2015, Vol 3; Issue 2 & 3 Sree Chitra Tirunal Institute for Medical Sciences & Technology

Chitra Dhwani

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

M.S. VALIATHAN MEDICAL DEVICES ENGINEERING BLOCK & TIMed: BUSINESS INCUBATOR

E-payment Facility

"Dream is not that which you see while sleeping it is something that does not let you sleep."

www.sctimst.ac.in

Contents

All the previous issues of the Chitra Dhwani can be viewed at the following link:
http://www.sctimst.ac.in/About SCTIMST/Chitra Dhwani/

From Editor....

A Letter from the Editor

Dear All,

It's my pleasure to present the combined 2nd & 3rd issue, 2015 of our ezine "**Chitra Dhwani**" amidst new waves of change and several pragmatic developments. I would like to express my heartfelt gratitude to each and every member of the Chitra family for their kind support and generous co-operation in this magnificent endeavor.

On behalf of Ezine team and all the Chitra members, I extend Warm Welcome to our new Director. The moments are special and historical for the SCTIMST. The very first special message "**Our Dreams**" from our Director in this issue is enormously inspiring.

Inauguration of **MS Valiathan Medical Devices Engineering Block** and launching of the **TIMed** to nation by Dr Harsh Vardhan, Union Min for Sc & Tech & Earth Sciences, were special and memorable events. We are glad to provide the documentary link in this issue to re-visit those legendry proud moments. It is a privilege and honor to present the golden words of Prof MS Valiathan, coming straight from the most beloved and adored visionary of the time, in special column: "**In conversation with**".

The special feature on "**Acute Aortic Dissection**" will provide insight into the an outstanding expertise in the CVTS Department of the SCTIMST. A day at Medical Records Services describe the seamless electronic medical record facility in Chitra, beginning of era of the paperless record system in current era for increasing efficiency in clinical services. Memory lanes is truly memorable piece of write-up by Dr Kalliyana Krishnan V, our evergreen youth icon. Institute celebrated **Graduation ceremony** (**Convocation**) with great pride and emotional expressions of the graduate is remarkable.

It was a moment of colossal loss and grief when our beloved Dr APJ Kalam, the former President, luminary nuclear scientist left us. We pay a tribute to him. We have showcased the Rock Garden, in memory of rare work of Nek Chand, who converted the waste items in a beautiful artistic park.

The active participation of Chitra members in Quizzes and artwork activities is appreciated. We welcome suggestions from you about this endeavor, and continue to look forward to your co-operation and support.

Thanks and best regards

Kamalesh K Gulia
Editor
Scientist & In-Charge
Sleep Disorders Research Lab

Director's Desk...Our Dreams!

Dr Asha Kishore, Director, SCTIMST
Professor, Neurology

The journalist called my new job, the dream job. To me it is the job that entails making dreams real, the dreams of nearly 1000 of the workforce for this institute, the dreams that will decide the future of our institute. It is said that if your dreams don't scare you, then they aren't big enough. Will the dreams of a 1000 of its workforce be big enough, to elevate the position of this institution as unparalleled in the country or elsewhere?

We have a very glorious history, work culture, a unique structure and goals befitting a global leader that were built painstakingly by the stalwarts who led from the front and overcame seemingly insurmountable hurdles and set standards that baffled the rest of the country. Changes of leadership strengthened our structure and widened its scope. Passage of time didn't erode our commitment or work culture.

But if any of us feel an inner sense of restlessness, or a lack of the adrenaline rush of small victories in the work place, the time may have come for us to re-examine our methods, re-affirm our goals, re-define our strategies and re-create the passion that brought us here in the first place.

The rich resource of this institute is its highly skilled work force, dedicated, united and striving to get better and bigger. They have to unleash their energy, passion and talent like never before, for the institute to scale new heights. The system from its end has to be more efficient, pragmatic, nurturing, facilitatory and inspiring. United, we can strengthen the system and rid it of its weaknesses.

The real secret of success is enthusiasm and a balance between the wisdom, experience and pragmatism of the older and the energy and creativity of the younger. It might help us to remember that success is not what you accomplish in your life but what you inspire others to do.

As Churchill said, success is not final, and failure is not fatal. But one thing is for sure and that is, **we all have to strive hard to succeed and achieve larger goals than we have today, if this institution has to become the trail blazer that we all dream it to be.**

Landmarks...

SREE CHITRA TIRUNAL MEDICAL CENTRE 1973, 1976

The SCT Medical Centre was started in 1973 by His Excellency Shri V Viswanathan, Governor of Kerala, in presence of Shri C Achutha Menon, Chief Minister of Kerala. Shri PN Haksar, Deputy Chairman, Planning Commission inaugurated the Out Patient Services in 1976 when Dr MS Valiathan was the Director, SCTIMST & Shri NK Balakrishnan was the Minister for Health, Kerala

BIOMEDICAL TECHNOLOGY WING, 1977

Foundation stone for the Satelmond campus (BMT wing) was laid by Shri Morarji Desai, Prime Minister on Sept 23, 1977 in presence of Shri AK Antony, Chief Minister of Kerala and Shri J Chitharanjan, Minister for Health at that time. In 1980, the SCTIMST attained the status of "An Institute of National importance" by the act of Parliament, Government of India.

SETHU PARVATHI BAI SURGICAL BLOCK, 1981

Sethu Parvathi Bai Surgical Centre was dedicated to nation by Mrs Indira Gandhi, Prime Minister. Shri Vakkom Purushothaman was the Health Minister, Kerala at that time.

ACHUTHA MENON CENTRE for HEALTH SC STUDIES, 2000

Foundation stone for the Achutha Menon Centre was laid by Dr Manmohan Singh, Central Minister for Finance on 15.06.1992. The AMCHSS was dedicated to the nation by Dr Murlimanohar Joshi, Hon Minister for Science and Technology in 30.01.2000.

16 May, 2015

MS VALIATHAN MEDICAL DEVICES ENGINEERING BLOCK

TIMed: Tech Business Incubator for Medical Devices & Biomaterials

MS Valiathan Devices Engineering Block was inaugurated, and TiMED was launched by Dr Harsh Vardhan, Hon Union Minister for Science & Technology & Earth Sciences in presence of Shri KM Chandrashekhar, President of SCTIMST and Prof Ashutosh Sharma, DST Secretary. Prof MS Valiathan, the beloved Founder Director, SCTIMST, was the gem of the event. The dignitaries Shri TKA Nair, Chairman of the Kerala State Industrial Development Corporation; Dr Jaganmohan Tharakan, Director In-charge SCTIMST; Dr Mohandas, Former Director SCTIMST; Dr Shashi Tharoor, MP; Shri Maheswaran Nair K, Councilor, Poojappura, Trivandrum Corporation; Shri OS Neelakantan Nair, Head BMT wing graced the occasion.

> ***"Again and again, the impossible problem is solved when we see that the problem is only a tough decision waiting to be made"***

Special Feature

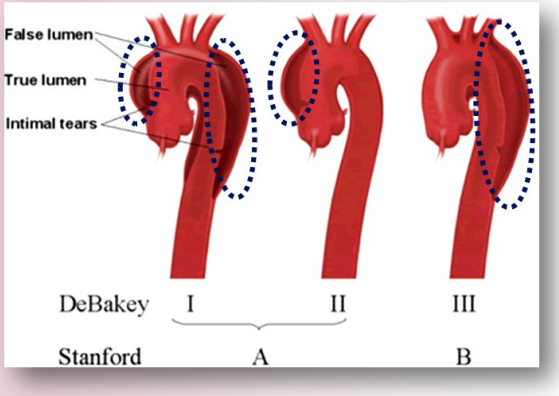
Acute Aortic Dissection: Multidisciplinary Strategies at SCTIMST

Difficulties Mastered are Opportunities Won!

SCTIMST Excels in the Management of Acute Aortic Dissection using Multidisciplinary Strategies

Aortic dissection is broadly defined as a disease involving disruption of the layers of the aortic wall: the intima, media, and adventitia (Aorta is the main distributing blood vessel from heart). In most cases, a new channel is created- the false lumen within the aortic wall. The false lumen may thrombose (clot) or remain patent and if patent, appears to be separated from the true aortic lumen by an interposing membrane or flap composed of intima and a thin layer of media. If the adventitia is also breached, a slow, contained leak or outright rupture may occur.

Types and structure of typical aortic dissections



Acute dissections are those with less than 14 days duration from the onset of symptoms. Sub-acute are of 14 to 60 days after symptom onset. With regard to location, dissections are categorized as involving the ascending aortic segment, the descending aortic segment (i.e., thoracic, abdominal, or thoraco-abdominal) or both. Dissections are classified into three types according to the location of the dissection and its intimal tear. Type I aortic dissections involve the ascending and descending aorta, type II dissections involve the ascending aorta alone, and type III dissections are limited to the descending aorta (thoracic alone [IIIa] or with the abdominal aorta [IIIb] as shown in the figure given above).

The incidence of lethal complications among untreated acute dissections that involves the ascending aorta is exceedingly high, with a resultant mortality of approximately 1 per cent per hour. Fifty percent of patients dies within 48 hours.

Causes

The etiopathology is multi-factorial and complex. Arterial Hypertension is a major cause. Marfan syndrome, Loeys-Dietz syndrome and other connective tissue disorders have long been known to predispose patients to thoracic aortic dissection. Trauma to the chest is another known cause.

Diagnosis & Management: A multidisciplinary Strategy

The cornerstone of successful management of acute dissection is early diagnosis and prompt initiation of treatment. Since it is a very challenging disease with predicted poor outcome most cardiac centers have 'shy'ed away from treating these patients.

The commonest symptom, pain, is more often described as "sharp" than as the textbook "tearing" or "ripping" sensation. Aortic dissection may masquerade symptomatically as many cardiac and noncardiac diseases. The diagnosis is made by the **cardiologist** who does an echocardiogram revealing a 'flap' in the ascending aorta. With a high index of suspicion, the radiologist is brought into the picture, leading to radiologic evaluation, primarily by computed tomography (CT), is necessary in today's practice. Correct treatment of patients with thoracic aortic dissection depends heavily on interpreting the chronicity, location, and other features of the dissection from an imaging study.

Although the acuity of a dissection is almost always apparent from the onset of symptoms (only 4% are asymptomatic), additional valuable clues can be gleaned from the presence of effusions or perivascular inflammation, and from the appearance of the aorta on imaging studies.

The CT remains the practical test of choice in most settings, and it is routine to acquire two sets of standard axial images, both with and without intravenous contrast. In patients to whom contrast agents cannot be administered, we rely on magnetic resonance imaging (MRI). These imaging techniques have almost entirely obviated the need for invasive diagnostic tests such as aortography, except in selected patients with malperfusion syndrome, in whom more detailed branch-vessel imaging may be required or a percutaneous intervention such as fenestration may be considered.

For patients who are unstable to transport to the radiology suite, the transesophageal echocardiogram (TEE) is routinely performed by the cardiac-anesthetist in the operating room. TEE is invaluable for planning surgery because it can identify specific site and cause of problem having difficult sounding names (aortic valve insufficiency, pericardial effusion & tamponade, cardiac segmental wall motion abnormalities, left ventricular hypertrophy & lesions).

Acute Aortic Dissection...

Surgical Management

The three critical inputs in this decision are the dissection's chronicity, its location, and any complicating factors associated with it. Generally speaking, acute ascending aortic dissections are always considered a surgical emergency and technically very demanding for the **cardiac surgeon**; all other dissections only require surgery when accompanied by complications, such as aneurysmal dilation (the commonest indication for chronic dissections), malperfusion syndrome, rupture, leak, or intractable pain or hypertension.

Optimal surgical management of the complex patients depends on the coordinated efforts of a skilled team. The patient is expeditiously transported to the operating room, where endotracheal intubation, intravenous access for rapid infusion, and monitoring-including blood pressure monitoring via left radial and femoral arterial lines-are instituted. Whenever possible, TEE is performed before and after the procedure.

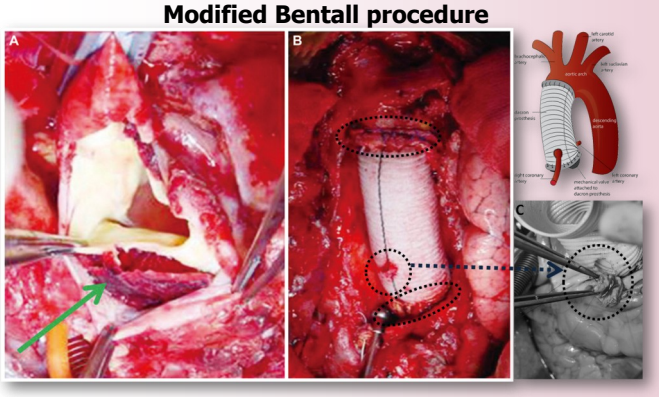
Surgery entails placing the patient on cardiopulmonary bypass expeditiously, cooling the patient, arresting the heart and if required the entire circulation temporarily and replacing the ascending aorta. Modified Bentall, Supracoronary or even Subcoronary replacement of Ascending Aorta maybe done as deemed necessary. Rarely a coronary bypass operation needs to be added to the above procedures.

Because acutely dissected aortic tissue is inflamed, friable, and not easily sutured securely, special techniques for sewing a graft to the separated layers of the aorta are needed. It is well worth any additional effort needed to obtain secure, hemostatic anastomoses in these complicated cases, because bleeding from these sites afterwards may be extremely injurious, if not fatal. It is our practice to reapproximate the two layers together with a strip of Teflon patch between the two layers to obliterate the potential space between them (the false lumen) and we use tissue glue as the benefits of using glue appear to outweigh the risk of complications. By and large, these operations can be performed without excessive bleeding if meticulous surgical technique is combined with aggressive adjunctive hemostatic measures, including the use of antifibrinolytics, blood products, and strict blood pressure control.

The results of operations for acute ascending dissections are good in the current era. An overall operative mortality of 24 per cent, with worse outcome predicted by such characteristics as age ≥70 years, hypotension, shock and pulse deficits.

For acute dissections of the descending aorta, surgery is not indicated in most patients. The exceptions to this rule are patients with dissections complicated by rupture, leak, branch vessel ischemia, unremitting pain, uncontrollable hypertension, or aneurysm. In these cases, surgery can be life-saving and is directed at relieving the complication. Given that many of these patients are moribund, with life-threatening co-morbidities such as hypotension, acidosis, or end-organ dysfunction, it is no great surprise that the results of surgery-which is often performed emergently as a last resort -are generally poor.

Surgery for Acute Type A Aortic Dissection: Modified Bentall procedure



(Green arrow is pointing to the false lumen; the right upper most sketch shows the placement of Dacron prosthesis , right coronary artery and valve)

The management of malperfusion syndrome—that is, organ or limb ischemia that causes symptoms or dysfunction-is in considerable flux. The mechanisms responsible for malperfusion syndrome vary but generally involve compromise of the true lumen by the false lumen at the level of the aorta (dynamic obstruction) or branch vessel (static obstruction) by compression, disruption, thrombosis, or other means. These distinctions are critical for determining appropriate treatment. Percutaneous interventions by **interventional radiologists** have become established as the first-line therapy tor malperfusion syndromes in most cases. Diagnostic aortography is performed to determine whether concomitant intervention for the dissection and malperfusion is necessary. Such intervention, which consists of percutaneous fenestration, endovascular stenting, or both, is intended mainly to relieve static obstruction of the branch vessels that supply specific ischemic vascular territories. Stenting the aorta may also help to buttress the true lumen in the event of dynamic obstruction. Additionally, the aorta may be stented for rupture and other emergencies.

Acute Aortic Dissection...

After open surgical or endovascular repair, as before, the mainstay of postoperative care is aggressive blood pressure control, using intravenous agents initially and transitioning to oral medications as tolerated. This is especially true for patients with residual aortic dissection, aneurysm, endoleak, or endotension, or a propensity for further dissection (such as that caused by connective tissue disorders). As described above, first-line therapy is beta blockade, but additional antihypertensive medications are added parsimoniously and titrated upwards as necessary.

In acute dissections particularly, reducing postoperative bleeding requires special attention and can be facilitated by maintaining a lower perfusion pressure. However, other considerations, such as renal failure and neurologic impairment (particularly that caused by spinal cord ischemia), may counterbalance a patient's ability to tolerate hypotension, even if the hypotension is only relative to preoperative measurements. Systemic inflammatory responses are not uncommon after acute dissection, and they may manifest variably as disseminated intravascular coagulopathy (especially after a long and complicated open procedure), vasoplegia, or acute respiratory distress syndrome. Because some of these sequelae may be transfusion -related, and because the use of blood products may be unavoidable if bleeding and coagulopathy occur, we have adopted a low threshold for re-exploration for bleeding in these complex cases.

Because the postoperative course can be stormy, with a high number of pulmonary and other complications, a team approach to postoperative management is essential. We have found that input from a **critical care specialist,** as well as from a variety of consultants, is invaluable.

In SCTIMST, over 100 cases of acute dissection surgeries were performed from 2005 to 2015. Sree Chitra is largest centre in the state doing this procedure. Chitra is a referral base not only for the whole of Kerala but also other states like TamilNadu, Karnataka, Andhra Pradesh and parts of northern India.

The outcomes of surgery are good with low mortality (about 5%) that matches the world class success rate. This is possible due to the multidisciplinary and standardized management protocol. The CVTS team of the SCTIMST have perfected these techniques due to substantial surgical experience in such an infrequent yet extremely challenging situation.

Because graft infection is particularly likely to cause morbidity, intravenous antibiotics are continued postoperatively until all drains and tubes have been removed, these patient are placed on antibiotics for a week after discharge, and a high level of vigilance is maintained in monitoring for and eradicating infection. Other beneficial adjuncts are used including continuous venovenous hemodialysis in hemodynamically labile patients. With such intensive measures in the immediate postoperative period, many patients can return to a good quality of life.

The successful management of all dissections banks on strict, lifelong blood pressure control, regardless of any surgical, endovascular, or other interventions, mainly by pharmacologic treatment and lifestyle modifications, including reduced sodium intake, weight loss maintained through diet and moderate exercise, and risk-factor reduction, especially smoking cessation.

Family members of index patients with connective tissue disorders should be screened for aneurysms. Rehabilitation, including physical and occupational therapy, often helps patients make the transition from hospital to home as smooth as possible. Once the patient is at home, close follow-up is recommended for blood pressure control by the patient's primary care physician and, ideally, by a cardiologist, as well. Furthermore, close lifelong radiologic follow-up of aortic dissections and stent-grafts is required.

Although the management of thoracic aortic dissections remains challenging, medical and surgical intervention have produced gratifying results for many patient. It is prudent to mention that the founder of surgery for aortic dissection, Dr Michael E DeBakey, recently becoming its oldest and most notable beneficiary. SCTIMST has carved a niche for itself in the management of aortic diseases in general and acute aortic dissection in particular. Our referral base not only include the whole state of Kerala but also the adjoining states and parts of northern India. According to the Head of the CVTS, Prof K Jayakumar, ***"The success of the program having world class results lies in the concerted efforts of cardiac surgeons, cardiologists and interventional radiologists in the management of these challenging diseases."***

(This special feature is prepared by Dr Vivek V Pillai and Dr Vijay T Cherian, Department of Cardio-Vascular Thoracic Surgery, SCTIMST)

Inauguration: M.S. Valiathan Medical Devices Engineering Block

MS Valiathan Devices Engineering Block was inaugurated by Dr Harsh Vardhan, Hon Union Min for Science & Technology & Earth Sciences in presence of Shri KM Chandrashekhar, President of SCTIMST and Prof Ashutosh Sharma, DST Secretary. Prof MS Valiathan, Shri TKA Nair (Chairman, KSIDC); Dr Jaganmohan Tharakan, (Director In-charge SCTIMST); Dr Mohandas (Former Director SCTIMST); Dr Shashi Tharoor (MP); Shri Maheswaran Nair K (Councilor, Poojappura,TVM Corporation); Shri OS Neelakantan Nair (Head BMT wing) during the inauguration ceremony in the biomedical Technology Wing campus, SCTIMST at Satelmond Palace, Poojappura.

Bhishmacharya of Biomedical Sciences and Technology

Prof Marthanda Varma Sankaran Valiathan, Bhishmacharya of Biomedical Sciences & Technology, foresaw the need for indigenous development and commercialization of medical devices in India nearly 40 years back. The founder Director of the Sree Chitra Tirunal Medical Institute from 1974 to 1994, Dr Valiathan has been instrumental in paving the way for the growth of indigenous medical device technology and its development in India. The Institute became an Institute of National importance in 1980 under his able leadership.

He is not only an eminent cardiac surgeon but a great visionary and an academician beyond comparison. The flagship device of the Institute "**the Chitra heart valve**", which has been implanted in nearly 80,000 patients across the world till now, was developed under his able guidance in '80s. He has received several awards in his career and the country honored him by awarding the title Padma Vibhushan in 2005. Dr Valiathan has been the ultimate Guru for many of us. His dynamic enthusiasm and persona provided constant encouragement to many to search for the potential within for better performance and to translate the knowhow developed in the lab into viable products. He ensured that bureaucracy never become a hindrance to scientific progress. He visualized medicine a holistic entity and never bothered about compartmentalizing them into categories of Allopathy, Ayurveda etc. He served the nation as Vice-chancellor of MAHE, former President of the Indian National Science Academy, and advisor in many Government bodies and more importantly authored the books Legacy of Charaka, Legacy of Sushruta and Legacy of Vagbhata, that are included in the academic curriculum of many universities.

His dynamism, vision, and oratory are qualities that anyone could always love to emulate. He is as active and agile today as he was in his early days. He is currently a national Professor of Government of India located in Manipal University. The new engineering block in the Biomedical Technology wing, SCTIMST is named after Prof Valiathan, with aspiration that his vision and wisdom will percolate down into the newer generations to come and motivate them to focus on taking up challenging problems and bring forth innovative medical products.

Inauguration: M.S. Valiathan Medical Devices Engineering Block

Dr Harsh Vardhan, Honorable Union Minister for Science & Technology & Earth Sciences, honoring Prof MS Valiathan with ponnada during inauguration function of the MS Valiathan Medical Devices Engineering Block & launching of the TIMed

Prof Ashutosh Sharma (DST Secretary); Prof MS Valiathan (Founder Director, SCTIMST); Shri KM Chandrashekhar, President of SCTIMST

Shri TKA Nair, Chairman KSIDC; Dr Shashi Tharoor, MP; Dr Mohandas, Former Dir, SCTIMST; Dr Jaganmohan Tharakan, Dir In-charge SCTIMST; Shri Maheswaran Nair K (Councilor, Poojappura,TVM Corporation); Shri OS Neelakantan Nair, Head BMT wing; Dr Kalliyana Krishnan V, Scientist G (Senior Grade), BMT wing, SCTIMST on May 16, 2015 during the inauguration function.

Launching of Business Incubator: TIMed…

***TIMed**, Technology Business Incubator for Medical Devices & Biomaterials was launched by Dr Harsh Vardhan, Hon Union Min for Science & Technology & Environmental Sciences in presence of Shri KM Chandrashekhar, President of SCTIMST and Prof Ashutosh Sharma, DST Secretary. Shri TKA Nair (Chairman, KSIDC); Dr Jaganmohan Tharakan, (Director In-charge SCTIMST); Dr Mohandas (Former Director SCTIMST); and Shri OS Neelakantan Nair (Head BMT wing) are seen in the picture.*

Dr Harsh Vardhan, having a close look of the revised Chitra Heart Valve; Prof MS Valiathan assessing the current developments in his favorite valve; the dignitaries viewing the devices and products made at the SCTIMST displayed in the exhibition during the event.

New Engineering Block..

M S Valiathan Medical Devices Engineering Block

Rationale: Imprints of our Institute in developing appropriate and affordable technologies and establishing their market presence through industrial partnership and its implicit impact on laying a foundation for the growth of Indian medical device industry is unique, significant and well recognized. In order to provide and maintain a robust and sustainable innovation ecosystem based on core competencies utilizing advances in technology and to maintain continued leadership in the domain, the Institute is expanding its competence though the M S Valiathan Medical Devices Engineering Block, a 50,000 square feet laboratory facility dedicated for the development of medical devices.

Facilities/ Team: This is managed by team of Engineers/Scientists and being equipped with all the essential and advanced state of the art facilities for the medical device development including modeling and simulation, particle image velocimetry, heart simulator, prototyping facilities using both rapid prototyping as well as CNC machining, along with full fledged facilities for testing all the devices being developed and contributing further towards providing affordable high quality healthcare.

Click to View the Documentary on Inauguration Function of MS Valiathan Devices Engineering Block & TIMed, The Business Incubator

http://www.sctimst.ac.in/About%20SCTIMST/Chitra%20Dhwani/resources/inaguration_bmt_mdeb.mp4

Documentary Time: 1:43:04

New Incubator: TIMed..

Technology Business Incubator for Medical Devices & Biomaterials

Objective/Goal: The main objective of the incubator **"TIMed"** is to host and promote medical technology start-ups and entrepreneurship. It will assist and promote startup companies to create innovative medical devices and technology.

Incubatees: The incubator is open to enthusiastic entrepreneurs, scientists, students, clinicians and anyone who would like to take and entrepreneurial role in medical devices sector. It is also open to industry who wanted to launch a new product to market with the support of the incubator. Incubatees will be selected after a review of the proposed business plan.

What Timed offers: TIMed will provide a strong mentoring in scientific, technical and business domains to its incubatees with the help of its network of mentors both from within SCTIMST and experts from other institutions and industry. TIMed will also offer much needed facilities and infrastructure including office space, laboratory modules with options of wet/dry labs, modular manufacturing units, shared clean room facility and access to resources from SCTIMST including sophisticated equipment, precision tool room facility, testing & evaluation facility, animal surgical facility, animal house, library, etc. In order to engage with a larger number of incubatees, apart from physical incubation at TIMed, virtual incubation support will be extensively promoted to those located anywhere in the globe. As part of a grand vision to create a cluster of biomedical industry at Thiruvananthapuram city, successful start-ups incubated from TIMed will have an attractive option to seamlessly grow into larger enterprises by moving into the proposed medical devices park at KSIDC's Life sciences park campus.

Key infrastructure: TIMed, 10,000-sq ft lab facility, is located at the 5th floor of the MS Valiathan Medical Devices Engineering Block at the Biomedical Technology Wing campus of SCTIMST at Poojappura.

"Unprecedented technological capabilities combined with unlimited human creativity have given us tremendous power to take on intractable problems like poverty, unemployment, disease, and environmental degradation. Our challenge is to translate this extraordinary potential into meaningful change"

New Director and New Facilities.....

Special Message

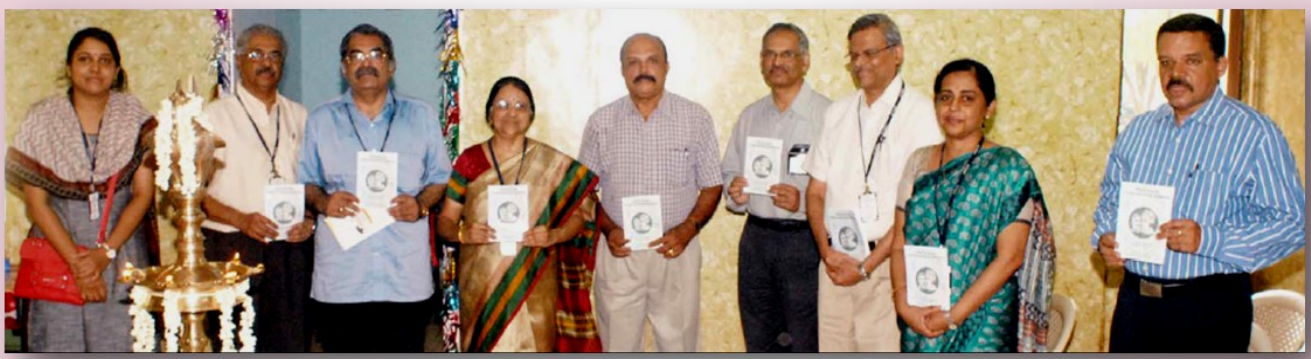
Dear Colleagues, I wish to convey my heart felt appreciation, to all the Institute staff and students for their utmost cooperation and kindness extended to me, which enabled me to discharge my duties as Director in Charge to the best of my ability.

Sincerely
Dr Jaganmohan Tharakan
Former Director In-charge

(***Dr Jaganmohan Tharakan*** *(Former Director) handing over the charge to* ***Dr Asha Kishore****, New Director, SCTIMST on 15.07.2015)*

The Autism Clinic will operate at Ground Floor, Block C, Neurology OPD, on every 1st and 3rd Saturday from 10 AM to 1PM. This clinic will cater to Autism Spectrum Disorders including ADHD, Learning Disabilities, Developmental Dyslexia.

Autism Clinic in SCTIMST was inaugurated by Dr Asha Kishore (Director, SCTIMST) and Dr Jaganmohan Tharakan (Former Director, SCTIMST) in the esteemed presence of Dr C Sarada (Medical Superintendent, SCTIMST) and Dr MD Nair (Head, Neurology Department, SCTIMST). Dr Suresh Nair (Dean, SCTIMST); Dr AV George (Registrar), Dr Sanjeev Thomas, Dr Kuruvilla, Dr Sailaja and others joined hands on the occasion. The awareness booklet on Autism was also released on the occasion.



New Faculty, Books and Facilities.....

New Faculty

Dr Bineesh K
Asst Prof, CVTS

Dr Sruthi S Nair
Asst Prof, Neurology

Dr Jayanand Sudhir B
Asst Prof, Neurosurgery

Dr Prakash Nair
Asst Prof, Neurosurgery

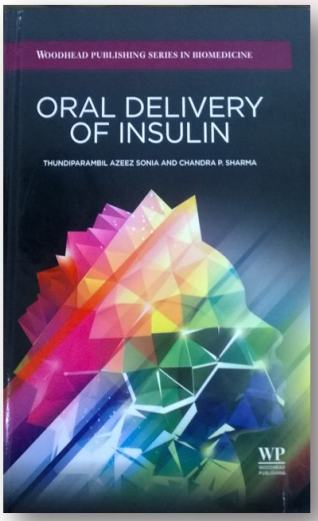
Dr Saumaya Sundaram
Asst Prof, Neurology

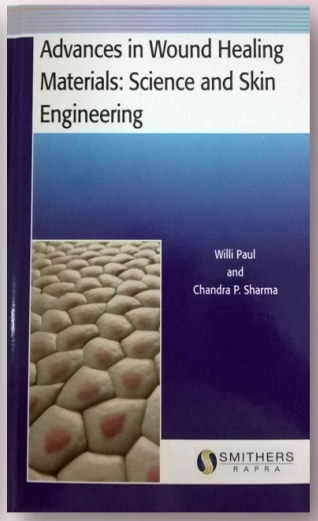
Dr Aruvelan
Asst Prof, Anesthesiology

Dr Praveen KS, Ramanujan Fellow, TIC, BMT Wing

Congratulations! Congratulations!
Welcome to SCTIMST

Books





"Oral Delivery of Insulin" by Thundiparambil A Sonia & Dr Chandra P Sharma is published by Woodhead Publication Series in Medicine; "Advances in Wound Healing Materials: Science & Skin Engineering" by Willi Paul & Dr Chandra P Sharma is published by Smithers Rapra in 2015

New Guest House @ Kumarapuram Complex

New Guest House inaugurated by Dr C Sarada (MS, SCTIMST)

In Conversation with… Prof M.S. Valiathan

Founder Director of SCTIMST

Dr Marthanda Varma Sankaran Valiathan, *the Founder Director of the SCTIMST; Padma Vibhushan; Former VC of Manipal Univ*, currently National Research Professor of the Government of India, is profoundly adored and respected by the Chitra family and all. Dr Valiathan, a cardiac surgeon, is pioneer in the development of medical technology in India. Excerpts of conversation with Dr MS Valiathan…

Q: What are your expectations for the newly inaugurated MS Valiathan Medical Devices Engineering Block which is named after you?

R: Medical devices have captured unprecedented attention from the Government and Industry in the last few years. It is a far cry from our early years in Chitra. "**Translational Medicine**", "**Frugal Technology**", "**Make in India**" are slogans which sound louder by the day. The undeniable fact is that these activities were successfully done in Chitra thirty years ago. In the present context when Chitra has built new facilities for Medical Devices Engineering, I would like to see Chitra-designed and Chitra-engineered devices becoming a market leader and a transformational agent in India's health care.

Q: Which is the major breakthrough Medical Device you are looking forward to from here after the legendary Heart valve?

R: There is much that calls out to be done. Projects in the pipeline for too long – the new model of TTK Chitra Valve, pre-coated vascular graft and other devices – should meet the remaining requirements for early commercialization. Whatever was stopping their speedy development should be noted and corrections made. But that is not enough. It seems to me that Chitra should take up new technologies which are "state-of-the-art" and have huge demand – actual and suppressed in India. A few examples are simulation based on virtual reality which have huge applications in the training of doctors, nurses, allied health professional etc., in India and abroad; 3-D bio-printed tissues which could be used by drug industry if not in the clinic; and photonics based instruments. In the choice of technologies the primary criteria should be their need and demand in the Indian market, state-of- the-art status, partnership with top institutions and the active interest of industry.

Q: Why scientists still search for novelty in medical research, when there are millions of things already explored but never used for benefit of mankind? Do you think the primary focus of researchers in our Institute should change from-search-for-novelty to how available knowledge can be better utilized in health care?

R: If a solution to a diagnostic or therapeutic problem in health care is at hand that is not a full stop. It only means that research should continue to improve the solution, make it less invasive, less expensive and so on. There is always scope for innovation which is never ending. That is impossible without research.

Q: What change do you observe in SCTIMST of now vs the early days when you had taken painstaking effort and led into developing this Institute.

R: Chitra is facing a "mid-life gloom", when the anxieties, frustrations, excitement and triumph of early days have given way to fatigue and complacency. This must change.

Q: After a long career as a cardiac surgeon, how is it that Prof MSV was attracted to Ayurveda? Will Ayurveda have a significant impact on patient care in the modern era?

R: I have been a nomad both geographically and intellectually. After a quarter century in cardiac

surgery and research followed by five years as a Vice-Chancellor, I turned to a study of Ayurvedic texts when I was 65 - not for practice, but to identify observations which could be studied with the tools of modern biology. This was a novel approach which I outlined in my "Towards Ayurvedic Biology" published by the Indian Academy of Sciences in 2006 as a Decadal Vision Document. It was novel because almost all research in Ayurveda until then had been focused on herbal drugs. My pickings in the new vine yard were not bad – three large volumes on Ayurvedic classics; a Task Force in Ayurvedic Biology under my Chairmanship set up by SERB and providing support for research in several noted institutions in India. The papers emerging from their studies in modern biology based on cues from Ayurveda have appeared in excellent journals including Nature/Scientific Reports, PLoS ONE, J Translation Medicine etc. It is my hope that Ayurvedic Biology will become globally accepted as a new branch of biology in the next ten years.

Regarding the 2nd part of the question, Ayurveda will play an important and complementary role in health care especially in the management of a whole range of life style diseases, degenerative diseases of the nervous and musculo-skeletal systems, palliative care and so on.

Q: Prevention is better than cure. Ayurveda is more of maintaining health whereas Allopathy and surgery is more of curing a disease. Having a deep understanding of both, in your opinion which medicine should we concentrate and develop further or can we integrate both of them to better serve the health of man today?

R: No system of medicine has remedies for all ailments. Western countries which pioneered and champion modern medicine have acknowledged this by recognizing traditional medicine including Ayurveda as "Complementary and Alternative Medicine". NIH has set up an Institute for this discipline. Ayurveda is being taught in Europe, US and Russia. We need to evolve a joint and harmonious culture of modern medicine and traditional medicine – integration is not the right word. The effort to develop a joint culture calls as much for research and reorganization as for wisdom and good will. I must admit that the effort has been half-hearted and hardly successful.

Q: Prof, you have worked in many institutions and in many capacities after the term at Chitra. What is your take on the Chitra model hospital i.e. limited specialties with sub-specialty focus? Is it the way forward in a country like India or do we need to diversify?

Translational research has not been very effective in India especially in medical device arena. High import percentage in the country, Biomedical technology has been on the back bench even in the newly launched 'make in India' campaign. How can we change that?

R: In our health care domain, a glaring fact is that 90% of high tech instruments and devices – essential for good quality of patient care – are still imported at high cost. As a consequence, the patients who have access to high quality care are probably limited to 10% of India's population. While 10% is a large number in absolute terms – 120 million – and attractive for MNCs, it leaves out 90% of India's population who have no access to good care especially in specialties. If this state of affairs is to change – and change it must – we need many more Chitra's across India, which combine a research oriented hospital with a technology centre focused on medical devices development. This was pointed out by Hon. Minister Dr Harsh Vardhan in his speech on 16th May in the BMT Wing. Indeed, the Chitra model demands replication in many places at the national level with appropriate variations to make "translational research" and frugal technology" a living reality in India and an agent of transformation in India's health care.

Q: What do you do in your free time? Your hobbies?

R: Reading, music, "walking up and pacing down" in our garden.

Q: What is your message for the SCTIMSTians especially the youngsters....

R: Do discovery, invention driven research; whatever you do, do it with passion. Life will then become interesting, rewarding and worthwhile.

Q: What is your view on the Chitra Dhwani, the Institute's ezine?

R: I enjoy reading the Chitra Dhwani. I get to know about the recent developments at SCT through ezine. It gives immense pleasure to glance at the memory lanes from colleagues. I wish the team Very Best in this fabulous endeavor……

(The interview was conducted by the Editorial team in the BMT wing campus on July 20, 2015; photographs by Arathi & Rahul)

A Day at the Medical Records Services..

"GOOD MEDICAL RECORD REFLECTS GOOD PATIENT CARE"

SCTIMST is in frontiers for introducing Electronic Medical Records (paperless) since January 2015 which is implemented in all clinical services stage by stage. Medical Records Service, managed by a well trained team comprising-Senior Medical Records Officer (SMRO) & Head, MRO, one Assistant MRO, 3 Senior MR Assistants and 6 MR Assistants, is the backbone for efficient & quick workflow. The personnel in the Medical Record Services are the unseen yet most active interface in making the Drs-Patients link superfast!

History of Medical Records Services runs parallel with the history of the Institute and continued to play a vital role in providing tertiary health care, assisting academic, research activities and share due responsibility in efficient management of Hospital services.

Medical Records/ Health Records are being maintained to pursue the clinical, academic, administrative and legal requirements of the hospital.

OWNERSHIP: Hospital is the owner of physical Medical Records. Patient has the right for the information contained in it. Senior Medical Records Officer is the custodian of Medical Records. Senior Medical Records Officer serves as Assistant Primary Public Information Officer (Patient information) under the ambit of RTIA, 2005.

LEGAL DOCUMENT: Indian Evidence Act 1872, emphasizes Medical Record as a legal document. As the medical profession comes under the ambit of Consumer Protection act 1986 and Right to Information Act 2005, maintenance of well defined Medical Records system is made mandatory and essential.

CONFIDENTIALITY: Medical Records is a confidential document, being a product of privileged communication between patient and health care providers. It is profound duty of all engaged in healthcare to maintain confidentiality and privacy of information.

IMPORTANCE: Quality and Quantity ensured Medical Records Service being offered facilitates an efficient health care delivery and restricts repetition of investigations, especially of sophisticated that reflects monetary impact on patient. Medical Records Service provides study material and statistics for academic and research activities by Residents, Doctors and allied health care personnel. It is also a tool to doctors to revisit their own performance.

Being a legal document, it protects the legal interest of patient, doctors and hospital management. Medical Record is the sole evidence of treatment offered to patient by doctor/ hospital. Statistical information's compiled from Medical Records are used in patient care pertained decision making.

ACCESS: Considering confidentiality and privacy of information, access to Medical Records restricted to authorized persons for purpose like clinical, study purposes only. Access for academic purpose is on request and recommended by concerned Head of the Departments (HODs)/ Consultant only.

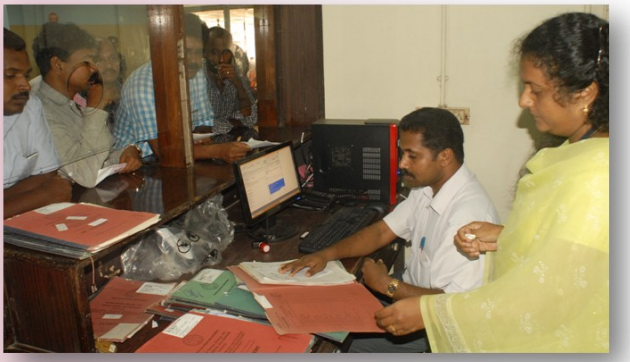
DAY TO DAY ACTIVITIES:

- Documentation and updation of socio-economic and personal data of patients.
- Processing registration and admission procedures.
- Maintenance of staggered appointment system and without appointment review system.
- Quantitative analysis of records, deficiency reporting and getting completed in time.
- Coding and indexing of diseases, procedures using ICD coding system and retrieval of data.
- Providing study material (records) and health care statistics for academic and research activities.
- Generation and circulation of hospital statistics to hospital administration and clinical Heads periodically.
- Patient care centered correspondences and enquiries.
- Processing and issue of various certificates for availing financial assistance from social security schemes and for other personal/official purposes.
- Online reporting of particulars pertained to hospitalized overseas patients to Foreigner's Regional Registration Office (FRRO), Thiruvananthapuram.
- Reporting incidence of death to the Registrar, Corporation of Thiruvananthapuram.
- Attending Court duty for giving evidence/ to submit Medical Records on receipt of summon - following procedures.
- Release of Medical Records information to third party payers like Insurance companies for processing claim following stipulated procedures.
- Providing copies of Medical Records to patients/ authorized persons on request following procedures.
- Printing, storage & supply of patient care related forms
- Attending health information conferences as resource persons / participants.
- Conducting academic programs in Medical Records Science (PGDMRSc).

DIGITIZATION: Digitization of Health Records Services initiated in the year 1986. Following are the areas totally digitized as on today.

- Providing new appointment to patients.
- Out-patient registration & In-patient admission process.

A Day at the Medical Records Services...



Electronic Medical Records (EMR) processing

Scanning of Medical records for uploading to server

- Repeat review appointment maintenance.
- Without appointment review system.
- Ward census preparation.
- International Classification of Diseases and Procedures register.
- Patient alpha index register.
- Tracing registration number of patients.
- Movement of Medical Records.
- Supply of records for clinical study/ research Short period retainment of records in peripheral MRD offices.
- Filing register & Incomplete records control.
- Diagnosis and procedures search.
- Process and issue of various certificates.
- Statistics compilation and presentation.

SPACE MANAGEMENT: 4,00,000 out-patient records and 2,44,000 in-patient records had been generated and maintained. An average of 100 out-patient and 40 in-patients records are added daily with this stock. Finding accommodation for this new record is a concern. In order to address the issue, inactive records are removed from active area and stored separately giving accommodation for new generated ones.

SCANNING OF RECORDS AND PRESERVATION IN SERVER:

Being a teaching Institute, records are not discarded after the established retention period as they are essential in study/ research. To address this concern, all the records, except electronically established (paperless) cases are scanned and stored in Institute Server as images. Apart from the scanning, other forms of storage like microfilming and microfiche were tried in the past and found to be futile.

ELECTRONIC MEDICAL RECORDS (EMR): Electronic Medical Records (paperless) has been initiated since January 2015 and planned to implement in all clinical services on stage by stage manner. This has been implemented in Cardiology out-patient service and is progressing well with the whole hearted involvement of all concerned.

From Medical Records side, dedicated manpower's have been provided to assist EMR implementation.

As the EMR progressing, encouraging factors being observed on the following grounds.

- Providing accurate, up-to-date and complete information about patients at the point of care.
- Enabling quick access to patient records for more coordinated, efficient care.
- Securely sharing electronic information with patients and other clinicians.
- Helps providers more effectively diagnose patients, reduce medical errors and provide safer care.
- Improving patient and provider interaction and communication, as well as health care convenience.
- Enabling safer, more reliable prescribing.
- Helping to promote legible, complete documentation and accurate, streamlined coding and billing.
- Enhancing privacy and security of patient data.
- To improve efficiency
- Reducing costs through decreased paperwork, improved safety, reduced duplication of testing and improved health.
- An answer to space crisis in the Department.

ACADEMIC PROGRAMME: An academic programme, Post Graduate Diploma in Medical Records Science has been offered since 1999 with an annual intake of 2 candidates.

Team Medical Records Service: Staff & Students

(Contributed by Thampi NG, Senior Medical Records Officer & Head, SCTIMST, Trivandrum)

"Electronic health records ensures quality and speedy care, reduces errors, bring down costs, ensure privacy, and save lives"

Research Highlights....

Tissue engineered dermal substitute from the adipose derived stem cells: Novel scheme to produce transplantable dermal tissue!

In chronic disease conditions such as diabetes and deep burns, non-healing wounds is a common complication. Currently, therapeutic options to promote healing of such wounds are not available. Severe loss of dermal tissue necessitates grafting but harvest of autologous tissue can often cause another morbid site. In such cases, stem cells may be useful to produce tissue engineered dermal substitute - an essential skin compartment which support epidermal growth, angiogenesis and innervations. For making non-immunogenic engineered tissue, patient's own adipose-derived mesenchymal stem cell (ADMSC) is most ideal. Direct transplantation of this multi potent stem cell may result in undesirable differentiation to other cell types. Therefore, commitment of ADMSCs to the fibroblast lineage using a specific niche could be the primary step for *in vitro* or *in vivo* skin tissue engineering.

The research team lead by Dr Lissy Krishnan have standardized the procedures for *in vitro* culture conditions to induce ADMSC into dermal-like fibroblasts with potential to proliferate and deposit extra cellular matrix (ECM) proteins to render suppleness and elasticity to the regenerated tissue. They used biomimetic matrix such as fibrin coated on culture surface with incorporated growth factors and glycosaminoglycans to create a fibroblast-specific niche (FSN). The expressions of fibroblast-specific protein-1 (FSP-1) and a panel of dermal ECM -specific molecules such as fibrillin-1, collagen I, collagen IV and elastin confirmed differentiation. Reverse transcriptase polymerase chain reaction (RT -PCR) and immunostaining established that ECM production by ADMSC-derived fibroblast is well regulated. Most strikingly ADMSC-derived fibroblasts synthesized elastin, a property which is not seen even in normal wound healing in adults older than 20y. In summary, ADMSC isolated from >50y old patients multiplied well and were differentiated into normal, young adult-like fibroblast. Future prospect of this finding is to create fibroblast-specific niche on biodegradable scaffolds to culture ADMSC and produce transplantable dermal tissue.

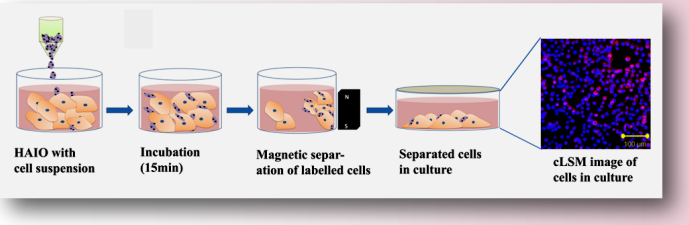
According to Dr Lissy, these findings bring new hope for the effective wound healing substitute in near future.

Ref: *Unnikrishnan S, Jayakumar K, Krishnan LK. Matrix-directed differentiation of human adipose derived mesenchymal stem cells to dermal-like fibroblasts that produce extracellular matrix*. ***J Tissue Engineering Regenerative Med*** *2014.*

Super-paramagnetic nanoparticles assisted targeted cell delivery & therapeutic applications!

Cell therapy consider as an emerging technology is being investigated for treatment of various injuries, diseases affecting multiple tissues and for tissue regeneration. It provides more promising solution for several disease and injuries compared to most conventional medicines and therapies, particularly because cells can perform better physiologic as well as metabolic duties than any of the mechanical devices, recombination proteins or chemical compounds. However, there are a lot of hurdles to systemic administration of bare cells, causing significant difficulties for effective retention of the therapeutic cells at the target site. In order to achieve greater efficiency and optimum performance, a higher cell dose is inevitable. Higher concentration of cell doses induce larger systemic circulation, which in turn raises safety concerns. Hence the delivery of efficient quantity of cells in a targeted site with required dosage is a basic challenge for this treatment. Recently the superparamagnetic nanoparticles has been reported for targeted delivery of various biomolecules and drugs successfully.

Dr Verma and his team developed novel superparamagnetic nanocomposite particle via iron oxide embedded hydroxyapatite crystals [HAIO]. HAIO has been studied for cellular adhesion and concentration in a specific site with the aid of external magnetic field. The magnetically separated cells were cultured under *in vitro* conditions and characterized. Results revealed that the newly developed HAIO may be used as an efficient matrix for magnetic non-invasive manipulation and for further targeted cell delivery and therapeutic applications.



Ref: *Beeran AE, Francis Fernandez FB, John A, Harikrishna Varma PR. Self-assembled super-paramagnetic nanocomposite - labelled cells for noninvasive, controlled, targeted delivery and therapy.* ***RSC Advances****. 2015; 5: 36742-52.*

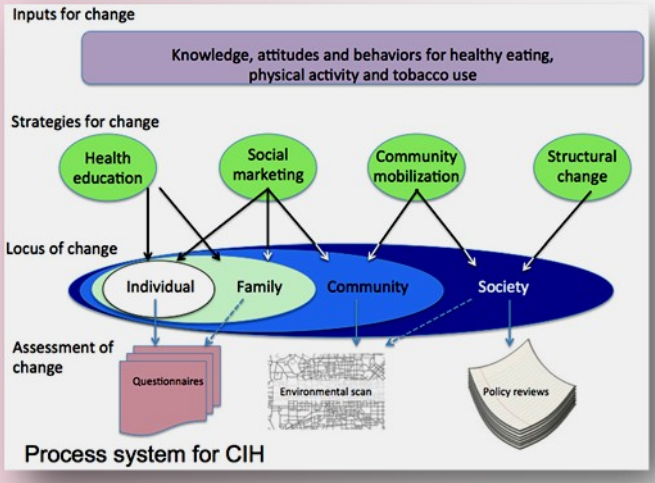
"Research is creating new knowledge"

Research Highlights....

International Community Interventions helpful in Reducing Risk Factors for Non-Communicable Disease in Adults!

Non-communicable diseases (NCDs) such as cancer, cardiovascular disease, chronic lung disease and diabetes are increasing rapidly in low-middle income countries (LMIC). Highly intensive interventions, are used at the population level to reduce risk factors for NCDs in LMIC. The International Community Interventions for Health (CIH) program conducted study in communities in China, India and Mexico to see the effects of up-scaled interventions at the population level in reduction of risk factors for NCDs in LMIC.

In this study, culturally appropriate interventions were delivered over 18-24 months. Two independent cross sectional surveys of a stratified sample of adults aged 18-64 years were conducted at baseline and follow-up. Baseline survey was conducted in 6,194 adults and follow-up was done in 6,022. The proportion of adults meeting physical activity recommendations of at least 150 minutes of moderate or intense physical activity per week decreased significantly in the control group compared to the intervention group. Proportion of adults eating the recommended five or more portions of fruits and vegetables daily decreased significantly in the control group compared to the intervention group. The proportion adding extra salt to food was unchanged in the control group and significantly decreased in the intervention group. Prevalence of obesity increased in the control group with no change in the intervention group. Tobacco use among men decreased in both groups. The reduction of tobacco use in the intervention group was significantly greater compared to the reduction in the control group.

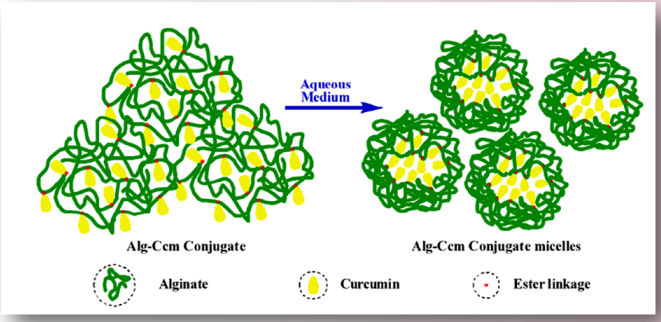


This crucial study by CIH provided evidences and the feasible design for the Up-scaling health promoting interventions to reduce incidence of NCDs in whole communities in LMIC, and has measurable beneficial outcomes on risk factors for NCDs, namely tobacco use, diet, and physical inactivity.

Ref: *Dyson PA, Anthony D, Fenton B, Stevens DE, Champagne B, Li L, Lv J, Hernandez JR, Thankappan KR, Mathews DR.* ***PLos One.*** *2015.*

Curcumin's aqueous solubility and stability enhanced by Alginate

Curcumin (Ccm), the active ingredient of widely used Indian spice turmeric, has the potential to treat various diseases including cancer. Ccm is known to have chemopreventive & chemotherapeutic prospective. However, poor water solubility and rapid hydrolytic degradation are the two major limitations associated with this nature's gift.



Alg-Ccm conjugate assumes spherical structures in aqueous media

To circumvent these issues, we have developed Alginate-Curcumin (Alg-Ccm) conjugate without compromising the inherent features of Ccm. Alginate was chosen to generate the conjugate as it is a biopolymer with non-toxic and non-immunogenic characteristics. Alg-Ccm conjugate possessing both hydrophilic (Alg) and hydrophobic (Ccm) segments self-assembled as nano-structured micelles in aqueous phase with hydrophilic outer shell of Alg and Ccm occupied the interior core. 100 mg of the conjugate was found to have 1.09 mg Ccm and aqueous solubility of Alg-Ccm was more than 10 mg/mL. The strategy largely addressed the limitations of Ccm as a drug particularly thwarting its degradation in water at physiological pH. The size and surface charge of Alg-Ccm micelles were determined by DLS analysis and the spherical morphology was visualized by TEM imaging. Cytotoxic potential of Alg-Ccm conjugate was quantified by MTT assay. The conjugate can be used as an effective Ccm delivery vehicle. In addition, dual drug carrier can be created by housing hydrophobic drug inside the Alg-Ccm conjugate micelles.

Ref: *Dey S, Sreenivasan K. Conjugation of curcumin onto alginate enhances aqueous solubility and stability of curcumin.* ***Carbohydrate Polymers****. 2014; 99:499-507*

Memory Lanes...

Looking back along the memory lane……

Trying to recall memorable things that happened during last 39 years or so is a challenging task. When I try to trace back the path treaded upon during the best part of one's life, the question which still looms in front of me is ***Have I contributed or achieved enough*?** When I walked into Vikram Sarabhai Space centre in the pre SLV days in 1976 as a temporary scientific assistant hired in the first project proposal of our founder director Prof MS Valiathan as Principal Investigator which was submitted to and approved by DST, I was a young boy of 23 years full of trepidation and enthusiasm ready to turn the world around. This was a collaborative project between SCTIMST, VSSC and NAL Bangalore as SCTIMST had just sprouted up and Prof Valiathan had sought the help of neighboring institutions to help him initiate what can be called as the beginning of the biomaterials era in India. The 2 years I spent in VSSC helped me in understanding the basics of biomaterials science and the role of polymer science in their development. The advanced laboratories and the equipment they possessed helped us a lot in successfully developing a number of materials such as soft contact lenses, blood filter foams, reticulated foams etc during this period. However it was my duty to observe and learn which I did. I strongly believe that the training and exposure I got in VSSC stood me up in good stead throughout my entire career.

Joining the parent SCTIMST in 1979 as a scientific officer after the stint in the project, was like coming from an oasis into a desert. As the biomedical technology wing was not yet ready, the first 6 months were spent in the hospital wing after which we were shifted to the BMT Wing in early 1980. As I reached the gate of Satelmond Palace campus on day 1, a security guard of Nepali origin (RAW, IB, CBI all rolled into one) questioned me thoroughly before he reluctantly opened the palace gates and allowed me into the campus. What I saw before me was a muddy path with forests on both sides and after walking about 200 meters, I turned a curve and lo and behold! there loomed before you one of the most beautiful palaces you can ever hope to see (well, understand that this was the first palace I am seeing). As lot of construction was going on around, I was asked to sit in one of the rooms in the palace where a desk and chair were given and told that labs are not yet ready. I could see only two human souls in the campus on my first day and they were two enterprising ladies called Pankajakshi amma and Ammukutty amma. They were ex- employees of the royal family and briefed me about the history and the layout of the campus. As I had no one else to talk to, I absorbed all these information gratefully. The moment they came to know I was a bachelor, they immediately started making plans suggesting about various potential alliances I can have in the neighborhood. But the biggest pleasure for me in the initial days was to roam around the campus full of wild bushes, ponds and trees and flowering plants, let alone the snakes which crossed your path quite often but smiled and went their own way minding their business.

Dr Kalliyanakrishnan delivering the vote of thanks at the Institute Day celebrations in 1984. Seated from L to R are Prof Balaraman Nair, Principal, Medical College, Trivandrum; Prof MS Valiathan, Director, SCTIMST, and Er AV Ramani, Head, BMT Wing.

True initiation into the biomaterials age for me came during the Friday seminars every week when director Prof Valiathan used to meet all the scientists and engineers and a seminar topic was discussed.

This was an eye opener for me and I understood that I was sitting in the company of one of the

Dr Kalliyanakrishnan with Prof David Williams at University of Liverpool in 1992

Memory Lanes...

doyens in this area and his enthusiasm and passion for research was unparallel. I think initially there were around 5-7 scientists/engineers all together in BMT Wing. Every week one of them presented a topic and hot discussion followed. More heated discussions were held in the staff canteen (which is currently demolished) which was a witness for some of the major decision makings over a period of time.

During the 2 years I spent with Dr Sharma, I learnt the importance of surface in determining the fate of biomaterials. Parameters such as surface energy, surface tension, interfacial energy etc and their relevance leading to the success of biomaterials all loomed up like stars glowing in a starlit night. Mind you, this was an age devoid of any computers and our only source for information was the library. The first book referred to me by Prof Valiathan to read was *Implants in Surgery* by Prof David Williams, then a budding academician in the University of Liverpool. We had a small library and hardly any journals. But whatever was there was voraciously consumed. Watching the greenery in the campus was a feast to the eyes. Whenever I got spare time, I explored the attic of the palace (where only few souls have dared to enter) full of mysteries and ghosts, the jail behind the natakasala, learnt German & Russian languages which came in handy sometimes. Visitors from Hospital Wing were rare and looked up on as Romans venturing into gaul territory by the palace inmates. All this happened during the initiation period between 1979 & 1982*...(I will write about the Blood bag years in the next issue if Gulia permits me..)*

Rashtrapati Bhavan, New Delhi, 2015

Dr Kalliyana Krishnan V

(Scientist G, Sen Grade, Dental Products Lab, BMT wing)

Writing a Research Proposal

Writing a research proposal requires a skill that need to be developed gradually and consistently during the beginning of research career. It is an important to understand what is meant by a good research proposal, what are the broader rules to formulate it, how to pen down different elements of proposal etc.

Dr Chandra P Sharma, former Scientist G (Senior Grade) & Ag Head, Biomedical Technology Wing of the SCTIMST is kind and generous enough to share the presentation on "**Preparation of projects & Protocols**" that he made sometimes back for the benefit of students, young researchers and all. The presentation provides key information on nuts and bolts of writing a good proposal in very impressive and expressive way. I express my heartfelt thanks and gratitude to Dr Sharma for his generosity and sharing his presentation through Chitra Dhwani. The slides can be view by pressing the following link.

http://www.sctimst.ac.in/About%20SCTIMST/Chitra%20Dhwani/resources/Preparation_of_Projects_and_Protocols_by_Dr_C_P_Sharma.pdf

MPH students: Field Placement

Three MPH students 2014 Batch) are selected for field placement at the University of Bielefeld under the German Academic Exchange Program Germany.

1. Dr Aakshi Kalra

2. Dr Shreepoma Bhattacharya

3. Dr Souvik Pyne

The placement will be for two months during November-December 2015. All the expenses for these students for their field placement will be met by the University of Bielefeld.

Congratulations! Congratulations!

QUIZ 7

What is Rashtriya Avishkar Abhiyan?

Please send your entries to mailbox:

enewsletter@sctimst.ac.in

The winners (five) will be announced in next issue

Chitra's Stars.....

Chitra Team Triumphs: Quiz Masters at 5th IN-CME at AIIMS, Delhi

Mrs Sara Sherly George, Chief Ward Sister, OPD has won Second prize in Quiz Competition At the 5th International CME Workshop & Conference on "Cost effective Use of Technology in e-Healthcare" All India Institute of Medical Sciences, New Delhi on 07-08-2015

Mrs Padmaja Devi, Chief Theatre Sister, PSOT has won Second prize in Quiz Competition At the 5th International CME Workshop & Conference on "Cost effective Use of Technology in e-Healthcare" All India Institute of Medical Sciences, New Delhi on 07-08-2015

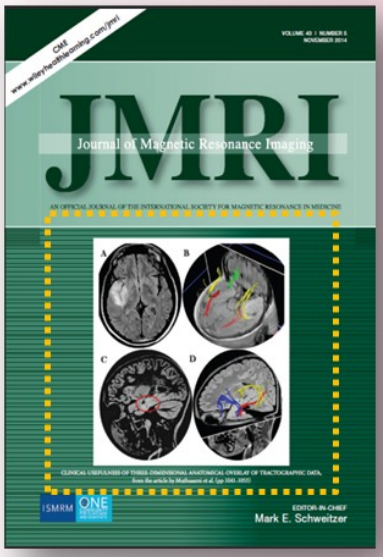
Mrs Nirmala MO, Senior Ward Sister, EPILEPSY Ward has won Second prize in Quiz Competition At the 5th International CME Workshop & Conference on "Cost effective Use of Technology in e-Healthcare" All India Institute of Medical Sciences, New Delhi on 07-08-2015

Mrs Sara Sherly George, Chief Ward Sister OPD has won First prize in oral presentation titled AUTOMATION OF OPD SERVICES SCTIMST at the 5th International CME Workshop & Conference on "Cost effective Use of Technology in e-Healthcare" All India Institute of Medical Sciences, New Delhi on 08-08-2015

Ms Vibha C, PhD scholar, Dental Products Laboratory, BMT Wing, SCTIMST has won the BEST POSTER AWARD for the paper titled "Effect of Inorganic content on Thermal stability of Inorganic-organic Hybrid Dimethacrylate resin", authored by Vibha C, & Lizymol PP at the National Conference on Materials Science and Technology, NCMST 2015,

"Dream is not that which you see while sleeping it is something that does not let you sleep."

JMRI cover-page features



JMRI features the image from "Diffusion tensor imaging and tractography of the human language pathways: moving into the clinical realm. Muthusami P, James J, Thomas B, Kapilamoorthy TR, Kesavadas C. J Magn Reson Imaging. 2014; 40: 1041-53.

Congratulations! Congratulations! Congratulations! Congratulations!

Chitra's Stars...

FRCP..

Dr Abraham Kuruvilla, Professor of Neurology, SCTIMST, Trivandrum, India has been awarded the **FRCP** by Prof Derek Bell, President of the Royal College of Physicians of Edinburgh at Award ceremony held on Friday, the 26 June 2015 at the Queen Mother Conference Centre in the Royal College Of Edinburgh, United Kingdom.

FRSC (UK)..

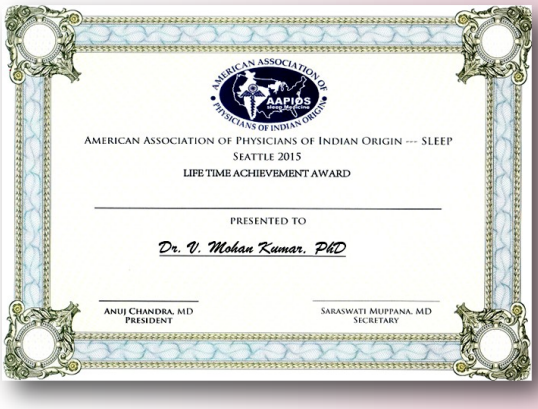
Dr Prabha D Nair, Scientist G & SIC, Division of Tissue Engineering & Regeneration Technologies, BMT Wing, SCTIMST, Trivandrun, India has been awarded Fellow of the Royal Society of Chemistry, FRSC(UK) on May 21, 2015.

Global Leader in Health Program..

Dr TK Sundari Ravindran, Professor, Achutha Menon Centre for Health Science Studies (AMCHSS), has been selected as one of the 300 women leaders in global health by the Global Health Program, Graduate Institute of International and Development Studies, Geneva.

Congratulations! Congratulations!

Lifetime Achievement Award..



Prof V Mohan Kumar (Visiting Professor, SCTIMST) received the Lifetime Achievement Award in Sleep Medicine for the year 2015 from the American Association of Physicians of Indian Origin - Sleep (AAPIOS). The award was presented to him on June 7th, 2015, at Seattle, USA. Dr Kumar also received the Prof RC Shukla Oration Award from Prof Ravi Kant, VC, King George's Medical Univ, Lucknow.

Service Awards: Serving for 1, 2 & 3 decades...

30 years of service

25 years of service

20 years of service

10 years of service

10/25/30 years of service: BMT wing

Convocation 2015: 31st Batch

In the prestigious Convocation Ceremony of 31st Batch, 97 Graduates were awarded degrees on May 16, 2015. Proud Graduates were awarded degrees for Doctor of Medicine & Magister Chirurgiae (25), Post Doctoral Fellowship & Post Doctoral Certificate Course (20), Doctor of Philosophy (10), Master of Philosophy (3), Master of Public Health (37) and MS (Bioengineering with CMC, Vellore (2).

Welcome Address
Prof Jaganmohan A Tharakan
Director In-Charge, SCTIMST

Convocation Address
Dr Harsh Vardhan
Hon Union Minister for Sc & Tech & Earth Sc

Presidential Address
Mr KM Chandrasekhar
President, SCTIMST

Guest of Honor Address
Prof Ashutosh Sharma
Secretary, DST, Govt of India

"Graduation is not the end, it's just the beginning of the beautiful life that lies ahead of you!"

Reply by a New Graduate

Respected Chief Guest; Dr. Harsh Vardhan; Honourable Union Minister for Science and Technology; Guest of Honour; Prof. Ashutosh Sharma; Secretary Department of Science and Technology; Respected President of the institute, esteemed Director, our beloved Dean, Distinguished personalities on and off the dais, invited ladies, gentlemen, Faculty members and Stars of today's celebration…..

It is indeed a great honor and privilege for me to be here with such a distinguished gathering. At the outset I would like to congratulate all my fellow graduates in all disciplines to share pleasure of this memorable day.

Our tryst with Sree Chitra, the Esteemed Institute, started over 3 years ago, when we all sat in this very auditorium to write the entrance examinations and were lucky to join and to be blessed with the great gift of constructive future. This great institute threw opened vast horizons of knowledge, sharpened our skills as a hard task master and all these years transformed us to be known as super specialists/scientists or public health experts today.

Sree Chitra, was not only our Alma Mater but became a new comfortable home for us. Our exposure to the unique facility of a super specialty hospital, a biomedical technology wing and a centre for Health science studies has kindled the researcher in many of us and has given us deep insight in to the related fields.

On joining Sree Chitra, I was told that this place is a **'True Learning Institute'**. And that's what defines this place and that's the deep impression we take back with us with pride to share with others. Everyone in the Institute has in one or other way, played a role as a friend Philosopher and guide in shaping us into young super specialists and scientists. We thank all the people who were instrumental in our transformation. This would not have been possible without the combined effort of everyone present here. I would like to thank all the members of each of our respective departments, not only the faculty but also our junior colleagues/ staff members of all non clinical specialties; the nursing staff and all other categories of employees of the institute. All their contributions foster an environment which proved most conducive for a holistic approach towards the practice of highly specialized medical and surgical services, technology development and public health related research and teaching.

I would like to thank our parents who have always encouraged our passion to pursue higher studies, our families, partners, children who co-operated the most to help us fulfill our dreams.

All of us here today take with us a piece of the legacy of Sree Chitra to have and hold it to cherish the sweet memories of great time spent here and get inspired always. We may be physically away from the esteemed institute, but it will be always fresh in our memories.

We now return to society to serve our people and shall always uphold the high values of honesty, dedication and sincerity while serving our society.

I wish every one of the new graduates the very best in their life's endeavors. I wish you all a great future ahead.

I would like to thank and express gratitude to the Hon,ble Chief Guest; Guest of Honour; and all other dignitaries who have spared their valuable time despite great preoccupation to grace the occasion.

Thank You!

(*Contributed by Dr Hardeep, PDF, Epilepsy, SCTIMST*)

Events held at SCTIMST....

Inauguration of the E-payment Facility for patients in SCTIMST

Dr Harsh Vardhan, Hon Union Min for Science & Technology & Earth Sciences giving live demo of making the e-payment at the SCTIMST. Dr Sarada (Medical Superintendent, SCTIMST); Shri KM Chandrashekhar (President of SCTIMST); SO (Hospital Wing); Prof Ashutosh Sharma, DST Secretary; Jaganmohan Tharakan, (Director In-charge SCTIMST); Dr SK Jawahar (Dy Medical Superintendent, SCTIMST); Dr Suresh Nair (Dean, SCTIMST; Asst General Manager (State Bank of India)

QUIZ 8

What is 'Mrithasanjeevani' programme ?

Please send your entries to mailbox: enewsletter@sctimst.ac.in

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

National Seminar on Health Equity

Evidence and Priorities for Research in India organized by AMCHSS, SCTIMST

Events held at SCTIMST...

Blood Donation Camp at the BMT wing organized by CTRC & SCTIMST Blood Bank

The Head, BMT Wing inaugurated blood donation camp at Natakasala which was jointly organized by CTRC and SCTIMST Blood Bank on July 10, 2015. It was whole hearted superb participation from staff and students in this Noble Endeavour. A total 25 people including 12 women donated their blood.

In general, donated plasma is replaced after 2–3 days and the Red blood cells are replaced by bone marrow into the circulatory system on average in 20-59 days in healthy adult males.

Events held at SCTIMST....

International Nurses Week Celebrations

World Environment Day

"The most important thing is to try and inspire people so that they can be great in whatever they want to do"

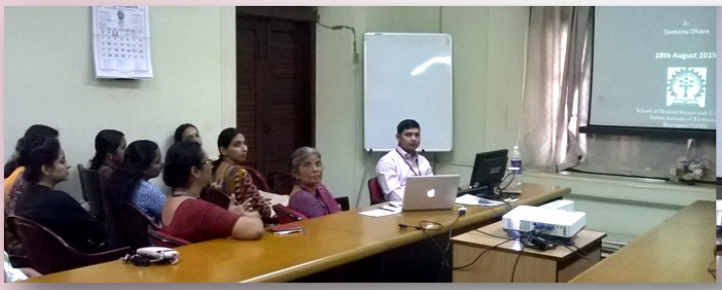
Interaction with Experts....

Prof Pulickel M Ajayan, Rice University, Houston, USA

Prof Pulickel M Ajayan is the Benjamin M & Mary Greenwood Anderson Prof of Engineering, Prof and Founding Chair of Materials Science and NanoEngineering and Prof of Chemistry of Rice University's new Materials Science and Nano Engineering Department.

Prof Pulickel is one of the leading Materials Scientists in the world and is one of the pioneers in the field of carbon nanotubes and was involved in the early work on the topic along with the NEC group. He has made contributions to commercially viable technologies such as the paper battery, paintable battery and nano-sponges and has been on the advisory boards of some of the nanotechnology startups.

Prof Santanu Dhara from Dept of Medical Science & Technology, IIT Kharagpur



Prof Santanu Dhara from Dept of Medical Science & Technology, IIT Kharagpur, delivered a talk on "Development of customized implants and bioresorbable implants via Reverse Engineering Approach" on 18th August at BMT wing campus.

Prof Santanu's research interests include Biomaterials and Regenerative Medicine: Fabrication-Bioactivation-Biological assay, Customized implant development, Bioactivation of Implant, Tissue Engineering, Near Net Shape Forming, Green machining, Medical Textile, 3D printing and Patterning and Dense and Porous Implants.

"Success is not measured by what you accomplish, but by the opposition you have encountered, and the courage with which you have maintained the struggle against overwhelming odds"

69th Independence Day Celebrations at SCTIMST...

Hospital Wing Campus

BMT wing Campus

Address by Director

Events held at SCTIMST...

Ethics in Health Research: Organized by AMCHSS & IEC, SCTIMST (August 21, 2015)

Mindfulness Meditation (June 20, 2015)

Dr S Krishnan, associate Professor of Psychology, Govt Medical College, Trivandrum giving a talk on Mindfulness Meditation at SCTIMST)

Act of Benevolence

Shri Vijayan MS, Senior Office Attendant, Administration, BMT wing, SCTIMST donated the entire Service Award amount for the Patients Welfare Fund.

He received the Service Award for thirty years of working at SCTIMST during Independence day function held at the BMT wing. His benevolence is applauded with open hearts. The money received through donation into the Patients Welfare Fund is used for the free surgery of needy patients.

"If the money we donate helps to ease the pain of one patient, those funds are well spent."

Creche Facility at SCTIMST....

Hospital Campus Creche gets facelift..

BMT Wing campus geared for creative reading; Kids Library inaugurated..

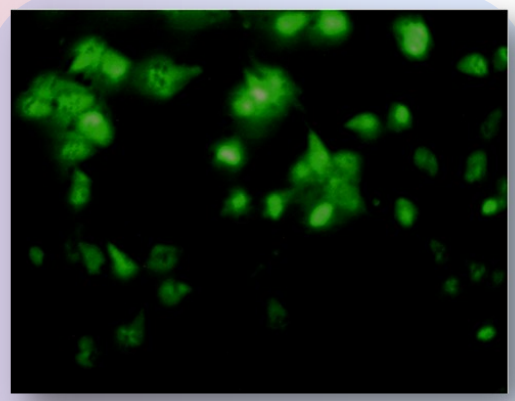
The CTRC-KIDS LIBRARY was inaugurated by Head, BMT Wing. On this occasion, Dr Kalliyana Krishnan & Dr Lissy K Krishnan contributed Rs 5000/- towards purchase of books to the Kids Library. Dr Anugya Bhatt, Dr Radhakumari, Deepa, Remya also donated books to the library.

Kids are enjoying reading the books of different types ranging from story books, science experiments for tiny tots, comics etc. The kids also get the books issued for taking home.

"There are many little ways to enlarge your child's world. Love of books is the best of all."

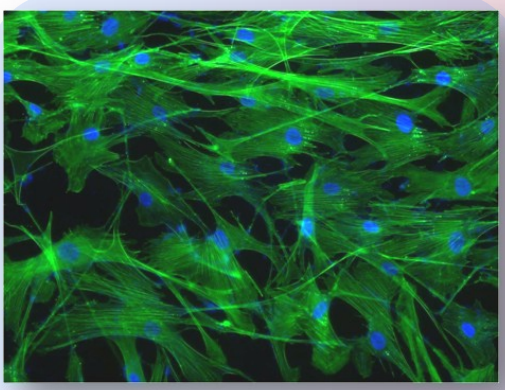
Science Images from our research: In Quest of Artistic Titles...

A



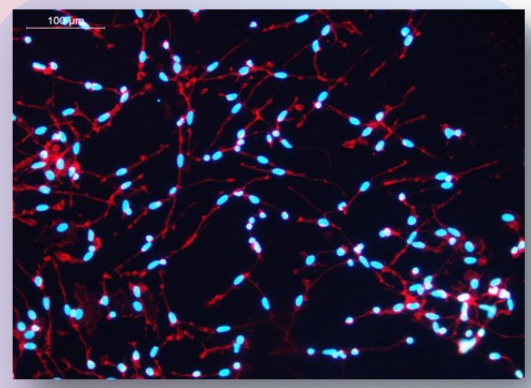
Cell uptake image of nano-gel in L929 (fibroblast) cell line
Vineet, Polymer Division

B



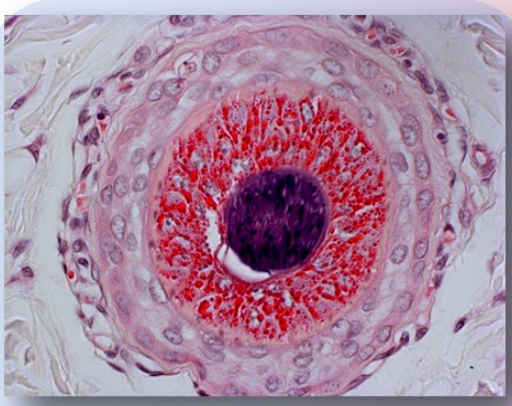
Fluorescence image of adipose derived stem cells stained for actin fibers. Dr Neethu Mohan, DTERT

C



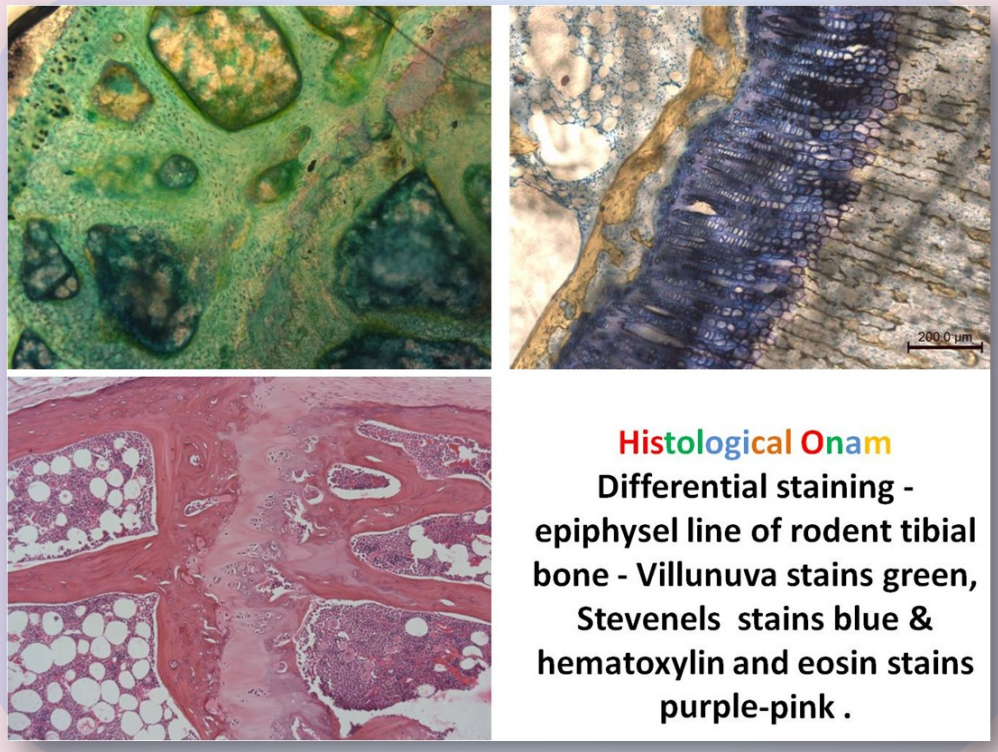
Peripheral blood derived neurons seen with florescent markers
Tara Chandran, Thrombosis Research Unit

D



Hair root viewed under microscope.
Dr Sabareeswaran A, Histopathology Lab

E



Sunita Chandran, TEM lab, BMT wing

Entries are invited for a suitable artistic title for these scientific pictures. The winner entries for each picture will be announced in the next issue.

Tribute to Dr Avul Pakir Jainulabdeen "APJ" Abdul Kalam...

His Excellency, the President of India, Dr APJ Kalam visited SCTIMST, as part of the Silver Jubilee Celebration on September 21, 2006.

15 October 1931- 27 July 2015

THE TECHNOCRAT'S VISION: FROM MISSILE TO MEDICINE...

We fondly remember the contributions of Dr APJ to our society. The new generation with 'ignited minds', identifies him as the Missile Man of India. Dr APJ is being admired for his ability to organize and realize defense related technology. Little is discussed about his vision of merging medicine and technology, and his contribution to biomedical technology. While taking up the supreme position in DRDO, he had a vision that research in defense sector should have spin-off benefits for civilians. One of the thrust areas Dr APJ identified was biomedical devices. He strung up fruitful cooperation with premier medical facilities in Hyderabad.

To fulfill the dream to make affordable medical devices, he founded the "Society for Biomedical Technology (SBMT)" in 1993. This was an inter-ministerial initiative of the Government of India established under the Department of Defense Research and Development (DRDO) in collaboration with Department of Science and Technology (DST), Ministry of Social Justice and Empowerment and Ministry of Health & Family Welfare. Dr APJ, being the secretary of SBMT, co-ordinated the Scientists and Engineers of DRDO labs and other well known Research Institutions and reputed Doctors from established Medical Centres.

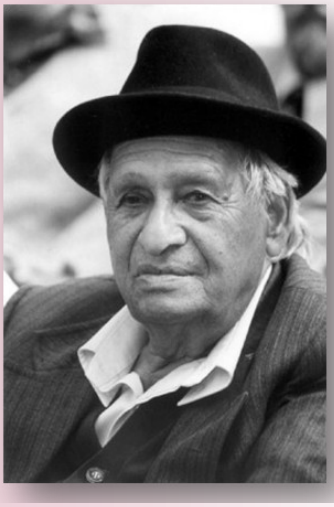
The initial two projects were the light-weight callipers for polio-affected handicapped and the affordable coronary stent. Over the years, these got realized and thousands of people got benefit. The Society has expanded its scope to many other devices and programs. A series of products has come to the market out of this venture, like Floor Reaction Orthosis (assistive device for polio patients whose quadriceps muscles are paralysed), Orbital Implant (hydroxyapatite based porous integrated implants functional and cosmetic rehabilitation of the anophthalmic patients), Titanium Bone and Dental Implants (for fracture reduction and dental prosthesis), Critical Care Ventilators (cost-effective ventilator designed to meet the needs of our Country) and Laparoscopic Surgery Training Simulator (training of laparoscopic surgeons in hand-eye co-ordination).

Other technologies initiated were Cytoscan System (personal computer based cell image analyser to detect and classify cell abnormalities, useful for mass screening of people for cancer), Stress Test System (low cost indigenous version of the stress test system for heart patients), External Cardiac Pacemaker (programmable external pacemaker for intensive care), Slit Lamp Microscope (basic ophthalmic device for diagnosis and treatment), "Drishti" Eye Laser (photodisruptor for the treatment of glaucoma), Coronary Catheters (indigenous low-cost catheters of cardio-vascular diagnostic and angioplasty), Intracranial Pressure Monitoring Sensor (low-cost neurological care device), Diagnostic Kit for Glycated Hemoglobin (affordable diagnostic kit with indigenous technology will be a boon to patients suffering from Diabetes Mellitus) and External Counter Pulsator (for the non-invasive pneumatics based cardiac support for ischemic heart disease patients).

We should thank the great visionary Dr APJ, that he gave a boost to the biomedical research in India...

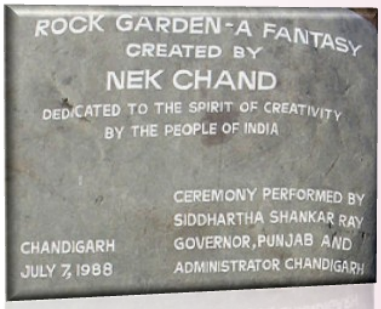
(Contributed by Dr Manoj Komath, Sc F, BCL lab; Pencil sketch is drawn by Mr Vinod, Stores & Purchase Div, BMT wing, SCTIMST)

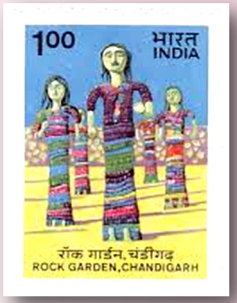
Rock Garden by Nek Chand: An Artistic Fantasy Forever...



Nek Chand Saini
5 December 1924 - 12 June 2015

Nek Chand Saini, a legendry example of self-taught Indian artisan, build the Rock Garden in Chandigarh out of waste materials that no one would ever imagine. The broken glass, bangles, crockery, mosaic and iron foundry slag decorated on mass of cement sculptured in to dancers, musicians, & animals is dazzling. He was awarded the Padma Shri in 1984 by Indian Govt for his iconic creations.





A sculpture from Rock Garden on an Indian postage stamp

(Compiled by Dr Kamalesh K Gulia, Scientist D, SDRL, BMT wing, SCTIMST)

Transparency in Administration for Good Governance

The word 'Administration' means the management or control of an organization. As far as administration of a state or country is concerned, it includes the day to day delivery of services to the common man by the concerned Department of a Government. Effective administration is vital for delivering good governance to our people. The prime objective of good governance is to ensure that the people get a stable, honest, transparent and efficient government capable of accomplishing overall development.

Transparency in administration implies that any citizen of the country either has a fundamental right or a statutory right to have access to information about state's affairs, i.e. Government business. If we go back to our Vedic days, we can see that the aims of a good administration shall be responsive, transparent, accountable and citizen friendly. These factors could be regarded as the touchstone of any administrative set up.

The primary concern of the citizens in a good civil society is that their Government must be fair and good. Further, the governing process must also be just, reasonable, fair and citizen friendly. Transparency makes sure that people know exactly what is going on and what is the rationale of the decisions taken by the Government or its functionaries at different levels.

To have transparency and accountability in administration, it is essential to have facilitation centers. The Preamble of Indian Constitution stipulates the goal of administration. The most important goal is to **'Secure for all citizens, justice, social, economic and political'**. The need of the hour is to ensure transparency in administration so that the objective of socio-economic development of our country can be achieved.

The Government of India from time to time enacted various Acts in order to improve transparency and accountability in administration such as **Right to Information Act 2005** and **The Prevention of Corruption Act 1988** which could be termed as two important revolutionary steps taken in this regard. Transparency in administration will make the Government more responsible and friendly. The red tapes prevailing in the administration will be minimized as the public become more powerful. Transparency will definitely result in wiping out the one man rule and impulsive way of working of the so called powerful bureaucrats under the patronage of politician. The discretion enjoyed by the bureaucrats and ministers also come into focus, as soon as the Transparency in administration **does not mean** that all information affecting national security to be disclosed. But it is a matter of great concern that now a days there are reports that even such information which affects the national security are also being leaked. As far as Research Institutes are concerned, transparency in administrative matters is being debated at different levels keeping in view the policy of maintaining confidentiality in research activities.

Transparency in administration is relevant when the entire world, especially our country is going through tough times because of corruption at different levels. Corruption is a global threat. It is a serious roadblock to the development of a nation. Corruption in long run can destroy the whole society morally, ethically and economically. Corruption is not only the monetary benefit by an individual, but also leaking confidential information from the office, accepting favors in the form of gifts, sponsorship for travels etc. from those who benefit from the organization out of the way.

In other words, lack of transparency in administration is one of the main reason for increase in corruption and failure in delivery of services formulated by the Government to the common man. It is a matter of great regret that many of the schemes formulated by the Government for the welfare of the people, especially for the socially and economically backward people are not reaching the deserved one, but are being misused by the persons involved in execution of these policies for their personal gain. This is the reason behind the current day phenomena of "those who are rich are becoming more rich and those who are poor are becoming more poor". Introduction of e-Governance in public administration will ensure transparency and services to the general public.

The Administration in which the Government, Ministries, Departments and various autonomous bodies are answerable to Parliament and Standing Committees, Public Accounts Committee, Comptroller and Auditor General, Central Vigilance Commission and various other statutory bodies. It is the fundamental duty of tall Government employees to ensure transparency in the day to day affairs of their office, prevent corruption and obedient to the rules and regulations. A public servant shall always familiarize himself/herself with positions and shall understand his/her duties and responsibilities.

Pramod S

(Mr Pramod is Secretary to Dir, O/o Head, BMT Wing, SCTIMST)

Did you know ???

What is Microsleep?

According to the international classification of sleep disorders, microsleep is a temporary episode of sleep which may last for a fraction of a second or up to thirty seconds where an individual fails to respond to some arbitrary sensory input.

Microsleep is most commonly associated with sleep deprivation, however, it can also occur in the absence of sleep deprivation when performing monotonous, repetitive tasks. The behavioral symptoms of microsleeps are subtle and challenging to detect. However, the recognizable signs of a microsleep episode are droopy eyes, slow eyelid closing and eye rolling, and also head nodding. Drivers are particularly susceptible as driving becomes monotonous on speedy highways. Microsleeps are most likely to occur at certain times of the day, such as pre-dawn hours and mid-afternoon hours when the body is programmed to sleep. Individuals who experience microsleeps are often unaware that they briefly lost consciousness and will frequently deny that they fell asleep. When an individual arouses from a microsleep episode, it may feel like a brief lapse in attention or mind wandering. The most common cause in normal individuals is lack of adequate sleep. Signs of microsleep episodes are observed in sleep disorders like narcolepsy, sleep apnea, hypersomnia, excessive daytime sleepiness, schizophrenia, hypoxia etc. Microsleep can become extremely dangerous if these occur during tasks that require constant attention, such as operating heavy machinery or driving. An individual can avoid microsleeps by getting sufficient sleep, addressing any existing sleep issues, and taking breaks on tasks that are monotonous.

(Contributed by Arathi R, PhD Scholar, Sleep Disorders Res Lab)

"Winners are not those who never lose, but those who never give up."

Quiz winners!

QUIZ 5 Winners

Dr Shiny Velayudhan
PI, Biocare, DTERT
BMT Wing, SCTIMST

Rajesh K
Research Associate
AMCHSS, SCTIMST

Mereeta, DCVTN (2nd yr), SCTIMST

QUIZ 6 Winners

Uma V Sankar
PhD Scholar
AMCHSS, SCTIMST

Ramaprasad V
Stores & Purchase Div
BMT Wing, SCTIMST

Sumitha KC
Tech Asst (Lab)
Biochemistry, SCTIMST

Dr Francis Fernandez
TEM lab, BMT Wing
SCTIMST

Jyothilekshmi R
Staff Nurse, CSICU
SCTIMST

Poem by SCTIMSTians....

RAIN മഴ

പെരുമ്പറകൊട്ടി എഴുന്നെള്ളുന്ന
മഹാറാണിയെപ്പോൽ പ്രൌഢിയോടും
ചിലപ്പോൾ,
ഉറ്റവർ വെടിഞ്ഞ അബലയുടെ
കണ്ണുനീർ പോലെ ദയനീയവും

വേനലിന്റെ തടവറയ്ക്കുള്ളിൽ നിന്നും
ഭൂമിയെ രക്ഷിക്കും പുണ്യവും
ചിലപ്പോൾ,
ശ്വാസം നിലപിക്കുമാറവളെ
പ്രഹരിക്കും ശാപവും

ഹേ വർഷമേ, നീ പെയ്യുക
രാത്രിയിൽ വിടർന്ന പൂവിന് കൂട്ടായി
രാവിലെയുണരും കഞ്ഞികിളികുഞ്ഞിന് കൂട്ടായി
പൂവിനെ വീഴ്ത്താതെ
കിളികുഞ്ഞിനെ നനയിക്കാതെ
സ്വർഗത്തിലെ അമൃതമായ് നീ പെയ്യുക
ഈ മണ്ണിലെ മുളക്കാത്ത വിത്തുകൾക്ക് ജീവനേകി,
പൂക്കാത്ത മൊട്ടുകളെ തട്ടിയുണർത്തി

പ്രളയമായ് പാരിലണയാതെ, നീ അറിയുക
മുളക്കാൻ വെമ്പുന്ന വിത്തുകളും,
വിടരാൻ തുടങ്ങുന്ന മൊട്ടുകളുമുണ്ടിവിടെ

ദേവകളുടെ ദൂതനെങ്കിൽ നീ അവരോടു പറയുക
പൂക്കളെ കൊന്നു തിന്നുന്ന പുഴുക്കളും
വിശപ്പടങ്ങാത്ത കഴുകൻമാരുമുണ്ടിവിടെ

നീ അവരോടപേക്ഷിക്കുക,
ദൈവപുത്രൻമാരായ മനുഷ്യർക്ക്
കൊടുക്കുക കണ്ണുകൾ
പാപത്തെ പാപമായി കാണുന്ന കണ്ണുകൾ
കൊടുക്കുക കരങ്ങൾ
പാപത്തെ തൊട്ടാൽ പൊള്ളുന്ന കരങ്ങൾ,
കൊടുക്കുക ഹൃദയവും
പാപികളെ പുഴുവരിക്കുമെന്നോർക്കാനായി

ഹേ വർഷമേ, നീ പെയ്യുക
ദൈവദൂതനായെല്ലാം കാണുക

രമ്യ കെ.

This poem "Rain" is written by Remya (PhD Scholar, BCL, BMT wing, SCTIMST)

Extensive National Media Coverage: Heart flown across 200 km for Transplant


Sethu Parvathi Bai Surgical Block, SCTIMST


Entrance of Sethu Parvathi Bai Surgical Block, SCTIMST


Harvested Heart taken to Ambulance

July 24, 2015; The family of 46-year-old brain dead person (lawyer) agreed to donate his HEART to give new lease of life to another ailing person. The Heart was retrieved at the operating table of SCTIMST. The harvested heart was carefully airlifted in Navy's Dornier aircraft from Thiruvananthapuram to Kochi (about 200 kms) in record time of just 90 minutes, where it was successfully transplanted to another person in a private hospital.

Extraordinary support from Govt machinery, timely co-ordination of authorities in Thiruvanathapuram & Kochi, and meticulous preparation of Doctors team made Impossible to Possible: Now, this noble HEART will beat forever with Golden Warmth!

Poem & Camera captures by SCTIMSTians....

Indescribable

Cant describe the beauty beheld
With the gift of eyes to capture
The supreme majesty of the colours
And the splendid tinge of the clouds

Cant re-live the days lived
With the gift of eyes to enlighten
The freshness of the flower buds
And the melody of the birds

Cant measure the warmth felt
With the gift of eyes to feel
The loving gesture of a mother
And the lovely smile of a child

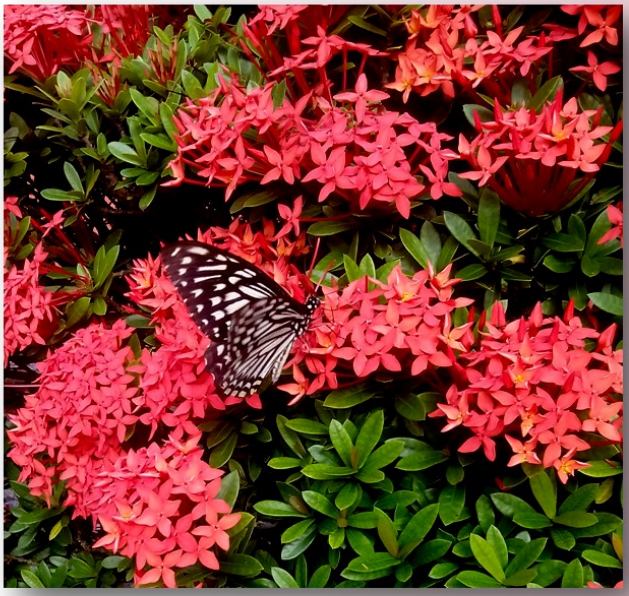
Cant erase the memory bridged
With the gift of eyes to know
The very nature of our loved ones
And the lives shared with them

Cant describe with words spoken
For the gift of eyes endowed
To the Creator Almighty
Before whom I humbly bow

Joanna Sara Valson

(Poem by Joanna Sara Valson, PhD Scholar, AMCHSS)

Lively Orchids by Dr Jayasree RS, BPIL, BMT wing, SCTIMST



Butterfly by Vineet, BCL, BMT wing , SCTIMST

BMT campus swan family flocks in Unison!

(Pictures by Dr Kamalesh K Gulia, Sleep Disorders Research Lab, BMT wing, SCTIMST)

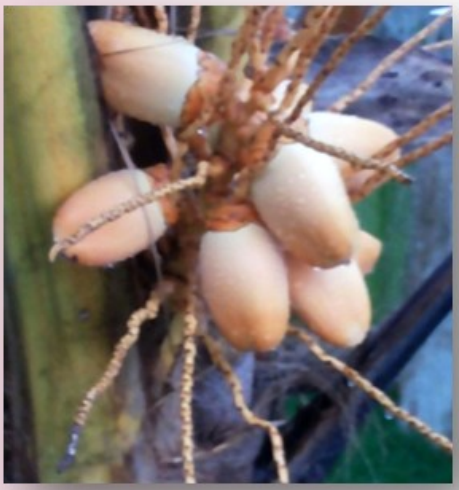
Camera captures!

Million Dollar Expression for Rs 20 by Rahul VG, DTERT BMT wing, SCTIMST

Ekla Chalo Re by Dr Jayasree RS , BPIL BMT wing, SCTIMST

Sleeping Dog by Dr Manoj Komath, BCL, BMT wing SCTIMST

(Beautiful Baby Cobra: Campus pick by Patrick Deeh Defo Brice, Sleep Disorders Res Lab, BMT wing, SCTIMST)



My First Harvest by Dr Anugya Bhatt, TRU BMT wing, SCTIMST

Last breath ends long silent years of hollowness and pain by Dr Kamalesh K Gulia, SDRL, BMT wing, SCTIMST

Camera captures!

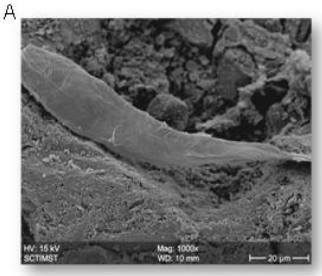
Three little white birds quenching thirst in the heat of summer in the green ambience by Dr Annie John, TEM lab

Passions by Dr Anil Kumar PR, Tissue Culture Lab, BMT wing

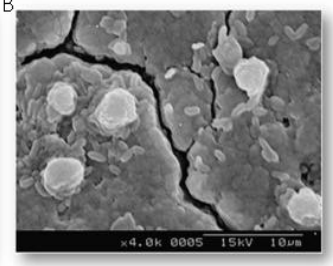
Designer Environment-Friendly Teakwood frame by Shri Anilkumar BS, Security & Safety Officer, BMT wing

Winner of the Artistic Work Titles..

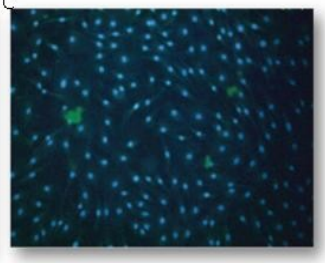
A The Marine Fossil bed



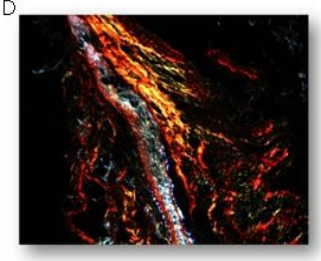
B The Summer Blossom



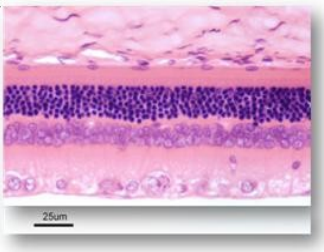
C The Glittering Whirl pool



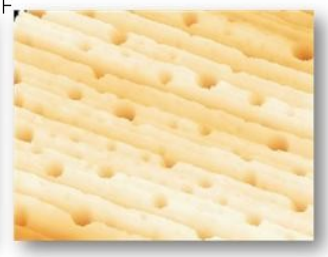
D The Mid summer Lava



E The Lavender Beach



F The Marble Desert



Thomas TA
Scientific Officer
Biochemistry
(Central Clinical Lab)
Hospital wing
SCTIMST

Onam Flavours at BMT wing & Creche at Hospital


Mahabali

Beautiful Pookalams @ Onam

Onam celebrations at Creche @ Hospital Campus, SCTIMST

Protection???: A creative unique piece of modern art painting by Ms Vasanthy M (Medical Illustration Unit) to portray the insecurity that women and children are facing in our society.

Patron: Dr Asha Kishore, Director, SCTIMST

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Manju Nair R (*Achuta Menon Center for Health Science Studies*)
Neethu Mohan (*DTERT, BMT wing*)

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Special Acknowledgements: Liji Kumar G and Vasanthy M (*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*)