	Investigations into an alternate approach to target mannose receptors on macrophages using 4-sulfated N-acetyl galactosamine more efficiently in comparison with mannose-decorated liposomes: An application in drug delivery	**Nanomedicine-Nanotechnology Biology and Medicine**, **2012**, 8 (4), 468 - 477	**6.692**
Goyal, M ; Singh, P; Alam, A ; Das, SK ; Iqbal, MS; Dey, S ; Bindu, S; Pal, C; Das, SK; Panda, G and Bandyopadhyay, U	Aryl aryl methyl thio arenes prevent multidrug-resistant malaria in mouse by promoting oxidative stress in parasites	**Free Radical Biology and Medicine, 2012**, 53 (1) 129-142	**5.423**
Gupta, R; Kushawaha, PK; Samant, M; Jaiswal, AK; Baharia, RK and Dube, A	Treatment of *Leishmania donovani*-infected hamsters with miltefosine: Analysis of cytokine mRNA expression by real-time PCR, lymphoproliferation, nitrite production and antibody responses	**Journal of Antimicrobial Chemotherapy**, **2012**, 67(2), 440 - 443	**5.068**
Kashyap, VK; Gupta, RK; Shrivastava, R; Srivastava, BS; Srivastava, R; Parai, MK; Singh, P; Bera, S and Panda, G	*In vivo* activity of thiophene-containing trisubstituted methanes against acute and persistent infection of non-tubercular *Mycobacterium fortuitum* in a murine infection model	**Journal of Antimicrobial Chemotherapy**, **2012**, 67(5), 1188 - 1197	**5.068**
Pawar, VK; Kansal, S; Asthana, S and Chourasia, MK	Industrial perspective of gastroretentive drug delivery systems: Physicochemical, biopharmaceutical, technological and regulatory consideration	**Expert Opinion on Drug Delivery**, **2012,** 9(5), 551-565	**4.896**
Ashutosh, Garg; Mansi, Sundar Shyam, Duncan, Robert; Nakhasi, Hira L. and Goyal, Neena	Downregulation of mitogen-activated protein kinase 1 of *Leishmania donovani* field isolates is associated with antimony resistance	**Antimicrobial Agents and Chemotherapy, 2012,** 56 (1), 518-525	**4.841**
Malik, Ritu; Venkatesh, K S; Dwivedi, Anil Kumar and Misra, Amit	Episodic transdermal delivery of testosterone	**Molecular Pharmaceutics, 2012,** 9 (4), 1537-1543	**4.782**
Verma, Rahul Kumar; Mukker, Jatinder Kaur; Singh, Ravi Shankar Prasad; Kumar, Kaushlendra; Verma, Priya Ranjan Prasad and Misra, Amit	Partial biodistribution and pharmacokinetics of isoniazid and rifabutin following pulmonary delivery of inhalable microparticles to rhesus macaques	**Molecular Pharmaceutics, 2012,** 9 (4), 1011-1016	**4.782**

Chemical Sciences

Authors	Title	Journal, Vol., Issue, Page No.	IF (2011)
Kumar, A; Gupta, MK and Kumar, M	L-Proline catalysed multicomponent synthesis of 3-amino alkylated indoles via a Mannich-type reaction under solvent-free conditions	**Green Chemistry**, **2012**, 14(2), 290 - 295	**6.320**
Sashidhara, K; Kumar, A; Agarwal, S; Kumar, M; Kumar, B and Sridhar, B	A simple and efficient access to new functionalized 4-Phenacylideneflavenes	**Advanced Synthesis & Catalysis**, **2012**, 354 (6), 1129 - 1140	**6.048**
Pulukuri, KK and Chakraborty, TK	Stereoselective synthesis of the monomeric unit of actin binding macrolide rhizopodin	**Organic Letters, 2012**, 14(11), 2858 - 2861	**5.962**
Tyagi, V; Khan, S; Giri, A; Gauniyal, HM; Sridhar, B and Chauhan, PMS	A ligand-free Pd-catalyzed cascade reaction: An access to the highly diverse Isoquinolin-1(2H)-one derivatives via Isocyanide and Ugi-MCR synthesized amide precursors	**Organic Letters, 2012**, 14 (12), 3126 - 3129	**5.962**
Arya, Ajay; Shrikant, Sharma; Munna Prasad, Gupt; Vikas, Bajpai; Hamidullah; Brijesh, Kumar; Mahabir Prasad, Kaushik; Rituraj, Konwar; Ravi Sankar, Ampapathi and Rama Pati, Tripathi	Diversity oriented synthesis of pyran based polyfunctional stereogenic macrocyles and their conformational studies	**Organic Letters, 2012,** 14 (17), 4306 - 4309	**5.962**
Arigela, RK; Mandadapu, AK; Sharma, SK; Kumar, B and Kundu, B	Cascade intermolecular Michael addition-intramolecular azide/internal alkyne 1,3-dipolar cycloaddition reaction in one pot	**Organic Letters, 2012**, 14 (7), 1804 - 1807	**5.962**
Reddy, MS; Kumar, YK and Thirupathi, N	A new synthesis of gamma-Butyrolactones via AuCl3- or Hg(II)-catalyzed intramolecular hydroalkoxylation o 4-Bromo-3-yn-1ols	**Organic Letters, 2012**, 14(3), 824 - 827	**5.962**
Verma, Alok K; Singh, Himanshu; Satyanarayana, Mavurapu; Srivastava, Swayam P; Tiwari, Priti; Singh, Amar B; Dwivedi, Anil K; Singh, Shio K; Srivastava, Mukesh; Nath, Chandishwar; Raghubir, Ram; Srivastava, Arvind K and Pratap, Ram	Flavone-based novel antidiabetic and antidyslipidemic agents	**Journal of Medicinal Chemistry, 2012,** 55(10), 4551-4567	**5.248**
Tripathi, R P; Bisht, S S; Ajay, A; Sharma, A; Misra, M and Gupt, M.	Developments in chemical approaches to treat tuberculosis in the last decade	**Current Medicinal Chemistry**, **2012,** 19(14), 488-517	**4.859**

PATENTS

(April to September, 2012)

Patents Granted Abroad				
1.	US Patent No.	8188143	Date of Grant	29-05-2012
	Title	Naturally occurring coumarins and their precursors as acetycholine esterase inhibitors		
	Inventors	Janaswamy Madhusudhana Rao, B. Chinaraju, P.V. Srinivas, K.S. Babu, Jhillu Singh Yadav, K. V. Raghavan, H. K. Singh, & Chandishwar Nath		
2.	Japanese Patent No.	4640141	Date of Grant	02-03-2012
	Title	Oxy substituted flavones as antihyperglycemic and antidyslipidemic agents		
	Inventors	Ram Pratap, Mavurapu Satyanarayana, Chandeshwar Nath, Ram Raghubir, Anju Puri, Ramesh Chander, Priti Tiwari & Brajendra K Trpathi		
	Supporting Staff	Ashok Kumar Khanna		
Patents Granted in India				
1.	Patent No.	253045	Date of Grant	20-06-2012
	Title	Novel ester derivatives of dihydroartemisinin		
	Inventors	Chandan Singh, Sandeep Chaudhary & Sunil Kumar Puri		
	Supporting Staff	Shashi Rastogi, Akhilesh Kumar Srivastava & Kamlesh Kumar Singh		
2.	Patent No.	252167	Date of Grant	30-04-2012
	Title	Oxy substituted flavones/chalcones as antihyperglycemic and antidyslipidemic agents		
	Inventors	Ram Pratap, Mavurapu Satyanarayan, Chandishwar Nath, Ram Raghubir, Anju Puri, Ramesh Chander, Priti Tiwari, Brajendra Kumar Tripathi & Arvind Kumar Srivastava		
Patents Filed Abroad				
1.	US Patent App. No.	13/460472	Date of filing	30-04-2012
	Title	Pharmaceutical compositions useful as acetylcholineestrase inhibitors		
	Inventors	JanaSwamy Madhusudhan Rao, B Chinaraju, P V Srinivas, K S Babu, J S Yadav, K V Raghvan, H K Singh & Chandishwar Nath		
2.	PCT App. No.	PCT/IN2012/000301	Date of filing	25-04-2012
	Title	Bioactive fractions and compounds from *Dalbergia sisso* for the prevention or treatment of osteo-health related disorders.		
	Inventors	Rakesh Maurya, Preety Dixit, Ritu Trivedi, Vikram Khedgikar, Jyoti Gautam, Avinash Kumar, Divya Singh, Shelendra Pratap Singh , Wahajuddin, Girish Kumar Jain & Naibedya Chattopadhyay		
	Supporting Staff	Satish Chandra Tiwari, Bendangla Chagkija & Priyanka Kushwaha		
Patents Filed in India				
1.	Patent App. No.	1312DEL2012	Date of filing	30-04-2012
	Title	Short antimicrobial peptides with high therapeutic value and antileishmania activity		
	Inventors	Jimut Kanti Ghosh, Sarfuddin, Praveen Shukla, Nirpendra N Mishra, Sandhya R Dungdung, Aparna Gomes, Syamal Roy, Prasant Ghosh & Shamik Bhattacharya		
2.	Patent App. No.	1206DEL2011	Date of filing	25-04-2012
	Title	Bioactive fractions and compounds from *Dalbergia sisso* for the prevention or treatment of osteo-health related disorders		
	Inventors	Rakesh Maurya, Preety Dixit, Ritu Trivedi, Vikram Khedgikar, Jyoti Gautam, Avinash Kumar, Divya Singh, Shelendra Pratap Singh , Wahajuddin, Girish Kumar Jain & Naibedya Chattopadhyay		
	Supporting Staff	Satish Chandra Tiwari, Bendangla Chagkija & Priyanka Kushwaha		

Honours & Awards

(April to September, 2012)

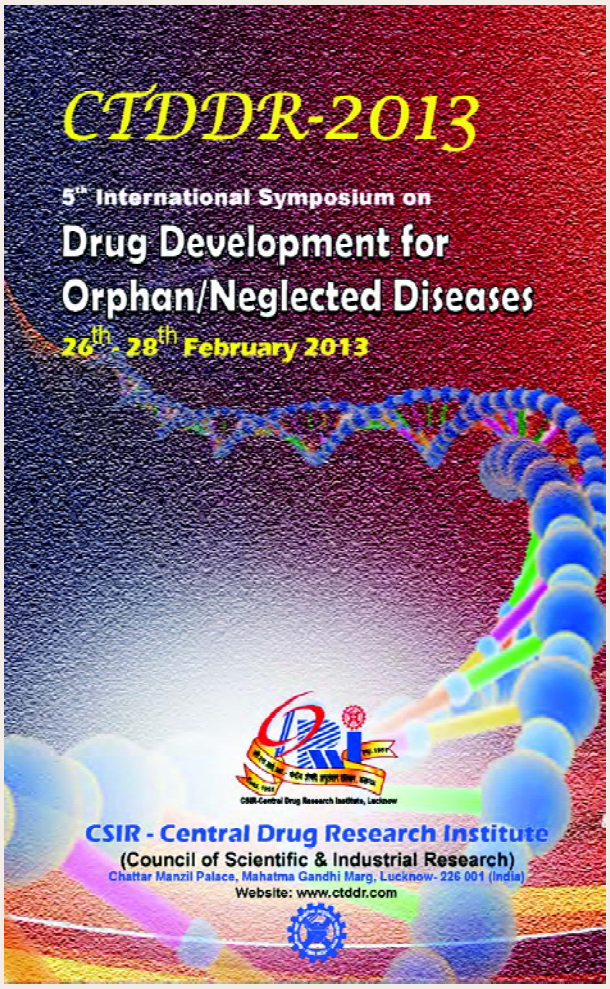
Dr Arun K Trivedi
NASI Young Scientist Platinum Jubilee Award 2012

Dr A K Shaw
Prof DP Chakraborty 60th Birth Anniversary Commemoration Award of the Indian Chemical Society for the year 2010

Mr Wahajuddin
- Young Pharmaceutical Analyst Award, 2012 of Indian Drug Manufacturer Association
- DBT-CREST Award for the year, 2011-12

Dr K V Sashidhara
INDO-US research fellowship, 2012 by Indo-US Science and Technology Forum (IUSSTF) and DST Govt of India.

Announcement



Theme of the symposium

The 5th International symposium entitled "CTDDR-2013: Drug Development for Orphan/Neglected Diseases" is being organized in the spirit of the 1st, 2nd, 3rd & 4th CTDDR (2001, 2004, 2007 & 2010) symposia from 26th 20th February 2013.This 5th CTDDR will highlight cutting-edge advances in Drug Discovery and Development for orphan, neglected and tropical diseases. The three-day event will feature keynote lectures/posters by a number of international and national scientists dealing with both basic science and translational biomedical research. The 5th CTDDR 2013 will also provide a forum for in-depth assessment of the challenges involved in the drug development for orphan/neglected diseases.

Discussion Topics-of CTDDR 2013

- Target identification & validation
- Computational approaches
- RNA/genomics & proteomics opportunities
- Fragment-based drug discovery
- NMR, X-ray crystallography and LCMS for drug discovery
- ADME-Tax, aligned medicinal chemistry
- Small molecule inhibitors & natural products
- Molecular modeling & natural products
- Molecular modeling & SAR
- Natural product inspired templates
- Repositioning of drugs
- New chemical entities
- Chirality and drug design
- Automated synthesis
- Novel methodologies for drugs and intermediate
- Chemical biology, system biology and omics in drug design
- Hits and leads towards compound library based screening
- Organo-catalysts and biocatlysis for drug discovery
- Modification to improve small molecule drug delivery
- Novel approaches for adjuvants, aptamers and drug conjugates
- Mounting drug resistance newer therapies and deliveries
- Mining cell division for new anti-infective drugs
- Biochemical & immunological approaches
- Endoparasiticide and endtectocide research
- Pest control remedies to combat infectious diseases
- Open source approaches for drug discovery
- Drug development/IPR issues

Correspondence
Dr. Bijoy Kundu
Organizing Secretary, CTDDR-2013
CSIR-Central Drug Research Institute, Chattar Manzil Palace, M.G. Marg,Lucknow 226 001, India
Phone : +91 (0522) 3298092, PABX: +91 (0522) 2612411-18, Extn. 4383
Fax: +91 (0522) 2628493, 2623405
Email : b_kundu@cdri.res.in, ctddr2013@gmail.com

CSIR-CDRI (New Campus), Janki Puram Vistar, Sitapur Road, Lucknow

Major Events Organized

Scientific and Technical Awareness Programme on Animal Experimentation

The Division of Laboratory Animals, at CSIR-Central Drug Research Institute, Lucknow organized the 2nd Scientific and Technical Awareness Program on Animal Experimentation" from March 26-30, 2012, as a part of human resource development programme of institute. The event was aimed at providing a preliminary knowledge on application of humane methods of experimental animal care, handling, restraint and related animal techniques to the scientific and technical staff of institute including research fellows and project assistants engaged in animal research in various biological disciplines enabling them to follow welfare issues during course of animal experiments. This programme was also considered as an important pre-requisite to obtain uniform and reliable research findings to be generated on experimental animals.

Practical Training Course on 2D Gel Electrophoresis

A practical training course on 2D gel electrophoresis was held at Proteomics and Cancer Biology Lab of Dr. Arun Kumar Trivedi, Scientist DTDD Division, CSIR-CDRI from 27-28 March 2012. During this training course both theoretical as well as hands on training for the 1D and 2D gel electrophoresis were given. These included preparing samples for 2D gel electrophoresis, separating them on 1st and 2nd dimension gel electrophoresis followed by staining the gel with coomassie blue staining to visualize the electrophoresed protein spots. In this course total of 19 students from different divisions of CSIR-CDRI and CSIR–CIMAP participated.

National Technology Day Celebration

CSIR-CDRI celebrated the National Technology Day by organizing a distinguished lecture by Prof. Animesh Chakravorty, Emeritus Professor and Ramanna Fellow, Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Kolkata and President of Chemical Research Society of India. Professor Chakravorty shed the light on "A chemist's Bit of Historical Reflections on Technology Day." During his lecture he mentioned that chemistry is the mother of all technological developments. All historical reflection of technology is based on the progress of the chemistry since the ancient era to the modern era. On this occasion, Chief Guest Prof Animesh Chakravorty and Dr T.K. Chakraboty, Director, CSIR-CDRI released the Vol 3, Issue 2 of CSIR-CDRI Newsletter. The program was concluded with the vote of thanks proposed by Shri Vinay Tripathi, Head Division of S&T Management.

Demonstration cum Training on Scopus

Scopus has emerged as a possibly viable substitute of web of Science's citation analysis tool. Elsevier has provided trial access of Scopus till May 31, 2012. A one day training program was organized for a demo on Scopus and training about using analytical tools and calculating Citation indexes and H-graph etc on May 22, 2012.

Wednesday Lecture Series

In the pursuit of promotion of high quality research and to provide a platform for exchange of ideas among researchers and to create an interactive learning environment for research students of this Institute, a Wednesday Lecture Series has been initiated from June 2011. Under this initiative, in continuation from previous year a scientist of this Institute delivers a lecture on his field of expertise and interacts with other researchers on every wednesday.

National Workshop of the CPCSEA on Animal Welfare & Ethics for CPCSEA Nominees and IAEC Members"

A one-day workshop approved and sponsored by the Ministry of Environment and Forests, Govt. of India was organized on July 13, 2012. The aim of Workshop was to sensitizing the research and academic institutions engaged in performing animal experiments for the benefit of mankind and scientific pursuit. Sensitization of institutions will take place through the members of respective institutional animal ethics committees and CPCSEA nominees who are discharging the duties of reviewing and approval of animal experiment protocols. About 40 participants from 20 different Institutions/ Universities attended the workshop.

Workshop on Web of Science and other Life Science Related Information Solutions of Thomson-Reuters"

A one-day workshop was organized in CSIR-CDRI on July 24, 2012 in association with Thomson-Reuters. The aim of workshop was to get acquainted the researchers with Web based information solutions related to Life Sciences research.

CSIR-CDRI-BD, Centre of Excellence, workshop on Flowcytometry applications.

CSIR-CDRI-BD Centre of Excellence in Flow Cytometry has organized a three day hands on workshop from July 30-August 1, 2012. The workshop was aimed to give the exposure to research fellows on Flowcytometry related techniques. Experimental hands on was covered on the topics related to Cell cycle analysis, Apoptosis experiment using Annexin V/PI staining and Sorting of cell. Dr. Madhu Dikshit, Chief Scientist, CSIR-CDRI, delivered a talk on "Flow cytometry based Apoptosis Assays" during the workshop.

Sadbhawana Diwas

"Sadbhawana Diwas" was celebrated in the institute on August 17, 2012 with a theme to promote national integration and communal harmony among people of all religions, languages and regions. The idea behind

observance of Sadbhawna Diwas is to avoid violence and to promote goodwill among the people. All the employees of CSIR-CDRI participated in this occasion and took the "Pledge of Sadbhawana" that they will work for the emotional oneness and harmony of all the people of India regardless of caste, region, religion or language.

Symposium on "Sophisticated Instruments & their Role in Drug Discovery"

A symposium was organised on "Sophisticated Instruments & their role in Drug Discovery" on August 31, 2012. Chief Guest, Padmasri Dr. Nityanand delivered a lecture on "Some re-collections & reflections of CDRI". Prof. Raja Roy, CBMR, Lucknow talked about "Metal ions as cofactors for aggregation of therapeutic peptide, salmon Calcitonin". Dr. Manoj Barthwal, CDRI, Lucknow discussed on "Biological studies on CDRI compound-S007-867". Dr. Ravi S. Ampapathi, CDRI, lucknow delivered a lecture on "Advancements of Instrumentation & their impact on Drug Discovery" and Dr. Sanjeev Kanojiya, CDRI, Lucknow delvered a detaled talk on "Mass Spectrometry & Its applications in Drug Discovery".

Researchers from African Countries

Prof. Lawrence Onyango Arot Manguro, from Chemistry Department, Maseno University, Maseno, Kenya received the C.V. Raman International Fellowship for African Researcher for Post Doctoral Fellowship sponsored by FICCI, New Delhi. He has worked in the Institute with Dr. Prem Prakash Yadav, Scientist, Medicinal & Process Chemistry Division from 11th May, 2012 to 10th August, 2012.

Dr. Samuel Adetunji Onasanwo, from Department of Physiology, Faculty of Basic Medical Sciences, College of Medicine, University of Ibadan, Nigeria conducted his Postdoctoral Research under RTFDCS Fellowship sponsored by CICS, Chennai. He has in the Institute with Dr. Gautam Palit, Scientist, Pharmacology Division from 3rd November, 2011 to 1st July, 2012.

Distinguished Visitors & Lectures

Distinguish Lecture Series

Professor Debi P Sarkar,
Delhi University, Delhi
"Targeted gene delivery to liver cells using engineered Sendai viral envelopes: From basic science to a preclinical experience"
26.04.2012

Prof. Animesh Chakravorty,
Emeritus Professor and Ramanna Fellow, Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Kolkata
"A chemist's bit of historical reflections on Technology Day"
11.05.2012

Prof. SK Shankar,
National Institute of Mental Health and Neurosciences, Bangalore
"A peep into the biology of a few common infections we see"
15.06.2012

Prof. Yoshinori Yamamoto,
Prof. Emeritus, Executive Research Coordinator, WPI Advanced Institute for Materials Research Tohoku University, Japan
"Total synthesis of Gambierol and Brevetoxin B and computational study"
01.08.2012

Prof. William Kerr,
Empire Scholar & Murphy Family Professor of Childrens Oncology Research, Microbiology, Immunology & Pediatrics, SUNY Upstate Medical University, New York, USA
"Role of SHIP in cancer, inflammation and stem cell biology"
20.09.2012

Other Visitors and Lectures Delivered

Speaker & Address	Title of Lecture	Date
Dr Dinesh C Joshi, Department of Neuroscience, Univ. of Wisconsin Madison, USA	"Mitochondrial functions and dynamics: Therapeutic targets in eurodegeneration"	03.04.2012
Dr Akash Kumar Jain, Department of Organic Chemistry Indian Institute of Science, Bangalore, India	"Design and development of new anticancer drugs and other therapeutic agents targeting various DNA structures"	10.04.2012
Dr Paolo Soldati, Technical Director, Silicon Biosciences, Italy	"Sorting and recovery of rare cells by DEPArray: A unique automated platform to enable isolation of single 100% pure circulating tumor cells and other biomedical research-relevant applications"	18.04.2012
Dr Mukesh Samant, Research Centre in Infectious Disease, Department of Microbiology and Immunology, Univ Laval, Quebec (QC) Canada	"Developmental regulation of the translation initiation factor eI2alpha of *Leishmania* by a novel mechanism involving N-terminal methionine excision"	30.04.2012
Dr Syamal Roy, Department of Infectious Diseases & Immunology Division, Indian Institute of Chemical Biology, Kolkata	"Poor stability of peptide-MHC complex may specify defective cellular immunity in leishmaniasis"	24.05.2012
Dr Amit Sengupta, General Secretary, All India Peoples Science Network	"GOOD AND BAD MEDICINE: The genesis of intellectual property rights and their effects on healthcare and innovation"	15.06.2012
Dr Royle Fernadopulle, Discoverx Corp. Fremont, CA, USA	"Innovative kinase assays for inhibitor discovery and selectivity profiling"	21.06.2012
Dr Supriya Shivakumar, Global Manager for the Functional Genomics, Sigma Life Sciences, St. Louis, USA	"Innovative technologies for gene regulation"	25.06.2012
Mr Vineet Gopal, Executive Director, Gentech Marketing and Distribution (P) Ltd, New Delhi	"Comprehensive laboratory animal monitoring system (CLAMS)"	05.07.2012
Dr Shikhar Mehrotra, Dept. of Surgery, Microbiology & Immunology, Medical Univ., of South Carolina, USA	"Targeting tyrosinase in anti-tumor and anti-self immunity"	16.07.2012
Dr Chaitanya Saxena, CEO, Shantani Biotech	"Advanced chemical proteomics approaches for deconvoluting drug targets from intact biological systems"	17.08.2012

Glimpses of CSIR-CDRI

(New Campus)

Deputations Abroad

Scientists	Country	Purpose of visit	Duration
Dr A K Saxena	Malaysia	To participate & deliver a plenary lecture in a workshop at International Medical University	12th to 14th June 2012
	Singapore	To participate in workshop	15th to 17th June 2012
Mr Pradeep Kumar	Nepal	To attend "Workshop cum Training on Science Journalism/Science Writing"	14th to 20th June 2012
Dr Brijesh Kumar	Hungary	Visited Research center for Natural Science, Budapest under INSA, International Collaboration / Exchange Programme	31st July to 27th August 2012
Dr Koneni V Sashidhara	USA	To undertake research at The Scripps Institute of Oceanography, Center for Marine Biotechnology and Biomedicine, University of California	27 th July 2012 to 26th July 2013
Dr Bijoy Kundu	USA	Visited for Factory Acceptance Test of the automated Compound Storage and retrieval system at M/S Brooks Automation	20th to 24th August 2012
Dr Sanjay Batra	USA	Visited for Factory Acceptance Test of the automated Compound Storage and retrieval system at M/S Brooks Automation	20th to 24th August 2012

Staff News

(April - September 2012)

New Scientist In-charge of Divisions

Dr B Kundu, Chief Scientist,
SAIF Division

Mr N K Agarwal, Principal Scientist,
Instrumentation Division

Nomination

Dr (Mrs) Saman Habib, Principal Scientist,
MSB Division as Secretary,
CDRI Research Council

New Joinings

Shri Jagdish Prasad,
Assistant (G), Gr I, E-I Section

Mr Chandshekhar Yadav,
Technical Assistant, Laboratory Animal Division

Mr Sudhakar Yadav,
Technical Assistant, Toxicology Division

Mr Tofan Kumar Rout,
Technical Assistant, SAIF

Mr Atul Krishna,
Technical Assistant, Fermentation Technology Division

Mr Deepak,
Technical, Assistant, Pharmaceutics Division

Mr Madhukar Saroj,
Technical Assistant, Laboratory Engineering Services Division

Ms. Pooja Soni,
Technical Assistant, SAIF Division

Mr Ashan Manhas,
Technical Assistant, Parasitology Division

Ms Jaspreet Kaur Bagga,
Technical Assistant, Endocrinology Division
Mr Karthik R.,
Technical Assistant, Biochemistry Division
Mr Muruganantham M,
Technical Assistant, Division of S&T Management
Ms S Mehazabeen,
Technical Assistant, SAIF Division
Mr Talathoti Sandeep Kumar,
Technical Assistant, SAIF Division
Mr V Umamageswaran,
Technical Assistant, Microbiology Division
Mr Amar Deep Lakra,
Technical Assistant, Endocrinology Division

Promotions

Senior Principal Scientist to Chief Scientist

Dr C K M Tripathi
Fermentation Technology Division
Dr J K Saxena
Biochemistry Division
Dr M Abbas
Biometery and Statistics Division
Dr Rakesh Maurya
Medicinal & Process Chemistry Division
Dr Rakesh Shukla
Pharmacology Division
Dr Sudhir Kumar Sinha
Drug Target Discovery & Development Division
Mr Ashok Kumar Srivastava
Computer Division
Dr (Mrs) Alka Singh
Academic Affairs Unit
Dr (Mrs) Uma Roy
Biochemistry Division

Internal Transfers

Dr. (Mrs.) Manju Y.K., Scientist from DTDD to Microbiology Division
Mr Manish Singh, Electron Microscopy to DSTM

External Transfers

Mr. Sushil Kumar, Technician (1),
IHBT Palmapur to DSTM, CDRI Lucknow

Resignations

Shri Manoj Kumar, Executive Engineer, Division of Engineering Services
Mr. Abhishek Ramnani, Technician (I), DSTM

Superannuation

Dr D K Dikshit,
Chief Scientist, SAIF Division
Dr Gautam Palit,
Chief Scientist, Pharmacology Division
Mr Ravinder Singh,
Chief Scientist, Instrumentation Division
Dr (Mrs) Uma Roy,
Chief Scientist, Biochemistry Division
Dr (Mrs) Alka Singh,
Chief Scientist, Academic Affairs Unit
Mr Ashok Kumar Khanna,
Sr. Technical Officer, Biochemistry Division
Mr A K Sarkar,
Sr. Technical Officer (3), SAIF Division
Mrs Usha Kapil,
Principal technical Officer, Instrumentation Division
Mr Ramesh Singh,
Section Officer (G)
Mr Sagirul Islam,
Lab Assistant, Knowledge Resource Centre

Voluntary Retirement

Shri Shree Ram,
Principal Technical Officer, S&TM Division
Shri Dil Bhadur,
Bearer, Canteen

OBITUARY

Late Shri Maikulal Lodh
Late Shri Pradeep Kumar
Late Shri Tara Chand
Late Shri Ratan Kumar Sarkar

CSIR-CDRI Family convey their heartfelt condolences to the bereaved family

Padmashree
Dr B Mukharji
(1962)

Padmashree
Dr ML Dhar
(1971)

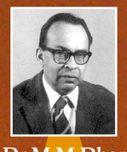
Padmashree
Dr AB Kar
(1972)

Padmashree
Dr Nityanand
(2012)

FICCI Award
(1999)

CSIR Technology Award for
Innovation
(2008 & 2009)

Dr B S Srivastava
(1984)



Dr M M Dhar
(1971)

Dr C M Gupta
(1985)

Dr D S Bhakuni
(1975)

Dr G P Datta
(1976)

Shanti Swaroop Bhatnagar Awardee

Dr Vinod Bhakuni
(2006)

Lead Products

Dr. Ashok Kumar
President R&D
Ipca Laboratories

Dr. Bansi Lal
President R&D
Calyx Chemicals &
Pharmaceuticals Ltd

Dr. MK Sahib
Director R&D (Biotech)
Wockhardt Research Centre

Alumni in leading Pharma Industries

Prof H Junjappa
GM-Technical
LGC Promochem Ltd.

Prof H Ila
Principal Advisor,
Jubilant Biosys Ltd

Contributions of CSIR-CDRI in CSIR@70