

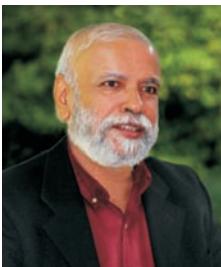


CSIR - CDRI

Newsletter



From the Director's Desk



It gives me immense pleasure to present the current issue of CSIR-CDRI newsletter which highlights significant achievements of the Institute during last six months. On the occasion of 70th CSIR Foundation Day Celebrations, 28th September 2012, a technology relating to promising lead molecule CDR914K058 for Fracture Healing was transferred to Kemxtree, a Nostrum Company under a collaborative cum licensing agreement. Significant progress has

been made in the development of candidate drugs and lead molecules. We published more than 320 research papers in 2012 with an average IF of 3.21, an all time high in the history of CSIR-CDRI. This includes 27 research papers having IF>5. The Department-Related Parliamentary Standing Committee on Science & Technology, Environment & Forests, on its recent study-visit to Lucknow during 21-22 January, 2013, appreciated the achievements of CSIR-CDRI for its significant contributions towards affordable healthcare for all. Institute scientists and research fellows received several prestigious awards including FNA, FNASC, Young Scientist awards. A total of nineteen 12th plan projects, including 5 as CDRI nodal and 14 as CDRI participating lab projects have been initiated. Apart from the above, 26 new Grant-in-Aid projects, funded by various agencies including DBT, DST, ICMR, MoES, DRDO etc, have been initiated. Shifting of major part of the 62 years old functional institute to the new premise has been accomplished. Almost all the labs of Pre-clinical, Biological Sciences, Technical Services / Support Divisions/Units and Administrative establishments have been shifted to the new premise and functioning with vigour.

Considering the urgent need to have well planned policies and their implementation in true sense to further augment the performance of the Institute, to face newer challenges, to curtail the expenditure, for optimum utilization of available resources, committees are being formed comprising mainly younger generation. New HR policy with a vision 'Persistently develop, revise/update competency profiles to meet changing demands' has already been evolved to address the manpower related issues on priority basis. Similarly, a Translational Research Team is being constituted to give a new shape to the ongoing new drug development program of the Institute. We are fortunate to have young enthusiastic human resource to take up newer responsibilities in the Institute in its pursuit to serve the nation. I appreciate the whole-hearted support extended by all members of the staff and look forward for their continued affiliation.

With best wishes

(Tushar Kanti Chakraborty)

Highlights of Achievements

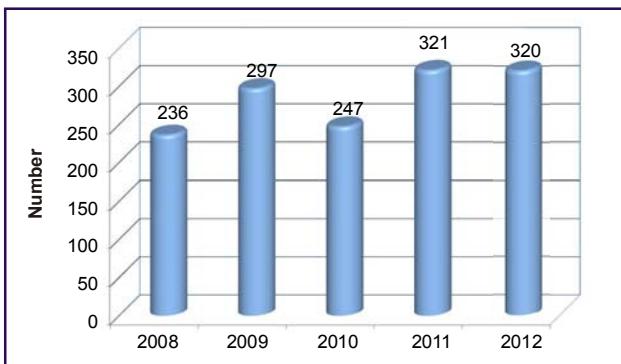
| | |
|--|--|
| Technologies Licensed to Industries | : 2 (CDR914 K058 & L-Ephedrine and Pseudo-ephedrine) |
| Publications in SCI Journals (2012) | : 320 (321) |
| Average Impact Factor | : 3.21 (2.84) |
| Publications with >5 Impact Factor | : 24 (22) |
| Patents (2012) | |
| Filed Abroad | : 6 (7) |
| Filed in India | : 6 (10) |
| Granted Abroad | : 4 (18) |
| Granted in India | : 5 (2) |
| Ph.D. Thesis Submitted (2012) | : 60 (56) |
| New Projects Initiated (2012-13) | |
| Network Projects with CSIR-CDRI as Nodal Lab | : 5 |
| Network Projects with CSIR-CDRI as Participating Lab | : 14 |
| Grant-in-Aid Projects Initiated (2012-13) | : 27 (19) |
| Contract Research Undertaken (2012-13) | : 02 (3) |
| Total External Budgetary Resources | : Rs. 17.43 Cr (16.86) |

Provisional data as on 31/03/2013, Previous year data is given in bracket

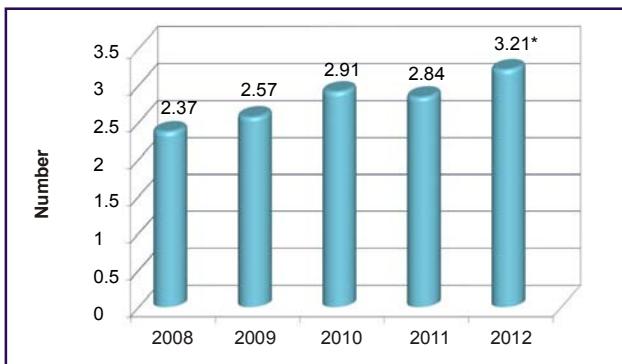


PERFORMANCE REPORT

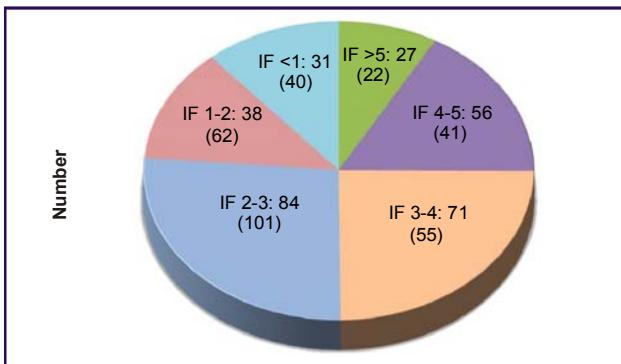
Total No. of Publications



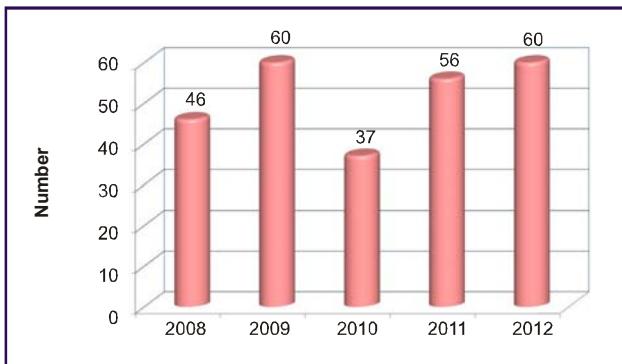
Average Impact Factor of Publications



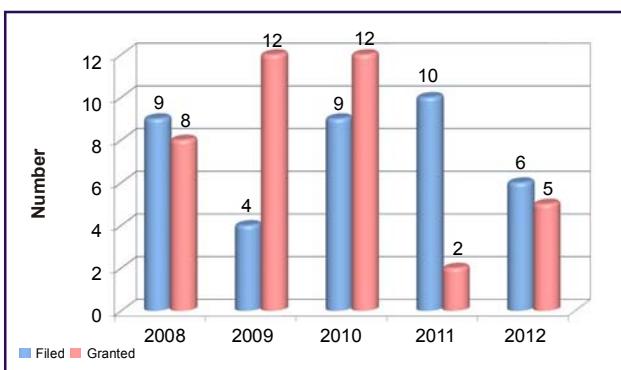
IF wise Number of Publications 2012



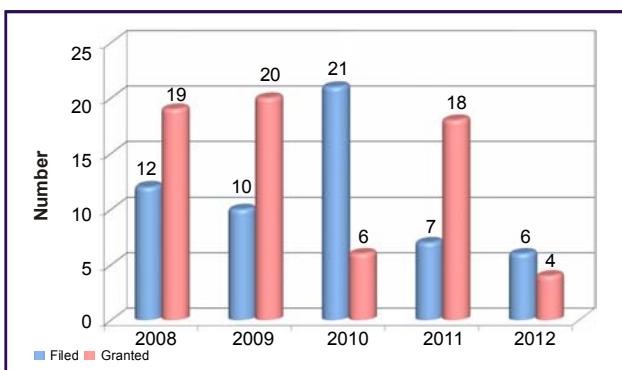
Ph.D. Thesis Submitted



Indian Patents



Foreign Patents



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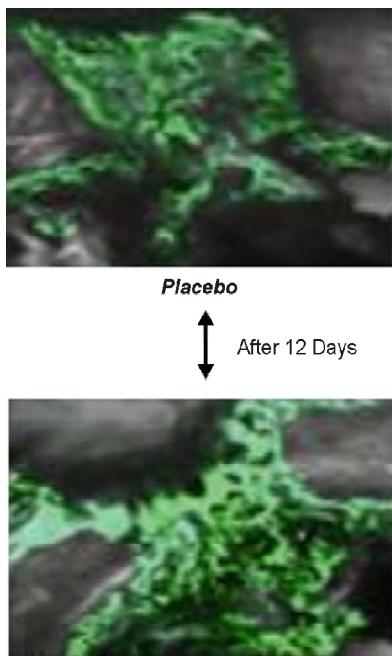
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CONTRIBUTIONS TO SCIENCE & TECHNOLOGY

Technologies Transferred

Plant Derived Single Molecule CDR914K058 Rapid Fracture Healing Agent

CSIR-CDRI has isolated a novel lead molecule K058 from a plant source and found rapid bone fracture healing anabolic activity that represents a new strategy in addressing primary and secondary osteoporosis.



CSIR-CDRI has signed a Research and licensing agreement on 28 September 2012 with M/s Kemxtree LLC, USA (a Nostrum Group company) during CSIR@70 year celebrations at IGIB campus, New Delhi for further development of the molecule as rapid fracture healing oral drug.

L-Ephedrine and Pseudoephedrine

Licensed to: BVM Pharma Limited, 312-313, 3rd floor MSX Tower-2nd Alpha commercial, Belt Sector, Alpha-01, Greater Noida

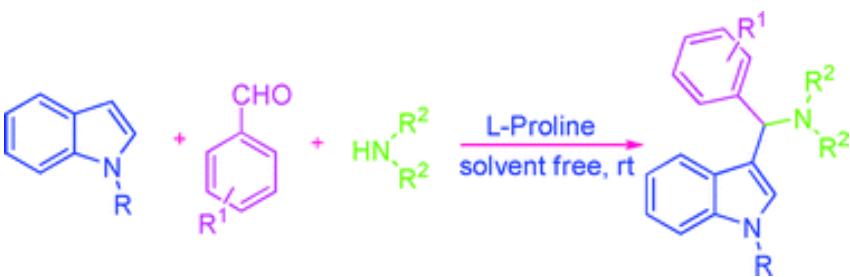
1. **Investigations into an alternate approach to target mannose receptors on macrophages using 4-sulfated N-acetyl galactosamine more efficiently in comparison with mannose-decorated liposomes: an application in drug delivery** (Singodia D, Verma A, Verma RK, Mishra PR. *Nanomedicine*, 2012, 8(4): 468-477,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

In this study the potential of 2 different ligands, i.e., palmitoyl mannose (Man-Lip) and 4-SO(4)GalNAc (Sulf-Lip) to target resident macrophages was investigated after surface decoration of Amphotericin B (AmB) loaded liposomes. In the case of Sulf-Lip, the 4-SO(4)GalNAc was adsorbed through electrostatic interaction on cationic liposomes, which was confirmed by change in zeta potential from $+48.2 \pm 3.7$ mV for Lip to $+12.2 \pm 1.3$ 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 reveal enhanced uptake of Sulf-

Lip in both J774 and RAW cell lines in comparison with the uptake of Man-Lip. Intracellular localization studies indicate that the fluorescence intensity of Sulf-Lip was much higher in comparison with that of Man-Lip and Lip formulations. Sulf-Lip and Man-Lip showed significantly higher localization of AmB at all time points in comparison with Lip ($P < 0.05$) after intravenous (IV) administration. The studies provide evidence that 4-SO(4)GalNAc possesses a promising feature for targeting resident macrophages and its application in the conditions of leishmaniasis is in the offing. **FROM THE CLINICAL EDITOR:** This *in vivo* study compares two different ligands to deliver Amphotericin B I(AmB) loaded liposomes to resident macrophages. Targeted approaches showed significantly higher localization of AmB at all time points in comparison to non-targeted liposomes, and future applications in leishmaniasis are already under preparation.

2 L-Proline catalysed multicomponent synthesis of 3-amino alkylated indoles via a Mannich-type reaction under solvent-free conditions (Atul Kumar, Maneesh Kumar Gupta and Mukesh Kumar, *Green Chemistry*, 2012, 14, 290-295, IF: 6.32)

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.



3. Non-aggregating solvatochromic bipolar benzo[f]quinolines and benzo[a]acridines for organic electronics (Atul Goel, Vijay Kumar, Salil P. Singh, Ashutosh Sharma, Sattey Prakash, Charan Singh and R. S. Anand, *Journal of Materials Chemistry*, 2012, 22, 30, 14880-14888, IF: 5.968)

A novel series of light emitting and thermally stable non-aggregating benzannulated quinolines and acridines were designed and prepared from ketene-S,S-acetal under mild conditions through C–C bond formation. Photophysical and electrochemical analyses of these bipolar N-heterocyclic compounds revealed intense solvatochromism due to the intramolecular charge-transfer character, exemplary for 9b, which covered PL ranging from blue (480 nm) to green (501 nm) to yellow (562 nm) to orange (589 nm) using aprotic solvents of varying polarity. Organic light emitting devices with a device configuration of ITO/PEDOT:PSS (40 nm)/NPB (20 nm)/(N-heterocyclic compound) (50 nm)/BCP (7 nm)/LiF (0.7 nm)/Al (200 nm) were successfully prepared. The optoelectronic properties of these compounds were altered by controlled tuning of donor–acceptor and aromatic π -conjugation in benzo[f]quinolines and benzo[a]acridines, which exhibited a low turn-on voltage with electroluminescence ranging from blue (6c: λ_{EL} 455 nm) to green (8a: λ_{EL} 496 nm) to yellow (11: λ_{EL} 545 nm) to red (9b: λ_{EL} 630 nm).

4. A new synthesis of γ -butyrolactones via AuCl(3) - or Hg(II) -catalyzed intramolecular hydroalkoxylation of 4-bromo-3-yn-1-ols. (Maddi Sridhar Reddy, Yalla Kiran Kumar, Nuligonda Thirupathi, *Organic Letters*, 2012, 14(3): 824-7, IF: 5.86).

An efficient conversion of 4-bromo-3-yn-1-ols to γ -butyrolactones via AuCl(3) -catalyzed electrophilic cyclization (hydroxyl-assisted regioselective hydration) in wet toluene is described. Various secondary and tertiary alcohols including benzylic systems were found to be equally reactive with moderate to excellent yields obtained in all cases.

CONTRIBUTIONS TO ECONOMY

Agreements Signed

| | Title | Industry | Signing Date |
|--|--|--|--------------|
| License Agreements | | | |
| 1 | A rapid bone fracture healing anabolic agent | Kemxtree LLC, USA | 28.09.2012 |
| 2 | L-PAC, ephedrine and pseudoephedrine technologies | BVM Pharma Ltd., Bulandshahar, UP | 11.03.2013 |
| Memorandum of Understanding for joint R&D | | | |
| 1 | Creating an enabling framework for technological interventions in MSME clusters | Alathur Pharmaceutical Manufacturers Association, Alathur, Kancheepuram | 11.10.2012 |
| 2 | <i>In vitro</i> cytotoxicity evaluation of anti-cancer activity of new natural molecules | C.S.M. Medical University, Lucknow | 21.11.2012 |
| 3 | To explore avenues for possible collaboration between CSIR-CDRI and ICT | Institute of Chemical Technology, Mumbai | 24.11.2012 |
| 4 | Association of single nucleotide polymorphisms in SERPINE 1 gene in patients with chronic periodontitis | Babu Banarasi Das College of Dental Sciences, Lucknow | 30.11.2012 |
| 5 | Role of E3 ubiquitin ligases in negative regulation of GCSFr signaling: Implication in myeloid leukemia | Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow | 24.01.2013 |
| Memorandum of Agreements | | | |
| 1 | Drugs against central body fatness and insulin resistance (high peri / post-menopausal prevalence). (RGYI) | DBT, New Delhi | 10.12.2012 |
| 2 | Investigation of effect of polysaccharide in modifying leishmanicidal potential of nanoparticulate system bearing chemotherapeutics agent | DBT, New Delhi | 17.01.2013 |
| Secrecy Agreements | | | |
| 1 | A phyto extract from plant A-4744/F004 which has shown osteoprotective activity by non-estrogenic osteogenic mode | ITC Limited, Kolkata | 11.09.2012 |
| 2 | Synthetic compound S002-333 & S007-867 for preventing platelet activation and adhesion in the patients of coronary artery disease and thrombotic cerebral stroke | Dr. Reddy's Institute of Life Sciences, Hyderabad | 24.12.2012 |
| 3 | Evaluation of data on inhalable micro-particles containing Isoniazid and Rifabutin | Simpex Pharma Pvt. Ltd., New Delhi | 09.01.2013 |
| Material Transfer Agreements | | | |
| 1 | Pig kidney cells (LLC-PK1) expressing human P-glycoprotein | RIKEN BRC, Japan | 09.08.2012 |
| 2 | P2NIL, pGOAL17, pGOAL19, pMN234, pMN252, pML597 and pCHARGE3 | Addgene, USA | 08.11.2012 |
| 3 | psPAX2, pMD2.G, Scramble shRNA, pLOX-CW-CRE, pLVTHM, pLKO.1-TRC, pLVUT-tTR-KRAB, pcDNA3.2/v5-DEST hGlut4, pSM1-1-1 | Addgene, USA | 08.11.2012 |
| 4 | GFP-p53, HA Ubiquitin | Addgene, USA | 29.11.2012 |
| 5 | 1884: Cdk2-HA; 1888: Cdc2-HA | Addgene, USA | 05.12.2012 |
| 6 | <i>Mycobacterial tuberculosis</i> H37Rv and single drug resistant strains | ATCC, USA | 14.01.2013 |
| 7 | Soluble antigen of <i>Leishmania donovani</i> (SLD) | Rajendra Institute of Technology & Sciences, Haryana | 23.01.2013 |
| 8 | Highly metastatic mouse mammary breast cancer cells. | Sir Peter MacCallum Department of Oncology, University of Melbourne, Australia | 30.01.2013 |
| 9 | Green Fluorescent tagged <i>Leishmania donovani</i> promastigotes | University of Hyderabad, Hyderabad | 06.02.2013 |
| 10 | Green Fluorescent tagged <i>Leishmania donovani</i> promastigotes | University of Colombo, Colombo, Sri Lanka | 23.03.2013 |

NEW PROJECTS UNDERTAKEN

Grant-in-Aid Projects

1. Biological evaluations, discovery of novel bioactive compounds and coordination of the MoES Project “Drugs from sea”.

Project proposes to explore marine flora/fauna and microbial biota for the identification of active compounds, their *in vivo* screening in suitable models, exploration of their action mechanisms, their chemical synthesis along with phase I and II clinical trials for the development of new drugs.



PI: Dr. Shakeel Ahmad

Funding agency: Ministry of Earth Sciences, New Delhi

Approved budget: Rs. 2207.27 lakh

2. Designed synthesis and biological evaluation of novel agents for management of benign prostatic hyperplasia.

Project proposes to design and synthesize novel dually competent compounds to target both androgen and a1- adrenergic receptors for the effective management of benign prostatic hyperplasia (BPH).



PI: Dr. V.L. Sharma

Funding agency: ICMR

Approved budget: Rs. 21.96 lakh

3. Functional characterization of fission yeast cleavage and polyadenylation factor subunit rna 14 and implication on cell cycle check point pathway.

Project aims to determine the role of Rna14 in checkpoint responses and their genetic interaction with the genes involved in DNA damage and mitotic checkpoint pathway. Results of project will improve our understanding on how proteins

involved in mRNA maturation can regulate the expression of genes associated with checkpoint pathway and how that affects the cell cycle progression.



PI: Dr. Shakeel Ahmad

Funding agency: DST

Approved budget: Rs. 53.876 lakh

4. Role of estrogen(s) induced redox alteration in breast carcinogenesis

Project proposes to identify the aberrant pathways in response to estrogen induced redox alterations and explore whether targeting these pathways using specific inhibitors may be employed as a therapeutic strategy against breast carcinogenesis.



PI: Dr. Smrati Bhadauria

Funding agency: DST

Approved budget: Rs. 18.3 lakh

5. Understanding the mechanism of anti-carcinogenic effect of alpha-solanine.

Project aims to investigate mechanism of alpha-solanine mediated anti-cancer effect by assessing changes in ultracellular structures as well as by identifying molecular targets underlying the cell death inducing activity of alpha-solanine.



PI: Dr. Jayanta Sarkar

Funding agency: DST(Fast Track)

Approved budget: Rs. 21.1 lakh

6. Design and synthesis of novel dolastatins, azumamides and microsporin A analogs: A quest for anticancer drugs.

Project aims to synthesize analogs of Azumamides, Microsporin-A and Dolastatins using various conformationally constrained dipeptide

isoesters and multifunctional unnatural amino acids to develop potent bioactive peptidomimetics against cancer.

PI: Dr. Dipankar Koley

Funding agency: Ministry of Earth Sciences, New Delhi

Approved budget: Rs. 71.57 lakh



7. Evaluation of Poly-(ADP-ribose) polymerase-2 (PARP-2) and Caspase-8 signaling mechanism role during uterine tissue remodeling.

Project aims evaluation of uterine PARP-2 expression and sub-cellular distribution during endometrial cycle as well as the validation of PARP-2 role in the uterine receptivity/embryo implantation. Results of project may elucidate uterine cell differentiation during uterine tissue remodeling in order to explore the endometrial receptivity signaling.

PI: Dr. Rajesh Kumar Jha

Funding agency: ICMR

Approved budget: Rs. 19.11 lakh



8. Role of integrin b8 -Fas & FAK signalling in the endometrial epithelial cell physiology during uterine tissue remodelling process

Project aims to deliver information about integrin b8, FAK, Fas and Rac1 signalling in the endometrial epithelial cell physiology which could be utilized for embryo implantation signalling modulation.



PI: Dr. Rajesh Kumar Jha

Funding agency: DST

Approved budget: Rs. 37.10 lakh

9. Drugs against central body fatness and insulin resistance (High peri/post-menopausal prevalence)

Project proposes to develop a rat model for

diabetes and peri/post-menopause to investigate the potency efficacy and mechanism of action of peptides against the disease models. Project also aims for the synthesis of anti-diabetic peptide and check their activity against disease models.



PI: Dr. J.R. Gayen

Funding agency: DBT (RGYI Scheme)

Approved budget: Rs. 34.48 lakh

10. Exploration of potency, efficacy and mode of action of *Ulmus wallichiana* against hypertension.

Project proposes to analyse the activity of stem-bark extract of *Ulmus wallichiana* against animal model of hypertension as well as associated pharmacokinetic and metabolic studies including determination of action mechanism/pathway.



PI: Dr. J.R. Gayen

Funding agency: DST (Fast Track)

Approved budget: Rs. 16.72 lakh

11. Evaluation of weak dipole-dipole interactions in molecular solids by means of experimental charge density studies and computational methods.

Project aims to establish an understanding of intermolecular dipole -dipole interactions and the structure property relation in molecular crystalline solids and to employ this information in the prediction of the crystal packing of molecular crystalline solids.



PI: Dr. T.S. Thakur

Funding agency: SERB, DST(Fast Track)

Approved budget: Rs. 18.2 lakh



SOME IMPORTANT PUBLICATIONS

(October 2012 - March 2013)

Chemical Sciences

| | Authors | Title | Journal Vol, Issue Page No | IF (2011) |
|----|--|---|--|-----------|
| 1 | Kumar, A; Srivastava, S; Gupta, G | Cascade [4+1] annulations via more environmentally friendly nitrogenylides in water: Synthesis of bicyclic and tricyclic fused dihydrofurans | Green Chemistry, 14, 12, 3269-3272 | 6.320 |
| 2 | Kumar, Atul; Gupta, Maneesh Kumar; Kumar, Mukesh | L-Proline catalysed multicomponent synthesis of 3-amino alkylated indoles via a Mannich-type reaction under solvent-free conditions | Green Chemistry, 14, 2, 290-295 | 6.320 |
| 3 | Wahajuddin; Siva Rama Raju, Kanumuri; Taneja, Isha | Bioanalysis of antimalarials using liquid chromatography | TrAC Trends in Analytical Chemistry 42, 186-204 | 6.273 |
| 4 | Goel, A; Kumar, V; Singh, SP; Sharma, A; Prakash, S; Singh, C; Anand, RS | Non-aggregating solvatochromic bipolar benzo[f]quinolines and benzo[a] acridines for organic electronics | Journals of Materials Chemistry, 22, 30, 14880-14888 | 5.968 |
| 5 | Reddy, Maddi Sridhar; Kumar, Yalla Kiran; Thirupathi, Nuligonda | A new synthesis of Butyrolactones via AuC13- or Hg(II)-catalyzed intramolecular hydroalkoxylation o 4-Bromo-3-yn-1 ols | Organic Letters, 14, 3, 824-827 | 5.962 |
| 6 | Ajay, A; Sharma, S; Gupt, MP; Bajpai, V; Hamidullah; Kumar, B; Kaushik, MP; Konwar, R; Ampapathi, RS; Tripathi, RP | Diversity oriented synthesis of pyran based polyfunctional stereogenic macrocycles and their conformational studies | Organic Letters, 14, 17, 4306-4309 | 5.962 |
| 7 | Balaramnavar, VM; Khan, IA; Siddiqui, JA; Khan, MP; Chakravarti, B; Sharan, K; Swarnkar, G; Rastogi, N; Siddiqui, HH; Mishra, DP; Chattopadhyay N, Saxena, AK | Identification of Novel 2-((1-(benzyl(2-hydroxy-2-phenylethyl)amino)-1-oxo-3-phenylpropan-2-yl)carbamoyl) benzonic Acid Analogues as BMP-2 Stimulators | Journal of Medicinal Chemistry, 55, 19, 8248-8259 | 5.248 |
| 8 | Sashidhara, Koneni V; Kumar, Manoj; Sonkar, Ravi; Singh, Bhanu Shankar; Khanna, A K; Bhatia, Gitika | Indole-based fibrates as potential hypolipidemic and antiobesity agents | Journal of Medicinal Chemistry, 55, 6, 2769-2779 | 5.248 |
| 9 | Singh, Chandan; Kanchan, Rani; Chaudhary, Sandeep; Puri, Sunil K, | Linker – based hemisuccinate derivatives of artemisinin: Synthesis and antimalarial assessment against multidrug-resistant <i>Plasmodium yoelii nigeriensis</i> in mice | Journal of Medicinal Chemistry, 55, 3, 1117-1126 | 5.248 |
| 10 | Tadigoppula, Narendra; Venkateswarlu Kothikunta; Gupta, Shweta; Kancharla, Papireddy; Khaliq, Tanvir; Soni, Awakash; Srivastava, Rajeev Kumar; Srivastava, Kumkum; Puri, Sunil Kumar; Siva Rama Raju, Kanumuri; Sijwali, Puran Singh; Kumar, Vikash; Siddiqi, Imran Mohammad | Synthesis and Insight into the Structure–Activity Relationships of Chalcones as Antimalarial Agents | Journal of Medicinal Chemistry, 56, 1, 31-45 | 5.248 |
| 11 | Sashidhara, KV; Kumar, M; Khedgikar, V; Kushwaha, P; Modukuri, RK; Kumar, A; Gautam, J; Singh, D; Sridhar, B; Trivedi, R | Discovery of coumarin-dihydropyridine hybrids as bone anabolic agents. | Journal of Medicinal Chemistry, 56, 1, 109-122 | 5.248 |

Biological Sciences

| | Authors | Title | Journal Vol, Issue Page No | IF (2011) |
|---|--|---|--|--------------|
| 1 | Jain, Vikas; Swarnakar, Nitin K; Mishra, Prabhar R; Verma, Ashwini; Kaul, Ankur; Mishra, Anil K; Jain, Narendra K | Paclitaxel loaded PEGylated gliceryl monooleate based nanoparticulate carriers in chemotherapy | Biomaterials , 33, 29, 7209-7220 | 7.404 |
| 2 | Kanchan, Ranjana Kumari; Tripathi, Chakrapani; Baghel, Khemraj Singh; Dwivedi, Shailendra Kumar; Kumar, Balawant; Sanyal, Sabyasachi; Sharma, Sharad; Mitra, Kalyan; Garg, Vivek; Singh, Kavita; Sultana, Sarwat; Tripathi, Raj Kamal; Rath, Srikanta Kumar; Bhadauria, Smriti | Estrogen receptor potentiates mTORC2 signalling in breast cancer cells by upregulating superoxide anions | Free Radical Biology and Medicine , 53, 10, 1929-1941 | 5.423 |
| 3 | Hamidullah; Changkija, B; Konwar, R | Role of interleukin-10 in breast cancer | Breast Cancer Res Treat , 133, 1, 11-21 | 5.245 |
| 4 | Kansal, S; Tandon, R; Dwivedi, P; Mishra, P; Verma, PR; Dube, A; Mishra, PR | Development of nanocapsules bearing doxorubicin for macrophage targeting through the phosphatidylserine ligand: a system for intervention in visceral leishmaniasis | Journal of Antimicrobial Chemotherapy , 67, 11, 2650-2660 | 5.068 |
| 5 | Kashyap, Vivek K; Gupta, Ravi K; Srivastava, Rahul; Srivastava, Brahm S; Srivastava, Ranjana; Parai, Maloy Kumar; Singh, Priyanka; Bera, Saurav; Panda, Gautam | <i>In vivo</i> activity of thiophene-containing trisubstituted methanes against acute and persistent infection of non-tubercular <i>Mycobacterium fortuitum</i> in a murine infection model | Journal of Antimicrobial Chemotherapy , 67, 5, 1188-1197 | 5.068 |
| 6 | Gupta, Reema; Kushawaha, Pramod K; Samant, Mukesh; Jaiswal, Anil, K; Baharia, Rajendra K; Dube, Anuradha | Treatment of <i>Leishmania donovani</i> infected hamsters with miltefosine: analysis of cytokine mRNA expression by real-time PCR, lymphoproliferation, nitrite production and antibody responses | Journals of Antimicrobial Chemotherapy , 67, 2, 440-443 | 5.068 |

NEW FACILITIES ESTABLISHED





PATENTS

Patents Granted Abroad

1. **Patent No:** 2006/02576 **Date of Grant :** 30.05.2012
Title: A novel use of herbal extracts of *salicornia* species active against tuberculosis and process for the preparation thereof
Inventors: Meena Rajnikanth Rathod, Bhupendra Dhanvantrai Shethia, Jayant Batukrai Pandya, Pushpito Kumar Ghosh, Prakash J Dodia, Brahm Shanker Srivastava, Ranjana Srivastava, Anil Srivastava, Chittar Mal Gupta & Vinita Chaturvedi

2. **Patent No:** 2524568 **Date of Grant:** 17.07.2012
Title: Substituted mercapto phenyl naphthyl methane derivatives as serm for the prevention and treatment of osteoporosis and other estrogen dependent disorders and as contraceptives
Inventors: Sangita, Kumar Atul, Singh Man Mohan, Jain Girish Kumar, Murthy Puvvada Sri Ramanchandra, Ray Suprabhat
Support staff: Vasi Ahmad, A.H. Ansari, Mohini Chhabra & Govind Keshri

3. **Patent No:** ZL200780016176.0 **Date of Grant :** 05.12.2012
Title: Naturally occurring coumarins and their precursors as acetylcholinesterase inhibitors
Inventors : Jana Swamy Madhu Sudanarao, B Chinaraju, P V Srinivas, K S Babu, J S Yadav, K V Raghavan, H K Singh, Chandiswar Nath

Patents Filed Abroad

1. **PCT Patent App. No :** PCT/IN2013/000006 **Date of Filing :** 03.01.2013
Title: N-(3-((diethylamino)methyl)-4-hydroxyphenyl)-n-(quinolin-4-yl)sulfonamide derivatives for the treatment of tuberculosis
Inventors: Singh Supriya, Roy Kuldeep Kumar, Khan, Shaheb Raj, Kashyap, Vivek Kumar, Sharma Sandeep Kumar, Krishnan Manju Yasoda, Chaturvedi Vinita, Sinha Sudhir, Srivastava Ranjana, Saxena Anil Kumar.

2. **PCT Patent App. No :** PCT/IN2013/000056 **Date of Filing :** 29.01.2013
Title: Novel substituted 2h-benzo[e]indazole-9-carboxylates for the treatment of diabetes and related disorders
Inventors: Goel Atul, Taneja Gaurav, Rahuja Neha, Rawat Arun Kumar, Jaiswal Natasha, Tamrakar Akhilesh Kumar, Srivastava Arvind Kumar

3. **PCT Patent App. No :** PCT/IB2013/051641 **Date of Filing :** 01.03.2013
Title: Nef-ask1 interaction inhibitor as novel anti-HIV therapeutics
Inventors: Tripathi Raj Kamal, Kumar Balawant, Ramachandran Ravishankar, Tripathi Jitendra Kumar, Bhaduria Smriti, Ghosh Jimut Kanti

Patents Granted in India

| | | | |
|----|--------------------------|--|-----------------------------------|
| 1. | Patent No: | 253738 | Date of Grant : 22.08.2012 |
| | Title: | A process for the preparation of novel 1-[(4- diphenylmethyl)-piperazin-1-yl]-3-aryloxypropan-2-ol | |
| | Inventors: | Kalpana Bhandari, Ram Raghbir | |
| 2. | Patent No: | 253810 | Date of Grant : 27.08.2012 |
| | Title: | Novel glycosyl-d-fructoses as antihyperlipidemic agents | |
| | Inventors: | Anup Kumar Misra, Pallavi Tiwari, Anju Puri, Ramesh Chander, Geetika Bhatia | |
| 3. | Patent No: | 254367 | Date of Grant: 29.10.2012 |
| | Title: | 5-[2-(2,6,6-trimethyl-cyclohex-2-enyl)-ethenyl]-isoxaazole | |
| | Inventors: | Shivaji Narayanrao Suryawanshi, Suman Gupta, Ramesh, Naveen Chandra | |
| | Supporting staff: | Manju and Shiveram | |
| 4. | Patent No: | 255359 | Date of Grant : 14.02.2013 |
| | Title: | Novel hydroxy functionalized adamantyl substituted 6-arylvinyl-1,2,4-trioxanes,their derivatives and salts thereof | |
| | Inventors: | Chandan Singh, Sunil Kumar Puri, Upasana Sharma | |

Patents Filed in India

| | | | |
|----|------------------------|--|-----------------------------------|
| 1. | Patent App. No: | 2848DEL2012 | Date of Filing: 12.09.2012 |
| | Title: | Isoxazole containing heteroretinoid schiff bases and process for preparation thereof | |
| | Inventors: | Suryawanshi Shivaji Narayanrao, Gupta Suman, Kumar Santosh, Shihhare Rahul, Shankar Shagun | |
| 2. | Patent App. No: | 0020DEL2013 | Date of Filing: 03.01.2013 |
| | Title: | Improved process for preparation of cyclic peptides | |
| | Inventors: | Haq Wahajul, Yadav Shyam Raj, Murugula Raghvendra, Dikshit Madhu, Smriti | |
| 3. | Patent App. No: | 0193DEL2013 | Date of Filing: 24.01.2013 |
| | Title: | Antidiabetic and antidysslipidemic activities of pregnane-oximino-aminoalkylethers | |
| | Inventors : | Verma Prem Chandra, Gupta Jyoti, Singh Dharmendra Pratap, Gupta Varsha, Kushwaha Hari Narayan, Misra Anamika, Rahuja Neha, Srivastava Rohit, Jaiswal Natasha, Khanna Ashok Kumar, Tamrakar Akhilesh Kumar, Singh Shio Kumar, Dwivedi Anil Kumar, Srivastava Arvind Kumar, Pratap Ram | |
| 4. | Patent App. No: | 0373DEL2013 | Date of Filing: 08.02.2013 |
| | Title: | Carbodithioates and process for preparation thereof | |
| | Inventors: | Sharma Vishanu Lal, Lal Nand, Sarswat Amit, Jangir Santosh, Bala Veenu, Kumar Lalit, Rawat Tara, Jain Ashish, Kumar Lokesh, Maikhuri Jagdamba Prasad, Gupta Gopal | |
| | Support staff: | Ramjeet, Chhatrapal | |
| 5. | Patent App. No: | 0807DEL2013 | Date of Filing: 19.03.2013 |
| | Title: | Substituted fluoranthene-7-carbonitriles/esters as fluorescent dyes for cell imaging applications | |
| | Inventors: | Goel Atul, Sharma Ashutosh, Mitra Kalyan, Bhattacharjee Arindam, Kathuria Manoj | |

MAJOR EVENTS ORGANIZED

CSIR Foundation Day Celebrations 2012

CSIR-CDRI Celebrated the 70th CSIR Foundation Day on September 25, 2012. During the day, CSIR-CDRI Award Function was also organised. Prof. B. Jayaram, Department of Organic Chemistry, Indian Institute of Technology, Delhi graced the occasion as Chief Guest and delivered lecture on his distinguished work entitled "Genomes to Hits: The Emerging Assembly Line". The talk dealt on development of indigenous software such as Chemgenomes, Bhageerath & Sanjeevini, which are freely accessible to students and scientific community. CSIR-CDRI Award 2012 under Chemical Sciences was conferred to Dr. Rajkumar Banerjee, IIT, Hyderabad. Dr. Banerjee delivered award oration entitled "Nuclear Hormone Receptors and Lipids: An unusual concoction for designing anticancer therapeutics". CSIR-CDRI Award 2012 under Biological Sciences category was conferred to Prof. Subramanian Ganesh, IIT, Kanpur on his work "Molecular pathology of Lafora disease". Further, Scientists from CSIR-CDRI – Dr. Shailja Bhattacharya, Dr. Ashish Arora, Dr. Rajender Singh, Dr. Arun Kumar Trivedi, Dr. Jiaur R Gayen were felicitated for receiving prestigious national awards during 2011-12. Prof. B Jayaram released CSIR-CDRI Newsletter (Vol.4 No.1 April to September, 2012) and felicitated employees of CSIR-CDRI who retired during Sept. 2011 – August 12, followed with the felicitation of employees who have completed 25 years of their services at CSIR-CDRI by Dr. TK Chakraborty, Director, CSIR-CDRI. Prizes were also awarded to the children of CSIR-CDRI employees who secured more than 90% marks in Science subjects during intermediate board exams, by distinguished guest Dr. (Mrs.) Susmita Chakraborty.



XVIII Annual Congress of Society of Andrology India (SAI) on Global Perspective of Reproductive Biomedicine

Society of Andrology (SAI), India, organized a three-day seminar and workshop from 22 -24 December 2012. During this K.R. Laumas Memorial Oration and Workshop on Grantmanship was organized. SAI meetings offer excellent opportunities to present, discuss and learn about latest discoveries and clinical techniques. SAI evaluates techniques and methods used in the study of Andrology. Topics discussed in this meeting were mainly on male contraception such as prostatitis and prostate cancer, STDs, male reproductive toxicity, male infertility and dysfunction, mechanism of infertility, drug and environmental toxicology and HIV-AIDS.



CSIR-CDRI received Silver Icon Award during CSIR@70 Celebrations, New Delhi

CSIR acknowledged the efforts of Team CSIR-Central Drug Research Institute with immense appreciation, for its exemplary work and commitment demonstrated in the preparatory realm of population of the data bases and priming the ERP Application with the configuration of data, for commencement of seamless integrated



online operations under the CSIR Transformation & ICT intervention Project. In recognition of such outstanding work as trail blazing forerunners in the transformation to an arena of digital collaborative workplace, for the progressive strides the Team CSIR-CDRI have cultured and towards the cause of green growth, CSIR-CDRI is awarded the Silver Icon Award on 25 September 2012, on the occasion of the 70th CSIR Foundation Day 2012 in New Delhi.



CSIR-CDRI participated in Lucknow Mahotsava 2012

For the first time, CSIR-CDRI participated in Lucknow Mahotsava-2012 with other Lucknow based CSIR Labs from 26 Nov- 9 Dec'12 and showcased various products (Saheli, Novex and Novex-DX) in the area of women health care, antimalarials (EMal, Larither) under communicable disease area, improvement of memory (Memory Sure) towards Lifestyle related disorders through bilingual posters. CSIR-CDRI also projected some of the potential new lead molecules for the treatment of bone disorders and also highlighted the development of a collagen antagonists as a promising approach to prevent heart attack or stroke without much bleeding. A large number of visitors from all walks of life including students interacted during the exhibition and shown their keen interest.



CSIR-CDRI Participated in The Pride of India Expo at Indian Science Congress, 2013 at Kolkata



The 100th Indian Science Congress was held from January 3-7, 2013 at University of Kolkata, inaugurated by the Chief Guest & Hon'ble President of India, Sri Pranab Mukherjee. Hon'ble Prime Minister of India Dr. Manmohan Singh, Hon'ble the Governor of West Bengal Sri. M.K. Narayanan, Hon'ble Chief Minister of West Bengal Ms. Mamata Banerji, along with various science leaders, Nobel laureates and distinguished speakers from India and abroad participated in the event. The Pride of India Expo was inaugurated by Sri. Sudini Jaipal Reddy, Hon'ble Minister for Science & Technology, Ministry of Earth Sciences and Vice President, CSIR. The Expo was an integrated attraction of the Science Congress and was a confluence of new ideas, innovations and products covering the entire canvas of scientific world.

CSIR-CDRI participated in the Pride of India Expo and showcased posters and product samples presently in the market i.e. Saheli (female oral non steroidal contraceptive pill), Novex DS (for management of dysfunctional uterine bleeding), Memory Sure (for the memory improvement in ADHD children and AAMI subjects), E-Mal and Larither (for the treatment of cerebral malaria) during the exhibition. Prof. Samir K. Brahmachari, Director General-CSIR, Dr.R.A.Mashelkar, Former DG, CSIR and other eminent scientists, academician, and students visited the stall and interacted during the exhibition.

Study-visit of the Department-related Parliamentary Standing Committee on Science & Technology, Environment & Forests during 21-22 January, 2013 at Lucknow

The study visit of the Department-related Parliamentary Standing Committee on Science & Technology, Environment & Forests during 21-22 January, 2013 at Lucknow was conducted and CSIR-CDRI was the nodal agency to coordinate the visit. The said visit was under the Chairmanship of Shri Dr. T. Subbarami Reddy along with other members Shri. Rabinarayan Mohapatra, Prof. Ranjan Prasad Yadav, Shri Pradeep Tamta, Shri Ramakant Yadav, Shri Alok Tewari, Shri. Manoj Paul Pandian and the officers from Rajya Sabha Secretariat, Central Pollution Control Board etc. Senior scientists from CSIR-CDRI, officials from various departments under U.P. State Govt. interacted with the Members on the 21st evening. On 22nd January, 2013, a visit of delegation was organized by the officials of U.P. State Govt. to the River Bank for the 'on the spot study of River Gomti' followed by the discussion with Mr. Javed Usmani, Chief Secretary, and Principal Secretaries of Departments of Environment, Energy, Irrigation, Transport, Urban Development, and authorities from Pollution Control Boards of State Govt., UPSIDC, Municipal Corporation etc. The emphasis of the meeting was especially on the mitigation measures taken to keep the River Gomti clean. Shri Lalji Tandon, MP, Lok Sabha also attended the meeting. The delegation of MPs was accompanied to the Chief Minister of U.P.'s residence for interaction with Shri Akhilesh Yadav and his senior officials followed by lunch. The delegation later interacted with the Director CSIR-CDRI and other senior scientists and was apprised with the contributions made by the institute towards the discovery and development of affordable drugs. The committee appreciated the efforts made by the institute for its significant achievements over the years in pursuit of fulfilling its mission to provide new drugs and technologies for affordable healthcare for all and generation of knowledge base and nurturing future leaders for healthcare sectors and further asked to submit proposals so that the committee can endorse with a recommendation to the Planning Commission for funding.



A Practical Training Course on “Isolation and Separation of Proteins and their Detection by Immunoblotting”

A practical training course on “Isolation and separation of proteins and their detection by immunoblotting” was held from 28th-29th Jan 2013 at Proteomics and Cancer biology Lab, DTDD Division conducted by Dr. Arun Kumar Trivedi in collaboration with Merck Millipore. Workshop included hands - on training on isolation of proteins from mammalian cells, separation of isolated proteins on 1D SDS-PAGE and their detection using specific antibody after immunoblotting by conventional as well as SNAP-i.D. methods. In addition, visualization of protein bands by coomassie blue staining and colloidal coomassie staining was also demonstrated. This workshop also included a lecture by Dr. Trivedi on kinds of lysis buffer, ingredients of buffer and their role, principal of immunoblotting and troubleshooting. This workshop was attended by PhD aspirants from various intuitions viz. Dr. Ram Manohar Lohia Institute of Medical Sciences (RMLIMS), King George’s Medical University (KGMU), Amity University and different divisions of CSIR-CDRI of Lucknow.



38th Sir Edward Mellanby Memorial Oration



In memory of Sir Edward Mellanby, Founder Director, CSIR-CDRI, the 38th Mellanby Memorial Lecture was organized on 11 February 2013. The lecture was delivered by Dr. V. Craig Jordan, Professor of Oncology and Pharmacology, Lombardi Comprehensive Cancer Center, Georgetown University, USA. The topic of his presentation was 'Four decades of discovery for the treatment and prevention of breast cancer: The SERM story'. The SERM story has produced a remarkable insight not only for the treatment of multiple diseases in women, but also provided explanations for the mystery of oestrogen-induced apoptosis.

CSIR-CDRI Annual Day Celebrations 2013

CSIR-CDRI celebrated its 62nd Annual Day Celebrations on the 17th February, 2013 at its new premises. Dr. R.A. Mashelkar, former Director-General, CSIR, National Research Professor, Chancellor-ACSIIR and President - Global Research Alliance was the Chief Guest and Dr. Nirmal Kumar Ganguly, former Director-General, ICMR and Distinguished Biotechnology Fellow presided over the function. Dr. Tushar Kanti Chakraborty, Director CSIR-CDRI formally welcomed the Chief Guest, other dignitaries and presented a detailed account of the achievements made by CSIR-CDRI during the reporting period. He declared the winners of the prestigious CDRI awards - 2013. Dr. Balasubramanian Gopal from IISc, Bangalore under Life Sciences stream and Dr. D. Srinivas Reddy from CSIR-NCL under Chemistry streams were selected for the award and congratulated the winners.



In his address, Dr. Mashelkar expressed his happiness over looking at the beautiful and sprawling new campus that has been visualized during the nineties. He stressed on monetization of R&D activities rewarding the endeavors of scientists and the importance of 'affordable accessibility' that requires innovation model that could be system derived or work-flow based or a technology - flow based innovation. He ended his speech to a standing ovation from the audience, with a congratulatory remark to the achievements made by CSIR-CDRI and expectation to do more in its endeavors.

Later, the Annual Report - 2012-13 was released by the distinguished guests on the dais, along with the distribution of Annual Awards for the best performing employees and students. Dr. M.M. Dhar Best PhD Theses were awarded to Mr. Nand Lal for Chemical Sciences and Mr. Sourabh Shrivastava for Biological Sciences along with Director's appreciation award to Ms Ankita Mishra. This year CSIR-CDRI instituted another award in the fond memory of Dr. Swarn Nityanand sponsored by the family of Dr. Nityanand. Further, publications with impact factor greater than 5 were given away with awards along with the patents that were granted abroad and also best technology award was awarded. Further more, the institute felicitated its employees completing 25 years of service. Dr. N.K. Ganguly, in his presidential remarks praised the efforts made by the institute. He was delighted to visit this new campus and vested expectations on the shoulders of the younger scientists to carry on tone and tempo of the able leadership from its former directors and stalwarts, as this institute is modernized beyond imaginations and everyone has greater expectations from the coming research teams. Dr. S.K. Rath proposed vote of thanks and concluded the programme.

Current Trends in Drug Discovery and Research (CTDDR-2013)

A three days symposium on Current Trends in Drug Discovery and Research (CTDDR-2013) focusing on orphan and neglected diseases like malaria and tuberculosis was organized from 25th to 28th Feb 2013 at CSIR-Central Drug Research Institute. On the first day of symposium, Dr. RM Muthyala of University of Minnesota talked about the rare/orphan as well as neglected tropical diseases like TB and Malaria. Prof. Samir K Brahmachari, Secretary, DSIR and Director General, CSIR, discussed the important role played by CSIR and Open Source Drug Discovery (OSDD) in discovery of affordable and accessible healthcare to common man. Dr. TS Balganesh, Scientist at CSIR-CMMACS, discussed the challenges of drug discovery in tuberculosis, highlighting the role of new OSDD programme which can circumvent problems by open innovation model of data sharing and supports projects through a series of facilities towards progressing compounds with anti-TB activity.



On the second day of the session of CTDDR-2013, Prof. SE Hasnain from IIT Delhi, talked about the molecular infection biology of *Mycobacterium tuberculosis*, a causative agent of TB. Other renowned speakers of the second day were, Dr. Anil Koul from Belgium, Prof. J. Basu from Bose Institute, Kolkata, Riccardo Manganelli from University of Padova Via Gabelli, Italy, Dr. Timothy Wells, Chief

Scientific Officer of Medicine for Malaria Venture (MMV) programme and Alexander G. Maier from Australian National University. Many Scientist and research scholars attended this three day symposium. More than 200 posters were presented during the event. The symposium was concluded with the vote of thanks by Dr. Bijoy Kundu, organizing secretary, CTDDR-2013.

Hussain Zaheer Memorial Bridge Tournament

In the memory of former Director General of CSIR, Dr Hussain Zaheer, Staff club of CSIR-Central Drug Research Institute organized Hussain Zaheer Memorial Bridge tournament from 19th to 21st February 2013. Dr. (Mrs) Susmita Chakraborty was the chief guest on the inaugural function. A souvenir about Hussain Zaheer Bridge Tournament was released on this occasion. A total of eight teams participated out of which four teams were from various CSIR laboratories and three from Lucknow Bridge Association. A team from CDRI Pensioner's association also participated in this tournament and showed their sporting spirit.



National Safety Day Celebration



CSIR-CDRI celebrated the National Safety Day on 4th March 2013 in its new premises. On this occasion, Mr R.S. Deswal, Senior Security Officer, CSIR-CDRI, delivered a lecture on "Fire Safety" followed by safety pledge and a live demonstration of Fire Fighting. Many Scientists, Technical staff and Research Scholars participated in live demonstration of fire fighting and learned the safety measures in working environment. The theme of the programme was working together to ensure safety and health at work place.

Competency Development Programme for Group II Personnel

CSIR-Central Drug Research Institute, Lucknow, in collaboration with CSIR-Human Resource Development Centre Ghaziabad has organized a Competency Development Programme for Group II Personnel for Lucknow based CSIR research laboratories viz CSIR-CDRI, CSIR- CIMP, CSIR-IITR and CSIR-NBRI from March 11-14, 2013. This four days training programme was organized with the aim to enhance the competency of the technical personnel. During this programme, Dr. Laxman Prasad, Former Adviser, DST discussed about Indian S&T Organizations and Role of



Technical Support in R&D organizations. Sh. Vinay Kumar, Scientist, CSIR-HRDC Ghaziabad discussed how Self-Awareness & Interpersonal skills help to improve the competency of personnel. Mr. Abhisek Kumar, Scientist, CSIR-CDRI explained how Information Technology Tools increase the office productivity. Mr. Biranchi Sarang, Section Officer, CSIR-CDRI explained the overview of ERP. Dr. Aamir Nazir, Senior Scientist discussed about the conditioning of Mind to enhance the productivity at workplace. Dr. R. Chimote, Senior Principal Scientist CSIR-CBRI, Roorkee discussed the Safety in Laboratory Environment and Good Laboratory Practices. Dr. Manu Saxena, Senior Principal Scientist, CSIR-HRDC discussed about the Self-Effectiveness at workplace and

Team building. The programme was concluded with feedback remark by Dr. Manu Saxena, valedictory address by Dr. T.K. Chakraborty, Director, CSIR-CDRI and vote of thanks by Mr. Vinay Tripathi, Senior Principal Scientist, CSIR-CDRI.

Training Programme on Enterprise resource planning (ERP) systems



Enterprise resource planning (ERP) systems integrate internal and external management of information across an entire organization. In order to bring awareness among staff members and to train the implementing officials, CSIR deputed Mr TAB Mulla of CSIR-NCL Pune and during his visit general awareness and training programs were organized at CSIR-CDRI from 12-13 March 2013. All HODs, Section Officers and other staff members of CSIR-CDRI participated in this training program. Besides this few scientists and section officers from Finance and Accounts sections of CSIR-IITR also participated in this two days training programme.

5th NIPER (RBL)-CSIR-CDRI Symposium on “Chemical and Biological Approaches in Drug Development & Delivery Strategies (CBADDS-2013)

The 5th NIPER (RBL)-CDRI Symposium on “Chemical and Biological Approaches in Drug Development & Delivery Strategies (CBADDS-2013)” was organized in collaboration with NASI, Allahabad during March 21-23, 2013 at the new campus of CSIR-CDRI, Sitapur Road, Lucknow. The Symposium ‘CBADDS-2013’ comprised 20 invited lectures by eminent scientists and clinicians, and approximately 100 posters by young students, which provided a common platform to discuss some of their most innovative research work in the field of drug discovery and development.



DISTINGUISHED LECTURE SERIES

| | Speaker & Address | Title of Lecture | Date |
|---|---|--|-------------|
|  | Prof. Gautam R. Desiraju Indian Institute of Science, Bangalore | Solid State and Structural Chemistry | 06.11.2012 |
|  | Prof. Santiago Lamas Centro Mixto CSIC-UAM de Biología Molecular Severo Ochoa Nicolas Cabrera 1, Spanish Research Council, Madrid, Spain | Redox-mediated signaling in endothelial cells | 11.12. 2012 |
|  | Prof. Richard D Vaughan-Jones Burdon Sanderson Cardiac Science Centre, University of Oxford, UK | Distinguished lecture on Spatial Ca ²⁺ /H ⁺ ion coupling in the heart: A key substrate for arrhythmia? | 08.03.2013 |

DISTINGUISHED VISITORS & LECTURES

Other Special Visitors

| | Speaker & Address | Title of Lecture | Date |
|----|--|--|-------------|
| 1 | Dr. Seeta Ramanjaneyulu Gundimeda Department of Molecular & Cellular Biology Baylor College of Medicine Houston, Texas | Endogenous lipid antigens | 5.09.2012 |
| 2 | Prof. D. Balasubramanian Director of Research L V Prasad Eye Institute, Hyderabad | Stem cell biology and therapy- the LV Prasad experience | 16.10.2012 |
| 3 | Dr. Prashant Sharma Staff Scientist, National Cancer Institute, National Institutes of Health (NIH) USA | Small ubiquitin-like modifier (SUMO) post-translational modification in embryonic development and cancer. | 17.10.2012 |
| 4 | Dr. R. John MacLeod Canada Research Chair in Cell Physiology, Queens University, Kingston, Ontario, Canada | New roles of the calcium-sensing receptor in the prevention of colon cancer, wnt/beta catenine signalling and mesothelioma | 25.10.2012 |
| 5 | Prof. Takeaki Ozawa Department of Chemistry University of Tokyo, Japan | Opto-bianalysis for imaging and control of biological functions in live cells. | 23.11.2012 |
| 6 | Dr. Stuart A. Ralph University of Melbourne, Australia | Prioritising and characterising drug targets for malaria | 27.11.2012 |
| 7 | Dr. Mark McDowell Waters Pvt. Ltd. | Recent trends in mass spectrometry & its applications in the field of proteomics and metabolomics | 27.11.2012 |
| 8 | Dr. Gianfranco Bocchinfuso University of Rome, Tor Vergata, Italy | Different mechanisms of action of antimicrobial peptides: Insights from fluorescence spectroscopy experiments and molecular dynamics simulations | 29.11.2012 |
| 9 | Dr. Teruya Tamari Department of Physiology, Toho University School of Medicine, Japan | Critical stress between life and death resets circadian rhythm via circadian phosphor-rylation signal | 29.11.2012 |
| 10 | Dr. Yasuharu Ninomiya National Institute of Radiological Sciences, Chiba, Japan | Overview of the National Institute of Radiological Sciences Chiba, Japan | 29.11.2012 |
| 11 | Prof. Santiago Lamas Director, The Centro Mixto CSIC-UAM de Biología Molecular Severo Ochoa Nicolas Cabrera 1, Spanish Research Council, Madrid, Spain | MicroRNAs, oxidative stress and fibrosis | 13.12. 2012 |
| 12 | Dr. Omkar P Kulkarni Clinical Biochemistry, LMU, Germany | Autoimmune tissue injury : Regulation of inflammation and repair | 19.12. 2012 |
| 13 | Dr. Syed Raza Ali Cellular & Molecular Medicine University of California, USA | Novel treatments for bacterial infections | 21.12.2012 |
| 14 | Dr. Vikas Kumar Vascular Biology Section/ Cardiovascular Proteomics Center Boston University School of Medicine, Boston | Deciphering Cardiac Redoxome using Mass Spectrometry based Proteomics | 16.01.2013 |
| 15 | Dr. Rajarshi Samanta Max-Planck Institute of Molecular Physiology Dortmund, Germany | C-H Functionalization: A Shortcut Towards Important Scaffolds | 16.01.2013 |
| 16 | Dr. Pooja Narang Qiagen India limited | PCR Arrays: The Real Pioneer in Real-Time PCR Analysis of Biological Pathways | 31.01.2013 |
| 17 | Dr. Madhumouli Chatterjee Division of Rheumatology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston | Involvement of T cell activation in the pathogenesis of the autoimmune disorder lupus | 04.02.2013 |
| 18 | Dr. Anjan Guhathakurta Director, Translational Development Integration Celgene Corporation, New Jersey, USA | Disease, Process and Partners: Challenges of Biomarker and Diagnostic Development in Oncology | 08.02.2013 |
| 19 | Dr. Ishani Deb Department of Neurology, University of New Mexico, USA | Tyrosine Phosphatase STEP: a Potential Target for Protection Against Ischemic Brain Damage | 12.03.2013 |

HONOURS & AWARDS

**Dr. Madhu Dikshit**

Elected Fellow of Indian National Science Academy for the year 2013

**Mr. Piyush Agarwal**

(Student of Dr. Bijoy Kundu)
Eli-Lilly Outstanding Thesis Awards – 2012 (II prize)

**Dr. JK Ghosh**

Elected Fellow of National Academy of Sciences, India for the year 2013

**Ms. Shalini Asthana**

(Student of Dr. Manish K. Chourasiya)
Second Best Poster Award at the NANOBIO 2012, Kochi

**Dr. DS Upadhyay**

Bursary Award by the Laboratory Animal Limited, London

**Mr. Vikas Kushwaha**

(Student of Dr. Kalpana Murthy)
Second Best Oral Presentation Award, Immunocon 2012, Varanasi

**Dr Ashish Arora**

Nominated as Member Executive Council of Indian Biophysical Society, India for 2013-2015

**Mr. Govind Tiwari**

(Student of Dr. Atul Goel)
Best Poster Award in 4th NIPER (RBL)-CDRI Symposium 2012, Lucknow

**Dr. Poonam Singh**

Prof. K.R. Laumas Memorial Oration Award at the Annual meeting of Society of Andrology India.

**Mrs. Ojo Olajumoke Omalara**

(Student of Dr. S.K. Rath)
Best Poster Award in 32nd Annual Conference of toxicology 2012, Lucknow

**Mr. Vijay Kumar**

(student of Dr. Atul Goel)
Eli-Lilly Outstanding Thesis Awards – 2012 (I prize)

**Mr. Nikunj Sethi**

(Student of Dr. Neeraj Sinha)
Best Oral Presentation Award in National Seminar on Emerging Trends in Spectroscopy

CDRI INCENTIVE AWARDS 2013

To enhance the performance and promote high quality research efforts as well as to help organization achieve its potential, CDRI has instituted Incentive Awards, which are being given every year to the CDRI staffs under different categories, like best research papers, patents granted during the previous year and best administrative, works and services staff. Each award consists of a certificate, plaque and cash.

Award for Best Innovation

1. Korean Patent No. 1006060 Date of Grant: 09.05.2012
Title: Novel donor-acceptor flurene scaffolds: A process and uses thereof
Inventors: Atul Goel, Sumit Chaurasia, Vijay Kumar, Sundar Manoharan & Raghbir Singh Anand

Best Research Publications

Biology Group

1. 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* 8(4), 468-477 (IF: 6.692)

Chemistry Group

1. Kumar A, Kumar M and Gupta MK, Catalyst-free hydroarylation of in situ generated ortho-quinone methide (o-QM) with electron rich arenes in water, *Green Chemistry*, 14(10), 2677-2681 (IF: 6.32)
2. 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*, 14(2), 290-295 (IF: 6.32)
3. Kumar A, Srivastava S and Gupta G, Cascade [4+1] annulation via more environmentally friendly nitrogen ylides in water: synthesis of bicyclic and tricyclic fused dihydrofurans, *Green Chemistry*, 14(12), 3269-3272 (IF: 6.32)
4. Sashidhara KV, Kumar A, Agarwal S, Kumar M, Kumar B and Sridhar B, A Simple and Efficient Access to New Functionalized 4-Phenacylideneflavenes, *Advanced Synthesis & Catalysis* 354 (6), 1129-1140 (IF: 6.048)
5. Goel A, Kumar V, Singh SP, Sharma A, Prakash S, Singh C and Anand RS, Non-aggregating solvatochromic bipolar benzo[f]quinolines and benzo[a] acridines for organic electronics, *Journal*

6. of Materials Chemistry 22(30), 14880-14888 (IF: 5.968)
7. Ajay A, Sharma S, Gupt MP, Bajpai V, Kumar B, Kaushik MP, Konwar R Ampapathi RS and Tripathi RP, Diversity Oriented Synthesis of Pyran Based Polyfunctional Stereogenic Macrocycles and Their Conformational Studies, *Organic Letters*, 14(17), 4306-4309 (IF: 5.862)
7. Arigela RK, Mandadapu A K, 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*, 14(7), 1804-7 (IF: 5.862)
8. Pulukuri, KK and Chakraborty TK, Stereoselective Synthesis of the Monomeric Unit of Actin Binding Macrolide Rhizopodin, *Organic Letters*, 14(11), 2858-2861 (IF: 5.862)
9. Reddy MS, Kumar YK and Thirupathi N, A New Synthesis of gamma-Butyrolactones via AuCl_3 - or $\text{Hg}(\text{II})$ -Catalyzed Intramolecular Hydroalkoxylation of 4-Bromo-3-yn-1ols, *Organic Letters*, 14(3), 824-827 (IF: 5.862)
10. 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*, 14(12), 3126-3129 (IF: 5.862)
11. Harikrishna Batchu, Soumya Bhattacharya, and Sanjay Batra, Iodine-Mediated Intramolecular Electrophilic Aromatic Cyclization in Allylamines: A General Route to Synthesis of Quinolines, Pyrazolo[4,3-b]pyridines, and Thieno[3,2-b]pyridines, *Organic Letters*, 14(24), 6330-6333 (IF: 5.862)

Dr. M.M. Dhar Memorial Award, 2013 for Best Thesis

Chemical Sciences

Mr Nand Lal (Student of Dr V L Sharma)

Thesis title: Design and synthesis of novel dual action non-detergent spermicides and antispermatoxic agents

Biological Sciences

Mr Saurabh Srivastava (Student of Dr J K Ghosh)

Thesis Title: Investigation on biological activities and mode of action of some naturally occurring antimicrobial peptides and their novel analogs

Director's appreciation award

Ms Ankita Misra (Student of Dr Madhu Dikshit)



Thesis Title: "Molecular mechanism involved in collagen mediated platelet activation and their modulation by anti-platelet compounds"

Dr. Swarn Nityanand Award for Best Woman Researcher-2013

Ms. Savita Lochab (Student of Dr. Arun Kumar Trivedi)

Technology Award

Name of the Technology: **Rapid bone fracture healing anabolic agents K058, K012, K068, K100 as the licensed products(s)**

Date of Agreement: **28.09.2013**

Name of the Firm: **M/s Kemxtree LLC. USA**

Contributors:

- Rakesh Maurya
- Naibedya Chattopadhyay
- Sabyasachi Sanyal
- Kamal Ram Arya
- Girish Kumar Jain
- Anil Kumar Dwivedi
- Vinay Tripathi
- Sripathi R. Kulkarni
- Naseem Ahmed Siddiqui
- Rajendra Prasad

- Varsha Gupta
- Preeti Rawat
- Kunal Sharan
- Jawed Akhtar Siddiqui
- Gaurav Swarnkar
- Geetanjali Mishra
- Lakshmi Manickabasagam
- Sathish Chandra Tiwari

Best Employee Award

- Mrs. Tahseen Talat, Asstt. (F & A) Gr. II
- Mr. A. K. Pandey, Sr Tech (2)
- Dr. H. M. Gauniyal, PTO
- Mr. Ajay Kumar Maurya, STA
- Mr. J.K. Joshi Sr. Tech (2)
- Mr. Ravinder Singh, Sr. Tech (2)
- Mr. H. B. Neolia Asstt. (S & P) Gr I
- Mr. B.P. Sunwar, Sr. Tech (2)
- Mr. Swapan Kar, Sr. Tech (1)
- Mr. Rajendrer, Bearer
- Mrs. Manoshi Chatterjee, Sr Steno
- Mr. Saju P. Nair, Asstt (G) Gr II
- Mohd. Saleem, Helper Group D
- Mr. Vinod Kumar Sharma Lab Attdt (1)
- Mrs. Nandita Dhar, Sr Tech (2)

DEPUTATIONS ABROAD

(September 2012-March 2013)

| Name of Scientist | Country of Visit | Purpose of Visit | Period of Deputation |
|----------------------------|------------------|--|-------------------------------------|
| Dr. Anuradha Dubey | SriLanka | To attend the meeting at University of Colombo | 24 March to 06 April 2013 |
| Dr. Naibedya Chattopadhyay | Austria | To participate in Symposium | 28 November-01 December 2012 |
| Dr. Neena Goel | Germany | Under INSA-DFG Bilateral Exchange Programme | 28 December 2012 to 26 January 2013 |
| Dr. Atul Kumar | USA | To attend the Scifinder advisory meeting | 03-04 December 2012 |
| Dr. Amit Misra | Japan | To attend the International Symposium | 29-30 October 2012 |
| Mr. Pradeep Kumar | Turkey | To attend the conference | 12-21 October 2012 |
| | Australia | To attend the conference | 22-25 October 2012 |
| Dr. K.V. Shashidhara | USA | Indo-US Research Fellowship | 18 July 2012 to 26 July 2013 |
| Dr. Ravishankar Ampapati | Switzerland | To attend application training on AVANCE NMR Spectrometer | 18-22 March 2013 |
| Dr. J. Venkatesh Pratap | France | For research purpose | 16-22 November 2012 |
| Dr. Ritu Trivedi | Malaysia | To attend the Meeting | 13-16 December 2012 |
| Dr. Rajender Singh | USA | To participate in the Annual Meeting of the American Society of Human Genetics | 06-10 November 2012 |
| Dr. Wahajuddin | USA | To attend training at Eshelman School of Pharmacy | 13 January 2013 to 12 January 2014 |

STAFF NEWS

Human Resource Management Policy of CSIR-CDRI:

VISION:

'Persistently develop, revise/update competency profiles to meet changing demands'

MISSION:

- Imbibe high standards of organizational values
- Foster a culture of trust, openness and mutual concern to make working a stimulating & challenging experience for our people
- Integrate employees towards organization goals
- Build and upgrade competencies through virtual learning opportunities
- To inculcate higher understanding of 'Service' to a greater cause

ACTION PLAN:

- Redeployment of staff
- Competency development
- E-enabling of staff
- Speedy implementation of ERPS
- Recruitment of new staff

Extensions in Service

- Dr. Chandishwar Nath, Chief Scientist

New Scientist In-Charge of Division

- Dr. S K Singh, Principal Scientist, PKM Division
- Dr. Neeraj Sinha, Sr. Principal Scientist, Toxicology Division

New Joining

- Dr. Siddarth Chopra, Sr. Scientist, Microbiology Division
- Dr. Tejender Singh Thakur, Scientist, Molecular Structural Biology Division
- Dr. Sushant Kar, Scientist, Parasitology Division
- Dr. Monika Sachdev,

Sr. Scientist, Endocrinology Division

- Dr. Prem Narayan Yadav, Sr. Scientist, Pharmacology Division

Promotions

Principal Scientist to Sr. Principal Scientist

- Mr. Kural
- Dr. D N Upadhyay
- Dr. K K Srivastava
- Dr. Neeloo Singh
- Dr. Ajai Kumar Srivastava
- Dr. Neena Goyal
- Dr. S K Singh
- Dr. R K Singh
- Dr. M N Srivastava
- Dr. Brijesh Kumar

**Sr. Scientist to Principal Scientist**

- Dr. B.N. Singh
- Dr. J. Venkatesh Pratap

Scientist to Sr. Scientist

- Dr. Manoj Kr. Barthwal
- Dr. Anil N. Gaikwad
- Dr. Divya Singh
- Dr. Amogh A. Sahstrabudhe
- Dr. Dhanajay Hansda
- Dr. Manish Kumar Chaurasia
- Dr. D.K. Mishra
- Dr. Shakil Ahmed

Jr. Scientist to Scientist

- Dr. Jayant Sarkar

Assistant Gr I to Section Officer

- Mr. Chandrakant Koushik, Assistant (G) Gr I

Assistant Gr II to Assistant Gr I

- Mrs. Neena Raijada, Assistant (G) Gr I
- Mrs. Rekha Tripathi, Assistant (F&A) Gr I

Senior Stenographer to Personal Secretary

- Mr. Awdhesh Kumar, Personal Secretary, MPC Division

Junior Stenographer to Assistant Gr I

- Mrs. Kamla Kandpal, Assistant (G) Gr I
- Mr. Ajay Kumar, Assistant (F & A) Gr I

Technical Assistant to Technical Officer

- Mr. Ruchir Kant, MSB Division

- Mr. Anupam Jain, MSB Division
- Mr. Ajay Singh Verma, DTDD Division
- Mrs. Savita Tripathi, Botany Division
- Ms. Reema Ray Sarkar, Biochemistry Division
- Mr. Sandeep Kumar Sharma, Microbiology Division
- Mrs. Sheeba Saji Samual, Pharmacology Division
- Mr. Aatma Prakash Dwivedi, MPC Division
- Mr. Anil Kumar K S, MPC Division
- Mr. Ashok Kumar Sharma, MPC Division

Transfers

- Mr. Chandrakant Koushik, Assistant (G) Gr I, CSIR-CDRI Lucknow to CSIR-NEERI, Nagpur

Superannuation

- Dr. Shivaji Narayanrao Suryawanshi, Chief Scientist
- Dr. Kamlakar Awasthi, Chief Scientist
- Mr. Ashok Kumar Tiwari, STO(2)
- Mr. Panch Dev Mishra, STO (2)
- Mrs. Shakti Kitchlu, STO (2)
- Mr. Nirankar Prasad Mishra, Lab Assistant
- Mrs. Sultana Jawed, Technical Assistant
- Mrs. Abha Arya, PTO
- Mr. Harsh Bahadur, Assistant (G) Gr I
- Mrs. Sundari, Gp-C Cdr-D
- Mr. Nazir Akbar, Sr Tech(2)
- Mrs. Vasundhara Madhwar, Sr Tech (2)

OBITUARY

Mr. N. S. Rana, Senior Principal Scientist, 20-02-2013
CDRI Family conveys heartfelt condolences to the bereaved family