2014, Vol 2; Issue 3&4 Sree Chitra Tirunal Institute for Medical Sciences & Technology

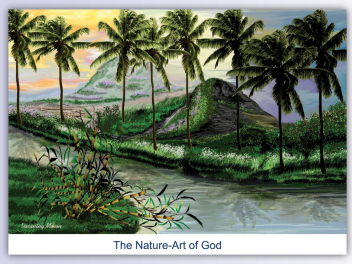
Chitra Dhwani

Quarterly e-magazine of SCTIMST, Trivandrum, Kerala, INDIA

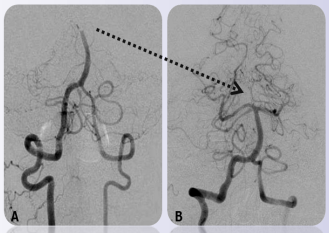
स्वच्छ भारत
एक कदम स्वच्छता की ओर

Technology Innovation Award

Fluoropolymer Coated & Hydrogel Sealed Vascular Graft Implant

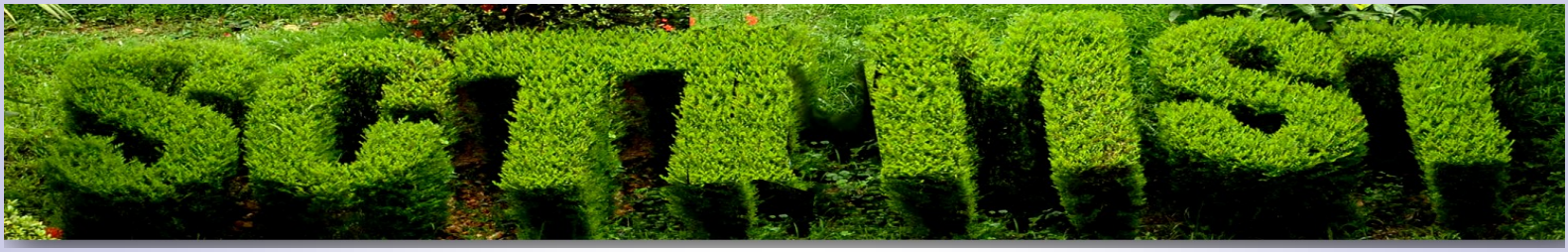


The Nature-Art of God



Video link: STROKE TELE FILM

Visit: www.sctimst.ac.in



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Fresh HOPES,
Fresh PLANS,
Fresh EFFORTS,
Fresh FEELINGS,
Fresh COMMITMENTS,
Let us Welcome 2015 with a fresh ATTITUDE.
HAPPY NEW YEAR to ALL...

From Editor....

A Letter from the Editor

Dear All,

I am glad to present the combined last issue (3rd & 4th) of "**Chitra Dhwani**" for year 2014. This half of the year was very eventful with several magnificent activities. I applaud the contribution of each and every member of our Chitra family for their invaluable contributions in this wonderful endeavor.

The GP oration delivered by Dr CNR Rao, Bharat Ratna, was extraordinary and memorable. Dr Rao sparked the air with his effervescent youthful tone, mesmerizing the audience with his enigmatic and magnificent successful journey of life during oration at SCTIMST. The cover story on COMPREHENSIVE STROKE CARE PROGRAM will give an insight into use of world class advanced technologies for treatment of serious debilitating condition, brain attack, in our Institute. For the 1st time, we have included the VIDEO LINK for **STROKE TELEFILM** which will be very informative. A day at Pediatric cardiology will provide how little delicate hearts are taken care by our efficient team of cardiologists. Memory lanes by Dr CP Sharma will take us back to the old golden years of his splendid journey.

The entire Institute joined hands for Swachhta Abhiyan on 2nd October with great enthusiasm. The celebration of Institute day flavored with scientific sessions and cultural activities was unique. The exhibition by ISRO for Mars mission was well appreciated. The Independence day, National Epilepsy day etc were celebrated with gusto and excitement. The workshop by IIPC was commendable taking young brains to intricacies of Research and a step to understand PPP plan. Mr Satyarthy winning the Nobel peace prize for India was true delight.

The FUN section as usual is packed with remarkable cartoons, incredible poem and camera photo shots.

We welcome suggestions from you about this endeavor, and continue to look forward to your co-operation, support and blessings to further improvise and make it a continued success.

Happy New Year...

Best regards

Kamalesh K Gulia

Editor
Scientist-D & In-charge
Sleep Disorders Research Lab
Biomedical Technology Wing, SCTIMST

New Directions..

Dr JM Tharakan
Director
SCTIMST

I am happy to note that the combined issue of the last two editions of the Institute e-magazine Chitra Dhwani is being released in January 2015. I wish all the readers a prosperous and meaningful New Year. As we prepare to make the New Year Resolutions, let us all resolve to work in unison for the Institute's progress in patient care as well as clinical, public health and biomedical research.

I am confident, Chitra Dhwani will continue to reflect the combined talent of the staff, to make it a very readable, educative and entertaining in-house magazine. I wish to encourage all staff members to contribute material on social, cultural and educational themes relevant to the society to make Chitra Dhwani the cultural mirror of the Institute.

The busy and often grueling work schedule in the Institute, day in and day out should not lead to early burn out among the employees and adequate leisure activity is mandatory for continued high performance in the work place. I believe, scanning through the pages of Chitra Dhwani can be a very stimulating leisure time activity.

I wish to congratulate the editorial team in meticulously bringing out this e-magazine, meeting the rigorous time lines and look forward to regular issues of Chitra Dhwani for many more years.

"Hope lies in dreams, in imagination, and in the courage of those who dare to make dreams into reality"

Notions..

Er Muraleedharan CV
Associate Head, Sc G
BMT Wing

The role of medical devices has been on a positive growth path in the healthcare sector during the past few decades. The influx of technology has reinforced the existing healthcare infrastructure in various ways right from automating clinical tests, diagnostic and therapeutic procedures to enhancing the reach of healthcare through telemedicine and information technology in healthcare delivery.

Development of indigenous medical devices is an area where few Indian institutions have dared to tread. However, as an institute that has a tradition of sailing in unchartered waters, SCTIMST has redefined excellence by successfully developing and marketing medical device technologies that have benefited thousands of patients across the country. Though the efforts of this Institute along with its industrial partners have helped to establish a limited industrial base for medical devices in the country, bulk of the national requirements in this area continue to be met by imports.

It is in this respect, the decision of the Government of India to allow 100% foreign direct investment in this sector becomes significant. This move will give India's medical devices sector the much-needed impetus and capital to focus on capacity building and product development. It will provide the Institute an opportunity for enhancing and augmenting the capacity in medical device development as more industries will be approaching us for partnering.

With the fast pace of growth expected in this domain, there is a need for a common platform disseminating information to clinicians, industrialists, key decision makers, academicians and other stake holders on the way forward. I am sure that **Chitradhwani** will grow itself to take up this challenge of becoming this common platform.

Comprehensive Stroke Care Program..

Special Feature: Chitra leading in Management of Brain Attack or Stroke

Comprehensive Stroke Care Program at SCTIMST

Stroke is the leading cause of disability and second commonest cause of mortality in both developed and developing countries. In 2005, a study on stroke incidence was conducted in Trivandrum district in collaboration with World Health Organization which revealed that the annual stroke incidence rate was 135 per 100,000 and 25% of the patients died within one month of stroke onset. "Time is brain" which means - Treat stroke as an emergency is an most important concept as early intervention can bring the best outcomes. This highlights the importance of urgent and timely treatment.

The comprehensive stroke care unit was established at SCTIMST in March 2011 under the Department of Neurology aimed to provide timely acute stroke treatment, comprehensive evaluation and rehabilitation of these patients in 7 bedded stroke ICU and 4 ward beds facility. Since then, this unit is successfully providing state-of-art treatment in an affordable manner to patients with stroke. The unit is managed by a team which includes neurologists, neurosurgeon, neurointerventionist, vascular surgeon, cardiologist, psychiatrist, medical social worker, stroke nurse, and the stroke rehabilitation team that includes physiotherapist, speech therapist and occupational therapist. All of them join hands to give the best possible care for patients with stroke.

The objectives of the Stroke care program are:

- Thrombolysis (clot dissolving) and acute emergency care of patients with stroke, evaluation and secondary prevention of stroke.
- Improve public awareness for prevention of stroke, control of risk factors, and education and training of primary and secondary care physicians for timely management of stroke patients.
- Undertake clinical and applied research in stroke.

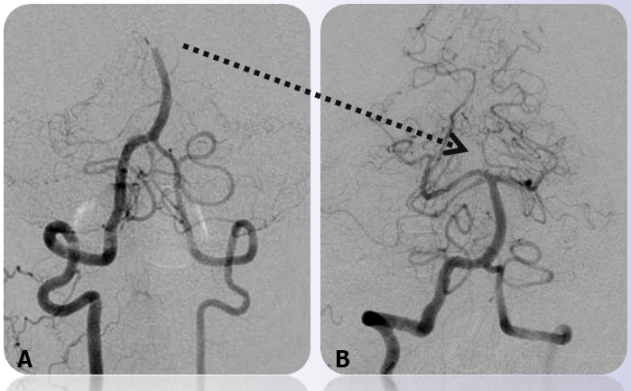
Facilities available in the Stroke Unit

Acute stroke care and thrombolysis

A patient with ischemic stroke (due to blockage of vessel by a clot) reaching the Unit within 4.5 hours of stroke onset can be treated with intravenous thrombolysis. The stroke duty team is alerted as the patient arrives to emergency. The system is so efficient that doctors are able to administer the drug within 30-40 minutes (door to needle time) of the patient reaching emergency. Since, SCTIMST has dedicated beds for acute stroke, thrombolysis rates have increased from 4-5/year in 2010 to 20-25/year in the last three years. If a patient is out of the time window for thrombolysis, they are urgently evaluated as to the etiology and secondary prevention is planned. These patients are closely monitored in the stroke unit for any neurological worsening and prevention of medical complications.

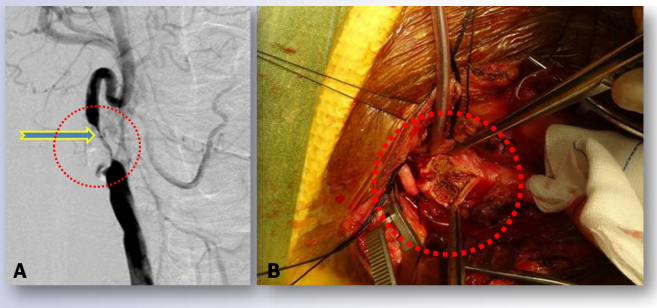
Endovascular treatment in stroke

The patients with acute stroke having major vessel occlusion are immediately taken to cath lab and the clot is removed by our neurointerventionist using mechanical devices like solitaire, and a recanalisation of the vessel is attained within 45-60 minutes. Currently, about 8-10 mechanical thrombectomy are conducted per year. Intracranial atherosclerotic disease is an important cause of ischemic stroke and has a high risk of stroke recurrence. Intensive medical treatment is preferred in these cases at present, but intracranial stenting is recommended for those who have 70% or more stenosis (narrowing) of intracranial artery and fail medical treatment.



Basilar artery thrombectomy: A Digital substraction angiography showing occlusion of top of the basilar artery. B Recanalization of the basilar artery after removal of the clot by solitaire device

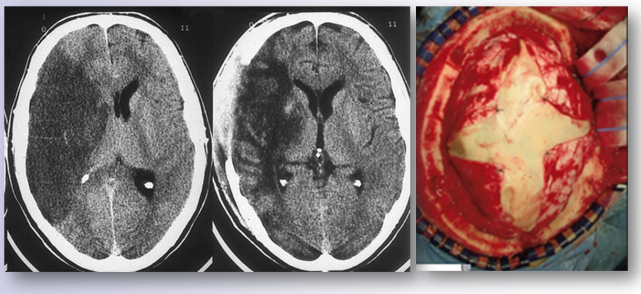
Carotid stenting is done for stroke prevention in patients with high grade carotid stenosis but are not candidates for carotid endarterectomy. Carotid endarterectomy is a surgery done for patients with carotid stenosis where the atheromatous plaque producing stenosis of the carotid artery is removed.



A Angiography shows critical right internal carotid artery stenosis. B Removal of carotid plaque during carotid endarterectomy.

Neurosurgery in stroke

In massive hemispheric strokes, 50-70% of patients will die due to malignant brain swelling. Neurosurgeons do decompressive hemicraniectomy as a life saving procedure in these patients. At SCTIMST, the outcome after decompressive surgery is similar to the best stroke centres around the world. It is one of the few centres in India doing specialized neurosurgical revascularization procedures for patients with moyamoya disease (in which certain arteries in the brain are narrowed) and the patients are referred from all over India for this surgery. The system is well in place so that patients with acute intracerebral bleed requiring haematoma evacuation are urgently taken up for the procedure.



A patient with massive right middle cerebral artery infarction who underwent decompressive hemicraniectomy as a life saving procedure.

Vascular surgery in stroke

Atherosclerotic carotid artery stenosis is the principal cause of ischemic stroke worldwide which leads to devastating sequlae if left untreated. Generally, occurrence of transient ischemic attack or minor stroke announces the presence of the culprit vulnerable plaque as a result of arterio-arterial embolism to brain. Duplex scan, CT angiography or MR angiography detects the high grade carotid stenosis. To prevent devastating stroke and its sequlae, three treatment options are available viz best medical therapy, carotid artery stenting (CAS) and carotid endarterectomy (CEA). But for the symptomatic patients carotid endarterectomy within two weeks of the event provides the best option when high grade stenosis (>70%) is detected. In all recent trials, both interventions (CAS or CEA) provided proven benefit in preventing stroke in the setting of severe carotid artery stenosis. After the comprehensive stroke team was established in 2011, the carotid endarterectomy procedures have increased from 4-5 per year to 25-30 per year with a periprocedural stroke risk of only 1%, which is excellent.

STROKE ICU

Stroke Rehabilitation:

Since more than 50% of patients with stroke are significantly disabled after the event, rehabilitation is an important aspect of stroke care. Our stroke rehabilitation team which includes physiotherapist, speech therapist and occupational therapist with stroke nurse is involved in the rehabilitation of the patient. Due to lack of rehabilitation centres outside and financial constraints which limit access to rehabilitation, care giver based rehabilitation therapy is also started. Our stroke rehabilitation team involves the principal caregiver of the patient in rehabilitation process and teaches them all aspects of rehabilitation. This cost effective rehabilitation is now working very efficiently and has made a greater impact in the outcome of our stroke patients.

Stroke prevention clinic

A stroke clinic is conducted weekly on all Fridays from 10 AM to 2 PM. Patients are followed up for risk factor control and rehabilitation in this clinic.

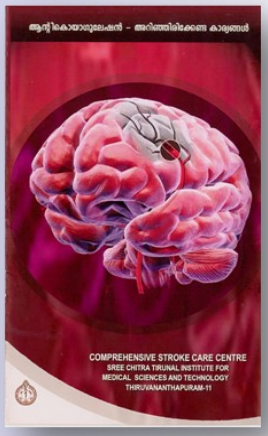
Awareness activities and improved stroke care

Public awareness programs are regularly conducted to alert them to the stroke symptoms for early transfer to hospital and advise regarding control of risk factors for stroke prevention. Booklets are also made on stroke symptoms, prevention and anticoagulation for the patients and families. A STROKE TELEFILM was made which is shown in the local TV for recognition of stroke symptoms and stroke prevention.

Video Link:

http://www.sctimst.ac.in/About%20SCTIMST/Chitra%20Dhwani/resources/SCTIMSTStoke.flv

As a part of the government non-communicable diseases prevention program, classes are conducted for the primary care physicians on stroke treatment.



Research and Training

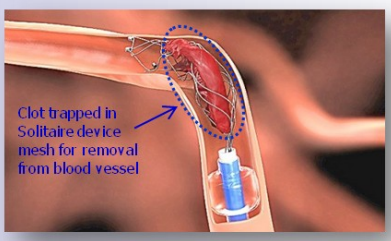
Apart from clinical care, the stroke section is involved in research and is part of several international studies, collaborating with Massachusetts General Hospital, University of Newcastle (Australia), The Imperial College (London) and George Institute of Global Health (Sydney). Many research activities conducted lead on to national and international publications every year.

A post doctoral stroke fellowship program for those who have completed neurology training has been started. In addition to this, a regular academic program is conducted for the nurses working in the stroke unit. A stroke meeting is conducted on all Thursdays when all challenging and surgical cases are discussed and treatment plans made. A multidisciplinary meeting is conducted for discharge planning and rehabilitation of the patients admitted in the stroke unit.

According to Dr Sylaja PN (Additional Prof & Incharge) ***"The key to our success is synchronized team work. As a team, what we constantly strive for and are trying to perfect is to provide the best and most affordable medical care to those who are afflicted by stroke."***

(Contributed by Dr PN Sylaja, Additional Professor of Neurology & Incharge, Comprehensive Stroke Care Program and Stroke team at SCTIMST)

SOLITAIRE is a new generation revascularization device to remove blood clots from blocked brain arteries in patients experiencing an ischemic stroke. It has a self-expanding, stent-like design, and once inserted into a blocked artery using a thin catheter tube, it compresses and traps the clot. The clot is then removed by withdrawing the device, reopening the blocked blood vessel.



2nd G Parthasarthy Oration

Prof CNR Rao delivering the 2nd G Parthasarthi Oration on November 11, 2014

Prof Chintamani Nagesa Ramachandra Rao, Octogenarian, National Research Professor sparked the air with his effervescent youthful tone, mesmerizing the audience with his enigmatic and magnificent successful journey of life during 2nd GP oration at SCTIMST. The august gathering was presided by Shri KM Chandrashekhar (President of SCTIMST). Dr MS Valiathan, the Founder Director (SCTIMST) introduced Prof CNR Rao and Dr Jaganmohan A Tharakan, Director (SCTIMST) gave the welcome speech. Prof VN Rajasekharan Pillai, Ex-Officio Prinicpal Secretary, Executive Vice-President, KSCSTE was honored to grace the occasion. Mr MC Balagopal, Former MD of M/S Terumo Penpol who started his initial journey at SCTIMST, Dr Paul Sebastian, Director (RCC) and previous Head, BMT wing Dr CP Sharma rejoiced attending the oration along with the faculty, students and staff of the Sree Chitra.

Dr CNR Rao is the Honorary President and Linus Pauling Research Professor at the Jawaharlal Nehru Centre for Advanced Scientific Research. He is also an honorary professor at the Indian Institute of Science. Dr Rao is the world's foremost solid state and material chemists. He has contributed to the development of the field over five decades. His work on transition metal oxides has led to basic understanding of novel phenomena and the relationship between materials properties and the structural chemistry of these materials. Dr Rao received Bharat Ratna in 2013.

GP Oration was constituted in 2013 to commemorate Shri G Parthasarthi, the 1st President of SCT. Shri GP was a stellar diplomat and brilliant intellectual who made major contribution to education and social science research. The 1st GP oration was delivered by Nobel Laureate Dr Ferid Murad.

"India must invest more in science as its future is linked with it"

A Day at Pediatric Cardiology...

Every child born into this world is a new thought of God, an ever fresh and radiant possibility."

Historically, Pediatric cardiology as a subspecialty owes its origin to pediatrics and cardiology. Pediatric Cardiology, received its formal recognition as a subspecialty, first time in 1961 internationally. Congenital heart disease is seen in 8 out of 1000 live births.

The Division of Pediatric Cardiology provides comprehensive care for a wide range of conditions and diseases that affect newborns (less than 1 month of age), infants (less than 1 year of age), children, adolescents and young adults. These conditions include: congenital heart diseases (birth defects of the heart), acquired heart disease, arrhythmias, cardiomyopathy and heart failure.

The pediatric cardiology provides diagnostic and therapeutic services for the patients with the entire spectrum of congenital heart diseases. It is done in close connection with cardiac surgeons, anesthetists, radiologists, nurses and paramedical staffs.

Diagnosis - The foremost footstep

Comprehensive and state-of-the art diagnostic services include: advanced pediatric cardiac echocardiography, 3D-echocardiography, Cardiac MRI/ CT, fetal echocardiography, cardiac catheterization and arrhythmia evaluation.

Treatment - Interventional pediatric cardiology

Recently, pediatric cardiac catheterization laboratory are offering procedures (Key hole procedures) which traditionally have required conventional surgery. It has provided a major breakthrough in the management of simple congenital heart defects (like a hole in the heart – septal defects and patent ductus arteriosus). From the large veins of legs, long tubes (catheters) are passed into the heart and the holes are closed with the occluder (device). Figure 1 shows an atrial septal defect closed with a device. On the next day of the procedure, the children are discharged to routine life. Most of them don't remember that they had a heart disease that was rectified. It provides a lifelong cure for these simple defects. In the above cases, the abnormal holes are concluded.

a

b

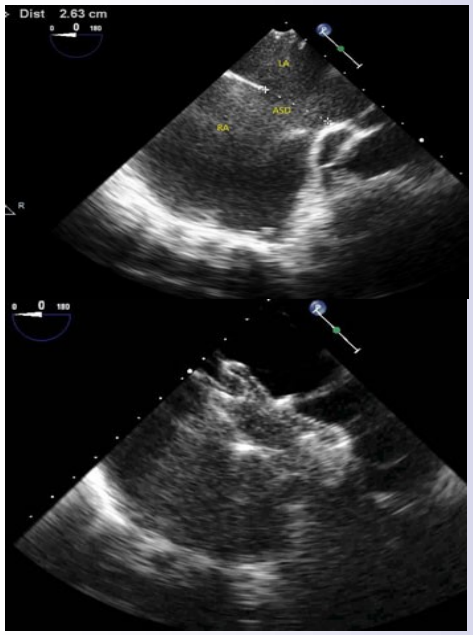


Figure1: Echocardiogram before (a) and after (b) Atrial septal device closure

In contrary, in complex congenital heart disease the "hole in the heart" is the lifeline. If they close off, the patient (most often a newborn) is miserably sick and succumbs to the heart disease. In such cases, creation or enlargement of the "hole in the heart" is life saving. This is also achieved by Interventional cardiology. With the help of balloons and stents (metal tubes) the hole which are lifelines are kept open. Figure 2 shows stenting of a patent ductus arteriosus. The patient gets stabilized and grows, capable of withstanding a major open heart surgery in later life.

Outpatient and intensive care

The out-patient department evaluates children comprehensively with clinical, chest X ray, ECG, pulse oximetry and echocardiography. Most have the diagnosis made on their first visit and further management is channelized. It also times the surgery or intervention, in association with congenital heart surgeons. This is especially important for infants, whose cardiovascular hemodynamics evolves as they grow. In addition, fetal echocardiography screening is performed in high risk pregnancies. The diagnosis of CHD in fetus helps parents to mentally and physically prepare to manage the same.

The intensive care services provides stabilization of children admitted with shock (low blood pressure),

A Day at ..

heart failure and hypoxia (decreased oxygen in the blood).

a)

b)

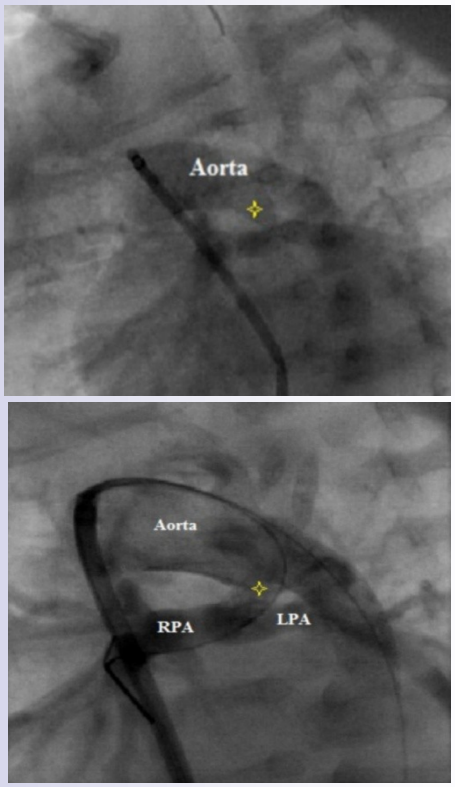


Figure 2: Before (a) and After (b) Patent ductus arteriosus stenting

Research and learning

Our Faculty is expertly trained to provide this care with the use of electrocardiography, echocardiography, cardiac catheterization and electrophysiology studies. Postdoctoral fellow (PDF) in pediatric cardiology is a one year comprehensive training program. The DM cardiology (3 yr course) trainees of our institute have excellent exposure and understanding of pediatric cardiology. This helps them to deliver the best diagnostic and management program for congenital heart disease. There are multiple ongoing research projects in pediatric cardiology, in the institute.

In short, pediatric cardiology provides physical strength to the youngsters with heart disease to win their deserved place in the society and nation.

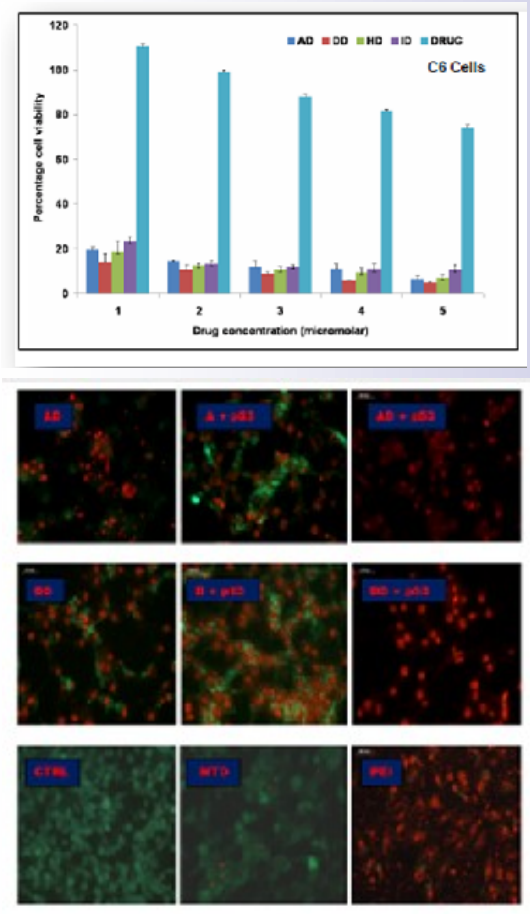
(Contributed by Dr Venkateshwaran S, Dept of Cardiology)

"Happiness is not a destination, it's a journey.
Happiness is not tomorrow, it is now.
Happiness is not a dependency, it is a decision.
Happiness is what you are, not what you have!"

Research Highlights..

Nanoplexes for co-delivery of anticancer drug..

The study evaluates the potential of multifunctional polymeric nanoplexes for co-delivery of the anticancer drug, mitoxantrone and the gene encoding tumor suppressor protein. The nanoplatforms were developed by coupling β - cyclodextrin and the cationic polymer, polyethyleneimine to a hydrophilic polymer, pullulan. Cell studies in both HepG2 and C6 cell lines demonstrated that the nanoplatform can efficiently and selectively deliver both p53 and MTO to cancer cells inducing high cell death. Combined drug and gene loaded nanoplexes have a more apoptotic effect than either the drug or gene individually. The study signifies the importance of combined drug and gene delivery system and the ability of the nanoplatform to overcome the multidrug resistance of mitoxantrone.



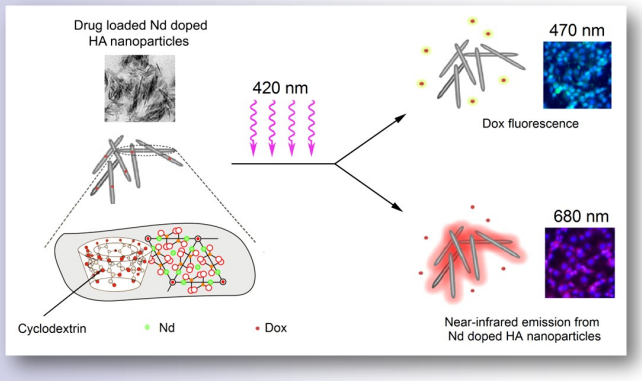
Loading of mitoxantrone in pullulan-PEI-cyclodextrin nanoplexes resulted in enhanced cancel cell killing in comparison with drug alone. Co-delivery of anti-cancer drug Mitoxantrone and therapeutic gene encoding p53 promoted enhanced cell death.

Mitha AT and Rekha MR. *Multifunctional polymeric nanoplexes for co- delivery of anticancer drug and gene.*

Research Highlights..

Luminescent drug carriers for theranostic applications..

Non-Invasive Near Infrared Fluorescence (NIRF) Imaging represents an emerging technology that overcomes the limitations of current evaluation techniques, such as histology and biochemical assays that are intrinsically invasive, destructive and time consuming. In addition, NIRF imaging offers excellent characteristics for optical imaging that include deep tissue penetration, high spatial resolution, low autofluorescence, high sensitivity and versatility, reliable 3-D image reconstruction and more importantly, substantial clinical compatibility with existing fluorescence imaging instrumentations. A multitude of nanostructures like quantum dots, silver nanoparticles, liposomes, carbon nanotubes, dendrimers, magnetic nanoparticles and calcium phosphates have been considered as potential candidates for bioimaging. Recently, we have synthesized luminescent, multifunctional, needle-like hydroxyapatite (HA) nanoparticle complexes containing cyclodextrin for targeted drug delivery applications. The nanocomplexes revealed excellent blood compatibility characteristics, inappreciable toxicity and cellular internalization properties. Upon excitation at 420 nm, these HA nanocomplexes exhibit strong near-infrared emission at 680 nm, which is not absorbed by human tissues and hence are promising for theranostic applications for simultaneous targeted drug delivery and near-infrared fluorescence imaging guidance.



Ref: Victor SP, Paul W, Jayabalan, M, Sharma CP. *Supramolecular hydroxyapatite complexes as thnostic near-infrared luminescent drug carriers.* *CrystEngComm 2014;16:9033-42*

Molecular study identifies mutation in FoxC2 gene in Cardiovascular Diseases..

CVD is among the most prevalent disorders worldwide, still there are no treatments other than surgical removal available. Identifying the key players and the mechanism involved in the development of CVD will help to develop novel strategies and drugs for the treatment of this condition. The exact mechanism and the genetic components involved in the development of CVD remains obscure. Here the authors have identified four novel mutations in the promoter region of FoxC2 gene which causes the over expression of FoxC2. The group further confirmed the role of FoxC2 in CVD by over expressing FoxC2 in venous endothelial cells and observed elevated expression of arterial markers Dll4 and Hey2 and downregulation of venous marker COUP-TFII.

Ref: Surendran S, Girijamma A, Nair R, Ramegowda KS, Nair DH, Jissa VT, Lakkappa RB, Kamalapurkar G, Kartha CC. *Forkhead box C2 promoter variant c.512c.T is associated with increased susceptibility to chronic venous diseases*. PLoS One 2014;9(1-9)

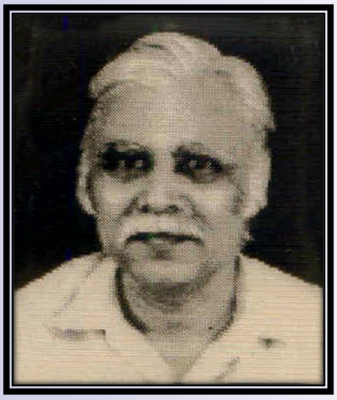
Dysfunctional HDL : Risk for CVDs....

High-density lipoprotein (HDL) is a heterogeneous class of lipoprotein with diverse antiatherogenic functions. The study identified dysfunctionality in HDL even among healthy subjects, during systemic inflammation. The antioxidant property of HDL was assessed as change in oxidation of LDL. Dysfunctional HDL did not prevent the auto-oxidation of LDL. The zymogram data indicated enhanced MMP-9 activity selectively in dysfunctional HDL. A remarkable finding in the present study is the previously unrecognized association of MMP-9 with dysfunctional HDL and its proinflammatory property, indicating a novel molecular connection that can enhance the risk of cardiovascular disease in subjects with dysfunctional HDL.

Ref: Sini S, Deepa D, Harikrishnan S, Jayakumari N. *Evidence for an exclusive association of matrix metalloproteinase-9 with dysfunctional high-density lipoprotein*: a Novel finding. Atherosclerosis. 2014;236(1):162-168.

Memory Lanes...

Dr Chandra Prakash Sharma



Dr CP Sharma
Past Ag Head,
BMT wing
Senior Scientist

Jan' 10, 1980 evening, the air hostess announced "*within few minutes, we will be landing at Trivandrum*, everyone fasten the seat belts and straighten the seat." When I look outside I saw a beautiful scenario of Nature - a clear blue sky with some moving white clouds and a green city, I could not see many houses. Soon plane took a turn showing the sea waves with reflected lights of setting sun and then soon the flight landed. Airport was very small and we had to collect the luggage, placed under the shade by showing the tags. One co-passenger, who introduced me that his relative is working in Sree Chitra Medical Center Library in Palace campus, helped me to reach one small hotel at Statue where I stayed overnight.

I called Prof Valiathan in the morning. Mrs Valiathan took the phone, I was surprised with a north Indian Voice, and she immediately gave the phone to Prof Valiathan. He told "I am glad you have arrived, welcome to Trivandrum, Soon Vikram Chandrashekhar will come and pick you up. Within ten minutes Vikram was there and he took me to his place of stay, a house in Mudavanmughal, where I stayed with him and SN Pal for about four months before I moved to Dr Thampi's house close by. Same day on Jan' 11, Vikram took me on his motorbike to hospital wing to complete joining formality and return to BMT wing where my desk was given in the palace, the same room which is the room of Head, BMT Wing now. Briefly this is how my journey started in the then Sree Chitra Tirunal Medical Center on Jan 11, 1980 which was declared an Institute of National Importance same year by Govt of India.

During those days, there was no faculty forum as such but we just started monthly seminars. I used to coordinate and Prof Valiathan, our Director that time with few hospital Wing faculty also used to come. After the seminar at times other common issues used to be addressed by our Director. During 1983, I happen to prepare a draft for certain welfare of faculty related to FCP, non consultancy allowance, initiating PhD programme and requesting to remove punching clock. Entire faculty supported the concept and signed. It was Nov' 83 that this paper was submitted. This ultimately became a reason of Wadia Committee formation and ultimately approval of GB for FCP and initiating the PhD programme for internal candidates to start with.

During Jan' 86 we started Society for Biomaterials and Artificial Organs India and its Journal TRENDS.

I remember another event in 1989 when there was an issue of parity among hospital and BMT Wing faculty after pay revision. It reached to a stage of moving the court. Once again I had a discussion with Prof Valiathan on Feb' 4 1990, that was the day we were celebrating the Padma Sree award for Prof Valiathan. I met at 2.30 PM to 3.00 PM and realized that he was really ready to solve the issue and accept the parity provided we withdraw the case. It was done and issue was resolved forever. Actually Prof Valiathan is a man of wisdom who had vision of the institute and he was so focused that any disturbance would hurt him. If we realize his dedicated outlook, there were no issues.

In the institute the technology transfer of various technologies was already taken place. Heart valve was in process. Our Head Mr AV Ramani joined TTK, new Head BMT Wing Dr Sivakumar joined soon after. There was a realization of developing Quality System for testing the Medical Devices under quality platform. To achieve this goal Dr GS Bhuvaneshwar was given the responsibility during late 90s with Dr Mohandas as our Director. Subsequently Dr Bhuvaneshwar became Head BMT Wing. By 2005, the quality system was established accredited by COFRAC, France. This has been extremely useful not only to encourage the medical Industry in the country but also to enhance the quality of research. After 2005 much direction was given to encourage the knowledge base in the institute by initiating and strengthening the existing degree programmes and also collaborative national/international research and educational programmes such as MPhil, MTech with CMC

Vellore and IIT, Madras etc.

This is briefly I would say that our Wing has become a comprehensive Biomedical Technology Wing with a mission of developing healthcare technology with innovative research and human resource development in collaboration with National and International institutions. We still have challenge to encourage and developing confidence in the industries in India and attract industries even from abroad to transfer various technologies from this wing based on Tissue engineering approaches. For last two years, I have attempted with our directors Dr K Radhakrishnan and Dr Tharakan to cultivate the initiation of Centre for Cardiovascular Devices including total artificial Heart and second Center for Neuroprostheses with emphasis on non-invasive approaches to treat epileptic patients. Research park which is a need for the future not only to transfer our technologies but also to facilitate the growth of medical industry in India has been given priority to encourage Industry Institute Partnership Cell which was developed in tune with AICTE.

This Institute is at the top at present and unique in India and now ready to make its mark globally. Faculty is ambitious and integrated. Glorious future is assured with good leadership I had a great experience in this Institute, I feel fortunate and satisfied that I worked here…..

New Faculty..

Dr Debasish Gupta
Professor, Transfusion Medicine

Dr Ajith Cherian
Assistant Professor
Neurology

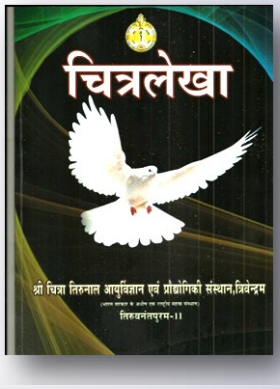
Dr Subin Sukeshan
Assistant Professor
Anesthesiology

Welcome to the Chitra Family

New MS..

Dr Sarada C, Professor of Neurology becomes the Medical Superintendent at SCTIMST from January 1, 2015. It is a proud and special moment for Sree Chitra as Dr Sarada had begin her journey as DM student in year 1982 in the Institute's own Department of Neurology which was the first batch and the first women neurologist.

New initiatives..



Dr Jaganmohan Tharakan (Director) launching the Hindi magazine

Chitra's Stars.....

Ms Sindhu MS, Dept of Transfusion Medicine has received 1st prize for the free paper presentation at 23rd Indian Society of Blood Transfusion & Immuno-hematology, Kerala Chapter, CME held at Thrissur on August 10, 2014.

Ms Arathi Radhakrishnan, PhD Scholar, Sleep Disorders Research Lab, BMT wing received Best poster Award for the paper titled "Effect of alpha-asarone on sleep, brain and body temperature during acute sleep total sleep deprivation at the 8th Asian Sleep Research Congress, held at Kovalam, Kerala during September 22-24, 2014.

Mrs Tisha K Vijayan, Staff Nurse received the 1st prize in oral paper presentation at the 3rd National conference of Paediatric Cardiac Nurses at Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute during November 29-30, 2014.

"Success is the result of perfection, hard work, learning from failure, loyalty, and persistence"

Young Scientist Award

Dr Aravind SR, Postdoctoral Fellow, TRU, BMT wing received "Young Scientist Award for the paper titled "Transcriptomic analysis of cell death mechanisms of Galactoxyloglucan polysaccharide to target apoptosis" from the Society for Educational and Scientific Research (SESR) at International Conference on Biosciences: State-of-the-Art advancements: at Kumarakom, Kottayam during September 11-12, 2014. Dr Arvind received this award for his outstanding contribution in this field of expertise.

Congratulations! Congratulations! Congratulations! Congratulations!

Chitra's Stars..

Dr Vineetha VS, Senior Resident, DM Neurology, was awarded the 1st prize for the paper titled "Thalamic CSWS" at the midterm Conference of the Neurological Society of India Kerala chapter, held at Kochi in September 2014.

Dr Praveen A, Senior Resident, Department of IS & IR, won the 3rd prize for the paper titled "Brain AVM embolization with Onyx" at the 17th Annual conference of Indian Society of Neuroradiology held at New Delhi in October, 2014.

Dr Pradeep Nair, Epilepsy PDF, Neurology received the 1st prize for the paper titled "Is wasted hippocampal syndrome a distinct electroclinical variant of MTLE-HS syndrome" at the National Neurology Conference, IANCON 2014, held at Chandigarh on November 9, 2014.

"Success is not built on success. It's built on failure. It's built on frustration. Sometimes its built on catastrophe "

Quiz Masters at APCON & IAN BAR-B-Q

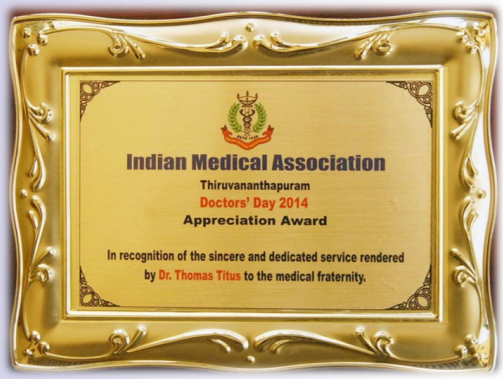
Dr R Amita, Ad-hoc Consultant in Pathology won 2nd prize in the APCON 2014 Quiz during 63rd Annual Conference of the Indian Association of Pathologists and Microbiologists held in Pune during December, 2014.

Dr Radhamani M, DM Neurology Resident won 3rd prize for Indian Academy of Neurology Best All Round Brain Quiz, IANCON 2014, 22nd Annual Conference of IAN held at PGIMER, Chandigarh on November 8, 2014.

Congratulations! Congratulations! Congratulations! Congratulations!

Chitra's Stars..

IMA honors Dr Titus on Doctor's Day



Dr Thomas Titus, Senior grade Professor and Head, Department of Cardiology, SCTIMST, Trivandrum was conferred prestigious Appreciation Award by Mr Sivakumar, honorable minister for Health, Kerala on the Doctors' Day, July 1, 2014.

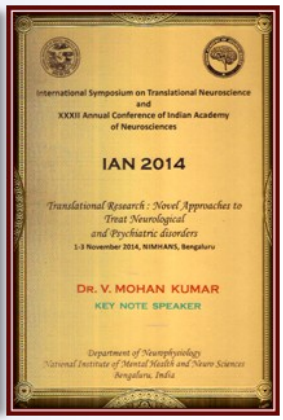
Technology Innovation Award

Dr Roy Joseph (Scientist F, Polymer Processing Lab, BMT Wing) and **Er CV Muraleedharan** (Scientist G, Device Testing Lab & Associate Head, BMT Wing) jointly received the 4th National Award for the Technology Innovation for the development of "Fluoropolymer Coated and Hydrogel Sealed Vascular Graft Implant" in Petrochemicals & Downstream Plastic Processing Industry under the category 'Polymers in Public Health Care'.

This Award is instituted by the Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Government of India. They received the award from the Union Minister for Chemicals & Fertilizers, Shri Ananth Kumar and the Minister of State for Chemicals & Fertilizers, Shri Nihal Chand on July 17, 2014 at a function conducted in New Delhi.

The award consists of a Shield, a Citation and a cash prize of Rs. 2 lakh.

Keynote Speaker at IAN 2014



Dr V Mohan Kumar (Emeritus Professor, SCTIMST; Past Head, Physiology, AIIMS) was invited to deliver KEY NOTE lecture titled "NEURAL CONTROL OF SLEEP TAKES A FULL CIRCLE" during International symposium on Translational Neuroscience & XXXII Annual Conference of the Indian Academy of Neurosciences held at NIMHANS, Bangalore from 1-3, November 2014.

The SESR Medi Biotech Award 2014

Dr Anil Kumar PR, Scientist D, BMT Wing received "The SESR Medi Biotech Award 2014" from the Society for Educational & Scientific Research (SESR) at the International Conference on Biosciences State-of-the-Art Advancements at Kumarakom, Kottayam in September 2014.

Service Awards: serving for 3 decades..

30 years of service

"The world has enough beautiful mountains and meadows, spectacular skies and serene lakes. It has enough lush forests, flowered fields, and sandy beaches. It has plenty of stars and the promise of a new sunrise and sunset every day. Words are less to appreciate our stars for serving humanity in golden way at SCTIMST"

Service Awards: serving for 1, 2 and 3 decades..

25 years of service

"It takes a lot of people to make a winning team. Everybody's contribution is important"

20 years of service

10 years of service

10/ 20/ 25/ 30 years of service (BMT wing)

68th Independence day celebration..

Dr Jaganmohan Tharakan, Director, SCTIMST hoisting the national flag on Aug 15, 2014 in the Hospital (Left) and the BMT wing (Right)

Excerpts from Independence Day Speeches

PM Nehru on Midnight of Aug 14, 1947

Long years ago we made a tryst with destiny, and now the time comes when we shall redeem our pledge, not wholly or in full measure, but very substantially.

At the stroke of the midnight hour, when the world sleeps, India will awake to life and freedom. A moment comes, which comes but rarely in history, when we step out from the old to the new, then an age ends, and when the soul of a nation, long suppressed, finds utterance.

It is fitting that at this solemn moment we take the pledge of dedication to the service of India and her people and to the still larger cause of humanity.

The achievement we celebrate today is but a step, an opening of opportunity, to the greater triumphs and achievements that await us. Are we brave enough and wise enough to grasp this opportunity and accept the challenge of the future?

PM Modi on morning of Aug 15, 2014

A national festival is an occasion to refine and rebuild the national character. This National festival inspires us to resolve ourselves to lead a life where our character gets refined further, to dedicate ourselves to the nation and our every activity is linked to the interest of the nation and only then this festival of freedom can be a festival of inspiration to take India to newer heights.

We have to create partnership with the people. We have to proceed under Public-Private Partnership.

If we have to promote the development of our country then our mission has to be 'skill development' and 'skilled India'.

If we move ahead with the dream of 'digital India' to manufacture electronic goods and become self reliant at least there, how big can be the benefit for the treasury! Therefore, e-governance is what we need to take this idea of 'digital India' forward.

Swachh Bharat Abhiyan at SCTIMST..

SCTIMSTians join hands for Swachh Bharat Mission, October 2, 2014

The Director, Dr Jagan Mohan Tharakan taking Swachhata Shapath (pledge) with the employees of SCTIMST on October 2, 2014 in the hospital campus.

The Head, BMT wing taking Swachhata Shapath (pledge) with the employees at Satelmond Palace.

एक कदम स्वच्छता की ओर

Events held at SCTIMST..

Elixir 2014: Senior Resident & Students Cultural Fest

Dr Jaganmohan Tharakan (Director, SCTIMST), Mr M Chandradathan (Director, VSCC), Mr Blessy (Cine Director), Ms Saranya Mohan (Cine Actress), Mr OS Neelakantan Nair (Ag Head, BMT Wing), Dr Sarada (Ag Medical Superintendent) and residents and students enjoying the the cultural program.

In Conversation with Game Changers..

Mr C Balagopal sharing moments of his life during informal discussion organized by the Faculty Forum, BMT wing. Er Balram is steering the session. Mr Balagopal also conversed on "On a clear sky you can see India".

Events held at SCTIMST..

Exhibition by VSSC

The Mars Orbiter Mission (MOM), also called Mangalyaan was key attraction of the science exhibition. The exhibition covered various space mission by ISRO in impressive models.

Events held at SCTIMST..

National Epilepsy Day

Inauguration of the Epilepsy Day function by Dr Jaganmohan Tharakan (Director, SCTIMST), Shri Balachandra Menon (Cine Actor and Director) & Prof Sanjeev V Thomas (Head, RMNC) on November 17, 2014

Hindi Fortnight Celebration

Dr Jaganmohan Tharakan (Director, SCTIMST) in motivating speech to employees for use Hindi on occasion of Hindi Fortnight Celebration. Dr AV George, Registrar, instrumental in making this program a huge success.

Events held at SCTIMST..

Continuing Nursing Education on Basic Concepts in Interventional Cardiology

Susashan Divas (Good Governance Day) Dec 25, 2014

Hospital wing

Biomedical Technology wing

Workshops held at SCTIMST..

Electroencephalography and Video EEG Workshop

Workshop on Tune & Prune your Research

Workshop for researchers "Tune & prune your research focusing on physic chemical characterization of materials was conducted by Industry Institute Partnership Cell (IIPC) during august 21-22, 2014 at the BMT wing. The workshop program comprised of lecture sessions, demonstrations at the lab, exposure to the lab facility etc was inaugurated by the Director, SCTIMST, Dr Jaganmohan A Tharakan. There were 32 participants from over 14 Institutions from Kerala and Tamilnadu.

"Research is to see what everybody else has seen, and to think what nobody else has thought"

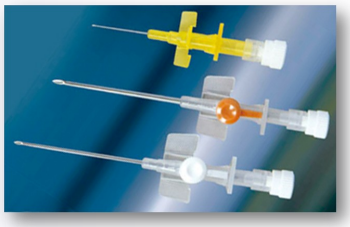
Workshops held at SCTIMST..

Back to Basics: Cardiology





Handling of Sharps!

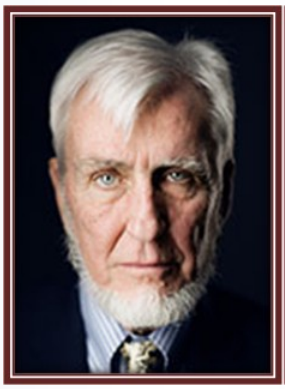




Organized by Competency Division & Dr Sachin Shenoy, BMT Wing

Nobel Prize 2014....

Medicine/ Physiology

The Nobel Prize in Physiology or Medicine was awarded jointly to John O'Keefe, 75; May-Britt Moser, 51 and Edvard I Moser, 52, for their discoveries of cells that constitute a positioning system in the brain. The trio has discovered a positioning system, an "inner GPS" in the human brain that makes it possible to determine location and physical orientation in space that may lead to new breakthroughs into demystifying Alzheimer's disease.



John O'Keefe
Univ. College London
American

Mary-Britt Moser
Norweg Univ. Sc Tech
Norwegian

Edvard I Moser
Norweg Univ. Sc Tech
Norwegian

Physics

Isamu Asaki
Meijo University
Japan

Hiroshi Amano
Nagoya University
Japan

Shuji Nakamura
University of California
American

The Nobel Prize in Physics was awarded to three Japan-born Scientists Isamu Asaki, 85; Hiroshi Amano, 54 and Shuji Nakamura 60, for inventing long-lasting and energy-efficient blue light -emitting diodes which has found use in the manufacture of giant LED screens and traffic lights. The trio had performed more than 2000 experiments to produce fine gallium nitride crystals for energy-efficient light emission.

Chemistry

The Nobel Prize in Chemistry was awarded jointly to Eric Betzig, 54, of Howard Hughes Medical Institute; Stefan Hell, 51, of the Max Planck Institute for Biophysical Chemistry and William E. Moerner, 61 for the development of super-resolved fluorescence microscopy. The trio had developed techniques to circumvent the problem of 'diffraction limit', the inability to distinguish structures smaller than half the wavelength of visible light, to enable high resolution images using optical light microscopy.

Eric Betzig
Howard Huges Med. Inst.
American

Stefan W Hell
Max Plank Inst. B. C.
German

William E Moerner
Stanford University
American

The Nobel Prizes were introduced in memory of Alfred Nobel, an industrialist who invented dynamite. The prizes in physics, chemistry, physiology or medicine, literature and peace were first awarded in 1901. All the prizes are traditionally presented to the winners in a ceremony in Stockholm on December 10, the anniversary of the death of Alfred Nobel (1833-1896). Laureates receive a diploma, medal and around eight million Swedish kronor (920,000 euros, $1.25 million) per full Nobel Prize, which is shared among winners.

Compiled by Dr Shivaram Selvam, Inspire Faculty

Nobel Prize 2014....

Peace

Kailash Satyarthi
Indian

Malala Yousafzai
Pakistani

The Nobel Peace Prize was awarded jointly to Kailash Satyarthi, 60 and Malala Yousafzai, 17 for their struggle against the suppression of children and young people and for the right of all children to education. The duo has been described as "**Champions of Peace**" and has been campaigning against child labor and is the voice for the right of all children to education. Malala Yousafzai also becomes the youngest ever Nobel Prize winner to date.

Bharat Ratna 2014...

The prestigious Bharat Ratna, India's highest civilian honour will be confered to the former Prime Minister Atal Bihari Vajpayee and freedom fighter Madan Mohan Malaviya. Bharat Ratna is the highest civilian award of the Republic of India. The award is conferred in recognition of exceptional service/performance of the highest order.

Upcoming Events...

National Conference on Comprehensive Nursing Management in Stroke One Step Ahead

Date: January 24-25, 2015

Contact details:
nmstrokenursing@gmail.com

National Symposium on Endovascular Interventions in Acute Stroke & Workshop on Transcranial Doppler (TCD) and Carotid Duplex

Date : **February 26 - 27, 2015**
Organised by : Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST)
Venue : AMC Auditorium, SCTIMST
Medical College Campus, Trivandrum 695 011, Kerala, INDIA.

Contact details:
www.strokeinterventionstvm2015.com/

Farewell...

Dr Jaganmohan Tharakan (Director) presenting auspicious lamp of light to Dr Sankarkumar, our beloved Medical Superintendent and Senior Prof in CVTS. Dr Suresh Nair (Dean) and Dr C Sarada (Acting MS) capturing the precious moments with MS.

Camera capturing life..

1

Bloom in Nature!

Neetu Mohan , DTERT

5

Magical Quantum Dots!

Jayasree RS, BPL

6

Nature's Craft!

Kamalesh K Gulia, SDRL

2

Peaceful Budha!

Kamalesh K Gulia, SDRL

7

A Visitor!

Francis Boniface Fernandez, TEM Lab

3

Mimicry in Nature! Am I in Heavan?

Ramaprasad P, Stores & Purchase Div, BMT wing

Ready for a ride!

8

Kamalesh K Gulia, SDRL

4

Perfect shades of life!

Ajish Chandaran, UDC, Hosptial wing

Siamese swan in real!

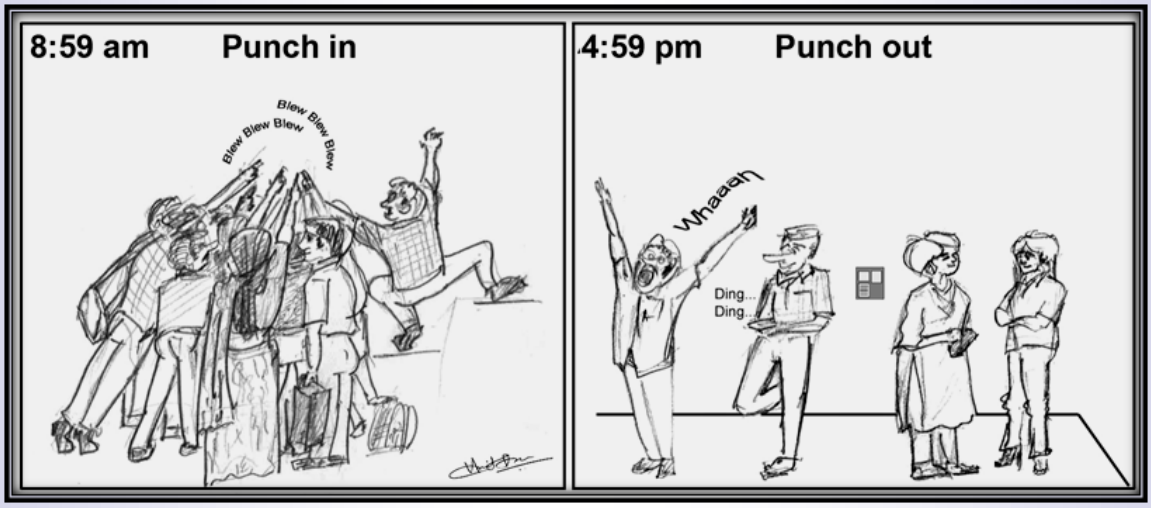
9

Renjith & Sunita Chandran, TEM Lab

All these pictures labeled 1-9 are clicked by our talented SCTIMSTians!

Fun Page..

Note: None of the cartoon or its element presented in the e-zine are related to any person, incidence, lab or facility in the Institution. The cartoons are in true spirit of fun and amusement!



(Designed by Anil Kumar PR, Scientist D, Tissue Culture Lab, BMT wing)

Children at drawing: Imaginations touching sky on Independence Day!

Anamika (Daughter of Girija, TOX)

Adirath Kishen (Son of Prasad, Stores)

Malavika (Daughter of Alka, Purchase Div

Kallyani Raj (Daughter of Deepa, TIC)

National Anthem in chorus

Onam songs by Tiny-Tots

Christmas Day celebration

Famous Poem..

बाधाएँ आती हैं आएँ
घिरें प्रलय की घोर घटाएँ,
पावों के नीचे अंगारे,
सिर पर बरसें यदि ज्वालाएँ,
निज हाथों में हँसते-हँसते,
आग लगाकर जलना होगा।
क़दम मिलाकर चलना होगा।

हास्य-रुदन में, तूफ़ानों में,
अगर असंख्यक बलिदानों में,
उद्यानों में, वीरानों में,
अपमानों में, सम्मानों में,
उन्नत मस्तक, उभरा सीना,
पीड़ाओं में पलना होगा।
क़दम मिलाकर चलना होगा।

उजियारे में, अंधकार में,
कल कहार में, बीच धार में,
घोर घृणा में, पूत प्यार में,
क्षणिक जीत में, दीर्घ हार में,
जीवन के शत-शत आकर्षक,
अरमानों को ढलना होगा।
क़दम मिलाकर चलना होगा।

सम्मुख फैला अगर ध्येय पथ,
प्रगति चिरंतन कैसा इति अब,
सुस्मित हर्षित कैसा श्रम श्लथ,
असफल, सफल समान मनोरथ,
सब कुछ देकर कुछ न मांगते,
पावस बनकर ढ़लना होगा।
क़दम मिलाकर चलना होगा।

कुछ काँटों से सज्जित जीवन,
प्रखर प्यार से वंचित यौवन,
नीरवता से मुखरित मधुबन,
परहित अर्पित अपना तन-मन,
जीवन को शत-शत आहुति में,
जलना होगा, गलना होगा।
क़दम मिलाकर चलना होगा।

Sri Atal Bihari Vajpayee, Former PM and Bharat Ratna

Quiz 2 Winners..

Pramod D
(Secretary to Director, Head, BMT wing)

Jyothi Lekshmi R
(2nd Yr student Dip. Neuronursing)

Uma V Sankar
(PhD Scholar, AMCHSS)

Smitha (Accounts Division)

Meereta MV (1st yr, DCN student)

Sajesh V, Dip. in CVT Nursing

Congratulations! Congratulations!

QUIZ 3

What is NITI Aayog? ***Please send your reply to mailbox:*** **enewsletter@sctimst.ac.in**

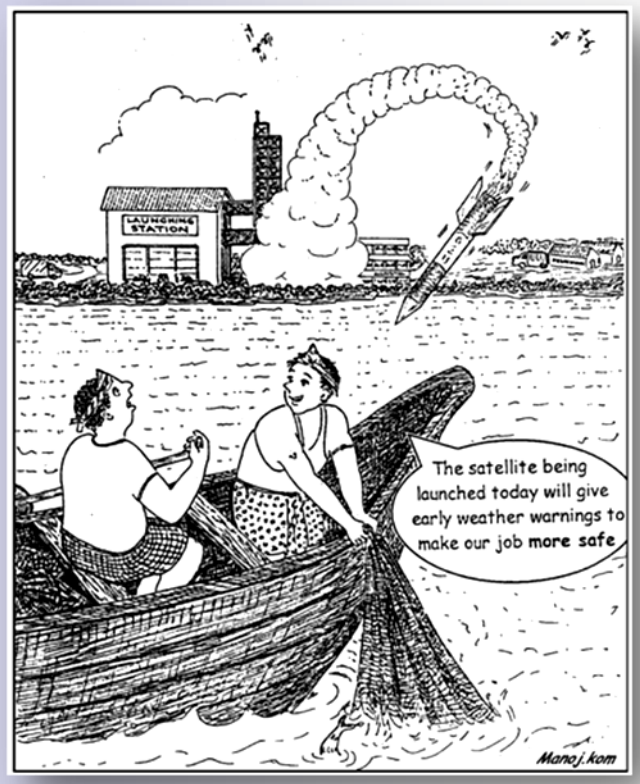
The winners (five) will be announced in next issue of Chitra Dhwani.

"May Light always surround you; Hope kindle and rebound you.
May your Hurts turn to Healing; Your Heart embrace Feeling.
May Wounds become Wisdom; Every Kindness a Prism.
May Laughter infect you; Your Passion resurrect you.
May Goodness inspire your Deepest Desires.
Through all that you Reach For, May your arms Never Tire."
(Poet: D Simone)

Photographic competition for Science pictures ONLY

Entries are invited for the pictures competition in science category. The pictures should have been clicked by a person who is sending the entry.
Only one entry can be submitted per person
Picture can be coloured or black & white
Last date: February 28, 2015 (Submit at enewsletter@sctimst.ac.in)

Artistic expressions..



(Contributed by Dr Manoj K , Bioceramic Lab)

QUIZ 4

Identify the object shown in above picture. What does it depict? Where is it located? Please send your entries to mailbox: enewsletter@sctimst.ac.in

The winners (five) will be announced in next issue of Chitra Dhwani.

The Nature-Art of God

(Digital-painting by Vasanthy Menon, Medical Illustration Division)

First prize winner Pookalam design at Onam celebrations 2014 in the BMT wing, SCTIMST

Patron: **Dr Jagan Mohan Tharakan, Director, SCTIMST**

Editorial Team:

Editor: **Kamalesh K Gulia** (*Sleep Disorders Research Lab)*

Co-Editors: **Vivek Pillai** *(Dept of Cardio-Vascular Thoracic Surgery)*
Manju Nair R (*Achuta Menon Center for Health Science Studies*)
Neethu Mohan (*DTERT, Biomedical Technology wing*)

Our Potential Reporters: Arathi R *(SDRL),* **Rahul VG** *(DTERT)*

Designing and layout: **Arumugham V and Leena Joseph** (*Calibration Cell, BMT wing*)

Special Acknowledgements: Liji Kumar G and Vasanthi S (Medical Illustration Unit **)**
To one and all for their valuable Contributions

E-magazine by Research and Publication Cell, SCTIMST, Trivandrum, Kerala, India

Feedback may kindly be sent to: **enewsletter@sctimst.ac.in**

(*The articles are invited for the next issue and may kindly be sent to the above mailbox*)