

Philanthropy Book

## Why Philanthropy is Important

Every step, motion and gesture we make is a testament to the miraculous power of our musculoskeletal system. However, for many, these basic movements come with debilitating pain, limited mobility and a profound impact on their quality of life.

Diseases like osteoarthritis, scoliosis and other congenital musculoskeletal defects are not just medical conditions – they are barriers that prevent individuals from embracing the life they deserve.

Today, we envision a world where groundbreaking discoveries heal, where the future of healthcare is reshaped, and where every individual, irrespective of their age or background, can step into their potential pain-free.



## SingHealth Musculoskeletal Sciences A Beacon of Hope, Healing & Human potential

We are committed to transforming tomorrow's medicine and you are a vital partner in our efforts to improve patients' lives!

Contributions you make towards the SingHealth Musculoskeletal Sciences Academic Clinical Programme comprising all Orthopaedic Surgery, Plastic, Reconstructive & Aesthetic Surgery and Hand & Reconstructive Microsurgery Departments in SingHealth will help fund the collaborations between SingHealth and Duke-NUS that are essential for the next medical breakthroughs.

### Personalising Care:

We aim to deliver holistic care to patients with musculoskeletal conditions. By bringing together a unique blend of multidisciplinary specialists from orthopaedic, plastic and hand surgery, to nursing, allied health and other healthcare professionals to provide individualized care, each individual patient's journey showcases how patients are at the heart of all we do at SingHealth.

### Advancing Cures Through Research & Development:

As we delve into the intricacies of musculoskeletal diseases, SingHealth Musculoskeletal Sciences will champion pioneering research that seeks not just to treat but to cure. With dedicated research & development efforts, we will drive forward innovations that redefine the global landscape of musculoskeletal care.

### Training the Torchbearers:

As we unravel the secrets of the human musculoskeletal system, we must pass on the knowledge to future generations of healthcare professionals, ensuring that our future is in skilled and compassionate hands.

### Caring for the Needy:

Beyond the cutting-edge facilities and expert care, the heart of SingHealth Musculoskeletal Sciences beats with a singular mission: to ensure every individual, regardless of their financial capabilities, receives the care they deserve.



Your generosity will help our clinicians and scientists translate meaningful scientific discoveries into quality innovations in patient treatment and care and train the next generation of musculoskeletal healthcare professionals. All eligible donations will attract a dollar-to-dollar matching grant from the Singapore Government – effectively doubling your gift's impact. Your donation will also enjoy a 250% tax deduction if you are a Singapore tax resident or company.

The SingHealth Musculoskeletal Sciences aims to raise \$7.5 million that will be funneled to groundbreaking advances in clinical care and research for our patients, in commemoration of Orthopaedic Surgery's 75th Anniversary in 2025. We invite you to be part of this transformative journey with SingHealth Musculoskeletal Sciences, an epicentre of hope, collaboration and groundbreaking discoveries. Partner us in our mission to improve patients' lives today and discover a future where pain does not dictate potential.



**A/Prof Tan Mann Hong**

Academic Chairman  
SingHealth Duke-NUS Musculoskeletal Sciences  
Academic Clinical Programme



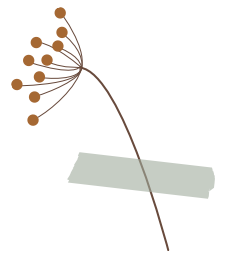
**A/Prof Andrew Chin**

Academic Deputy Vice Chair, Strategic Initiatives  
(Philanthropy)

Visit our  
General Fundraising Page  
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# Our Pioneers



Our pioneers monumentalize the strong foundations laid by our disciplines and today, we model ourselves after their upheld values. Central to our mission is “patients at the heart of all we do”.

## Hand & Reconstructive Microsurgery

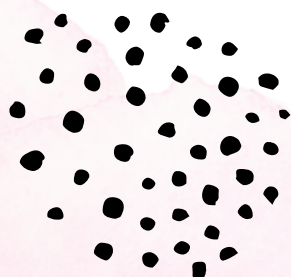
Professor Teoh Lam Chuan is the first hand surgeon in Singapore and in 1988, he headed the newly established Department of Hand Surgery in Singapore General Hospital. He played a key role in establishing Hand Surgery as a surgical specialty, which came to fruition in 1996. In the 1980s, amputation instead of salvage was the main approach to the treatment of mangled hands. Today, such severely injured hands are now thoroughly assessed with the view to salvage, thanks to the advent of Hand Surgery. The commemorative card depicts a toe used to replace a missing thumb, a procedure refined by Prof Teoh. Apart from trauma, Hand Surgery has now expanded to treat a spectrum of conditions ranging from arthritis to congenital hand deformities.

## Orthopaedic Surgery

The late Professor Navaratnam Balachandran spearheaded the development of Orthopaedic Surgery as a specialty discipline in Singapore. From 1980 to 1988, as head of department, he championed the establishment of sub-specialties in the discipline and created a comprehensive curriculum for the making of a complete orthopaedic surgeon. He expanded the field to include musculoskeletal oncology, spinal injury management, congenital deformities and autoimmune diseases such as rheumatoid arthritis. Prof Bala strongly believed in educating a new generation to surpass the old, for a ceaseless flow of knowledge, skill and experience.

## Plastic Reconstructive & Aesthetic Surgery

Professor Lee Seng Teik pioneered several cleft lip and palate procedures, notably the Manchester-Lee repair for the reconstruction of bilateral cleft lip deformity. During his headship from 1985 to 1999, he laid the groundwork for sub-specialisation in Plastic Surgery. In 2001, he led a surgical team to perform cranial reconstruction in a set of Nepalese craniopagus twins, Ganga and Jamuna, who had undergone separation by neurosurgeons. This was a first for Singapore. In 2014, Prof Lee and Mr. Lee Hoo Leng jointly established a Distinguished Professorship in Plastic Surgery and Regenerative Medicine to promote research, education and innovation in the field.

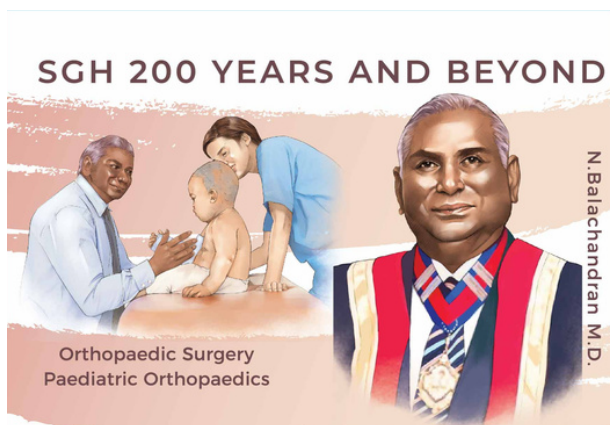


## Our Pioneers' Philosophy



“Give a man a fish, and you feed him for a day. Teach a man how to fish and you feed him for a lifetime. There is no better gift in the world than to nurture an individual, so that he or she may carry the knowledge forward to benefit others.

**Professor Teoh Lam Chuan**”



“We must always aim towards excellence and not be selfish. We would have failed in our duties and responsibilities if our younger surgeons who come after us are not better than us.

**Professor Navaratnam Balachandran**”



“I have always firmly believed in the importance of research and education. A good grounding in both can help a clinician address clinical challenges in a holistic way. I wanted to do my part and it is my hope that others will follow suit.

**Professor Lee Seng Teik**”



# Our Campaigns

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## The Promise of Biomechanics in Musculoskeletal Research

We believe research is essential to ensure sustainable high-quality delivery of care. Biomechanics, as a cornerstone of musculoskeletal research, allows not only a deep understanding but revolutionary breakthroughs in musculoskeletal care. The field of biomechanics offers a unique lens to peer into both the macroscopic realms of human movement and the microscopic intricacies of tissue and cellular mechanics. The potential of such a comprehensive approach is unparalleled – providing data that complements patient reports, offers insights into surgical outcomes, and pushes the boundaries of what is possible in clinical practice.

The establishment of the Musculoskeletal Biomechanics Programme is an endeavor to redefine academic medicine, pave the way for innovative research, and shape the future of musculoskeletal sciences, by focusing on three key areas of work:

### Human Motion Analytics:

Capturing the grand symphony of human movement, this laboratory will dive deep into kinematics and kinetics, revolutionizing our understanding of motion and paving the way for innovative therapeutic approaches.

### Musculoskeletal Biomechanics:

Focusing on the architecture and mechanics of the musculoskeletal system, this lab holds the promise of insights that could translate into advanced medical treatments and interventions.

### Cellular Biomechanics:

By investigating biomechanics at a cellular level, we aim to unlock mysteries that can lead to revolutionary treatments and regenerative solutions.

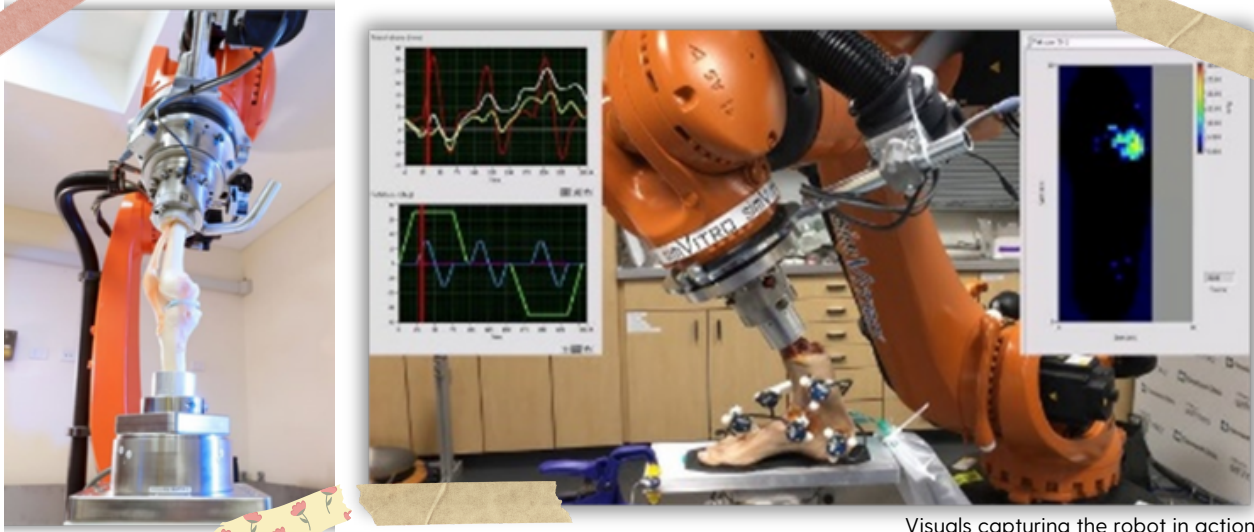


The simVITRO Robotic Universal Musculoskeletal Simulator, designed to combine the accuracy, repeatability, and ubiquity of a standard KUKA robot with simVITRO software that provides a biomechanics-centric control interface.

## Our Vision

Our vision is to advance orthopaedics biomechanics research in SingHealth to influence the future of healthcare through cutting edge research. We aim to improve the quality of life for patients through the development of new and better diagnostic and treatment approaches.

These strategies are based on innovations derived from high quality collaborative research in different areas of engineering and medical sciences undertaken by a dedicated and diverse team of orthopaedic surgeons, researchers, allied health practitioners and students. The robotic testing systems and laboratories serve as a multidisciplinary core facility promoting collaboration between all investigators.



Visuals capturing the robot in action.

The SingHealth Musculoskeletal Biomechanics Programme sets the stage for us to rewrite the paradigms of musculoskeletal care and emerge as a global leader in biomechanical research, driving both academic excellence and tangible healthcare benefits. Join us in creating a future where biomechanics forms the backbone of unparalleled medical advancements.

Thank you for your unwavering commitment to the advancement of medical science.

Visit our fundraising page  
for more information

<https://sgh.give.asia/campaign/the-promise-of-biomechanics-in-musculoskeletal-research?#/>





# Saving Lives Through Cell Therapy at SGH Skin Bank

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Burns can be devastating injuries that affect an individual not only physically but also emotionally. Persons with severe burns may be left with a loss of certain physical abilities, including loss of limbs, disfigurement, loss of mobility, scarring and recurrent infections. Depending on the severity of the injury, this can be accompanied by emotional trauma affecting not only the individual but also the entire family.

The SGH Burn Centre (SBC) is the only specialised facility dedicated to serve all critical and major burn injuries in Singapore and the Southeast Asian region. On average, the SBC serves 200 burn patients per year, of which 10 will sustain severe and extensive burn injuries requiring cellular and tissue-engineered products.

The skin culture laboratory (SCL) under SBC has the technology of growing patient's own skin stem cells and expanding them into sheets enough to resurface the burn wounds. This form of cell therapy is called cultured epithelial autograft (CEA).





Your contribution will go towards the following areas of need:

### **Ensuring Quality Standards:**

Strict regulations call for cell therapy products to conform to a highly-stringent pharmaceutical quality standard and environment. Such quality standards inevitably translate to a substantial increase (4.65 times more) in the total CEA costing charged to a patient. For example, a patient who uses 2000cm<sup>2</sup> of CEA sheets will pay close to S\$120,000 in the near future compared to S\$25,000 now.

### **Providing Specialised Training:**

Training and education are required for burn surgeons and laboratory staff to fully understand these new standards and regulations in order to provide CEA sheets of the highest standards to patients.

### **Advancing Research:**

The SCL is constantly working to develop more advanced and cost-effective skin substitutes and cell culture systems for CEA sheets. These will go towards improving wound healing and engraftment on burn patients.

Thank you for your unwavering commitment to the advancement of clinical care and medical science.



Visit our fundraising page  
for more information  
<https://sgh.give.asia/campaign/saving-lives-through-cell-therapy-at-sgh-skin-bank?#/>



# Support for Children with Congenital Hand Differences

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Children born with congenital hand differences face unique challenges. They bear physical differences of one or both upper limbs at birth, often in the form of absent parts ("congenital amputations" or malformed structures ("limb deficiencies"). Other differences include addition or enlargement, fused or webbed digits. While some could be genetic, the explanation or reason for congenital hand differences are usually unknown.

These children may not be able to perform activities in the same way as their able-bodied peers, and often face anxiety and poorer peer relations. Parents of these children may also face issues including self-guilt, rejection and shattered dreams.

## Emphasising Abilities, Not Disabilities

The mission of the Hand Differences Support Group (HanDSup!) is to provide support to children with upper limb differences and their families. We aim to connect such families, share experiences and supply information to parents, affected children and their siblings.



Your contribution will go towards the following areas of need:

### **Patient Care:**

Through this fund, children with the deformities will be able to benefit from adaptive strategies, assistive and prosthetic devices, therapeutic interventions and / or surgical interventions.

### **Regular Engagement:**

We seek to improve the self-esteem, psychosocial well-being, physical function and peer relationships of these children and their parents through regular meet-ups and weekend getaways. Through such participation, children and their families alike will be able to share, learn and grow with one another, knowing that they are not alone in their journey in life.

### **Resource Library:**

Families often struggle to find the tools they need to raise healthy and well-adjusted children with congenital hand differences. Establishing a resource centre, both online and offline, will enable families to tap on relevant sources of support and guidance, for them to better prepare their children for life in an able-bodied world.

### **Empowering Healthcare Providers**

Healthcare providers need specific training in identifying the psychosocial stresses faced by these children and their families as well as ways to address these concerns. Through conferences and workshops, they will be able to learn and adapt the knowledge gained in order to make a positive impact on the lives of these children.

Thank you for extending your care and support for these children and their families.



Visit our fundraising page  
for more information  
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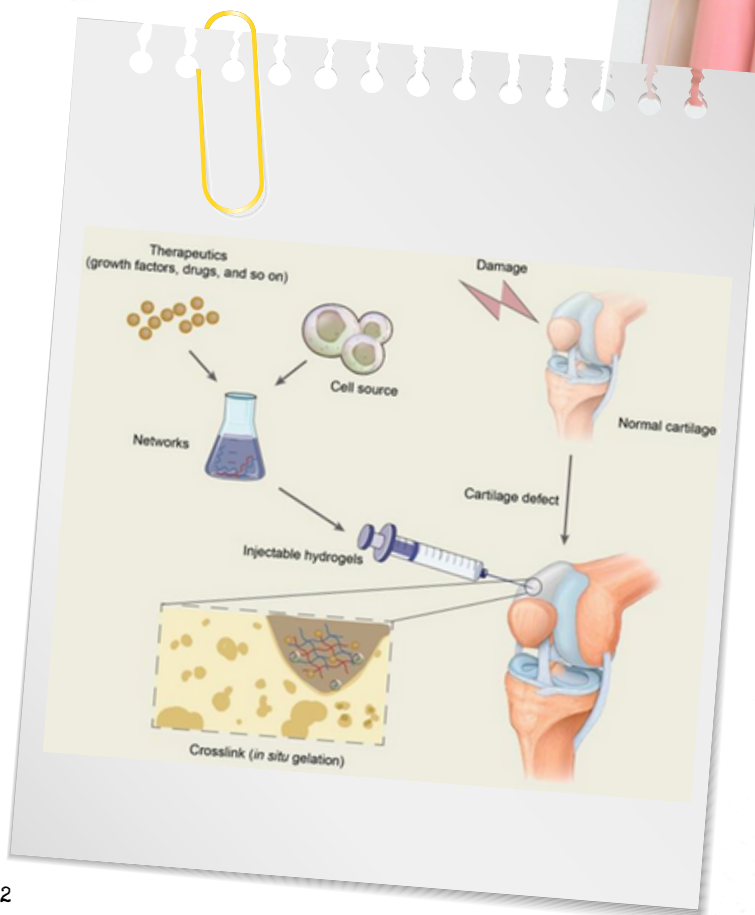
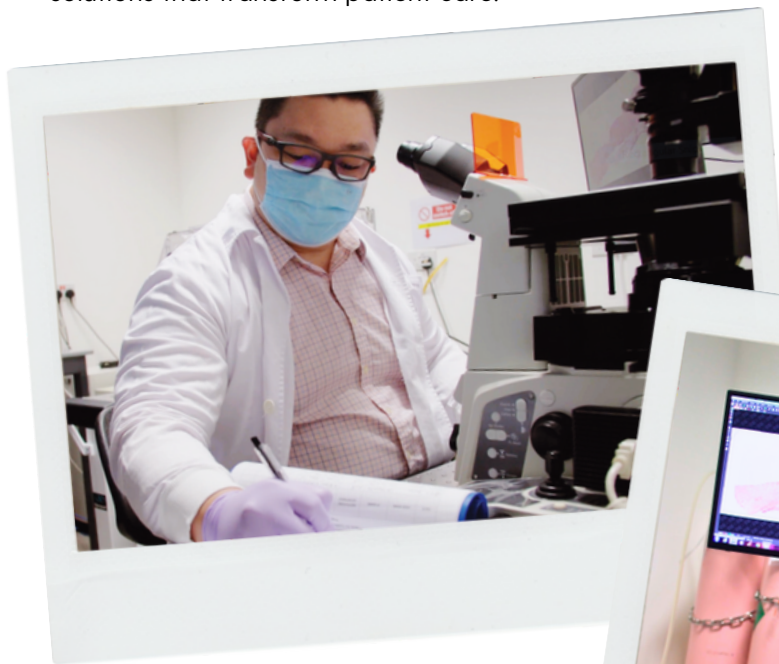




# Soft Tissue Regenerative Medicine Programme

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We believe research is essential to ensure sustainable high-quality delivery of care. The realm of soft tissue regenerative medicine offers the exciting opportunities to redefine boundaries of possibility. We are excited to unveil our vision for the Musculoskeletal Soft Tissue Regenerative Medicine (STiRM) Programme, an initiative that encapsulates the potential and ambition of regenerative medicine. At its core, the STiRM Programme seeks to journey into the cellular intricacies, aiming to revolutionize treatment options for musculoskeletal diseases. This endeavour is not just about advancing knowledge but weaving together the threads of research, therapy and clinical applications, offering a tapestry of solutions that transform patient care.



## Harnessing the Power of Cells through Stem Cell Research

Through a dedicated platform encompassing state-of-the-art lab spaces, cutting-edge equipment, and a vibrant research team, the STiRM Programme aims to foster unparalleled expertise in cell culture. Our focus will pivot around studying a diverse array of cells – from chondrocytes to mammary cells – each holding a promise to challenge existing therapeutic paradigms. Our approach will be both methodical and visionary, ensuring each endeavor is aligned with tangible clinical applications. In this golden age of tissue engineering, the possibilities are endless.

## Translating Our Expertise into Transformative Therapies

**Skin Regeneration for Burns:** Offering hope to burn victims, our research will pioneer techniques to regenerate skin and restore both function and aesthetics, offering patients a new lease of life.

**Cartilage Regeneration for Osteoarthritis:** Addressing the debilitating effects of osteoarthritis, our initiatives will dive deep into cartilage regeneration, aiming to improve mobility and well-being.

**Cell Signalling-Based Therapy for Bone Remodelling:** Harnessing the power of cellular communication, we seek to develop therapies that reshape bone remodelling, promising better outcomes for patients.

In essence, the STiRM Programme embodies a future where musculoskeletal care is not just about healing but regeneration. Join us in rewriting the boundaries of a new chapter in academic medicine.

Thank you for your unwavering commitment to the advancement of medical science.



Visit our fundraising page  
for more information  
<https://sgh.give.asia/campaign/soft-tissue-regenerative-medicine-programme?#>



# Support in Restoring Function for Spinal Cord Injury (SCI)

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Spinal cord injury (SCI) is a disabling disease that preferentially affects young patients at their peak productivity ages. These young patients suffer the traumatic loss of function and may face paralysis in different parts of their body, depending on the severity of injury. While current treatment of SCI is supportive at best, patients with paralysis face bleak prospects in regaining mobility and function. In the United States alone, the economic burden of SCI can reach up to USD 5 million per patient per lifetime.

Here at the SingHealth Musculoskeletal Sciences, we look towards a promising future of motor restoration for patients with SCI.

## Adopting a Multidisciplinary Approach:

Our team of neuroscientists, surgeons and rehabilitation specialists are dedicated to initiating a neurostimulation programme for patients with debilitating neurological disorders such as SCI. Recent advances in neurostimulation have shown great promise, enabling patients with paralysis to regain their ability to walk.

## Pioneering Neuroprosthetics Technology:

We aim to pioneer the use of neuroprosthetic devices in patients with paralysis due to chronic SCI, so as to restore function and movement in these patients. This will pave the way for clinical adoption of neuroprosthetic devices and change the paradigm of care for patients with SCI.

## Increasing Outreach & Accessibility of Care

We are also committed to expand outreach and accessibility of such care, opening up opportunities to previously underserved populations of patients with paralysis.

Your contribution will go towards pioneering this clinical care, enabling the adoption of neuroprosthetic devices for patients with chronic paralysis due to SCI as well as giving them a chance to walk and move again after years of paralysis.

Join us in our efforts to transform the care of spinal cord injury so that our patients can look forward to a future without debilitating paralysis.



Visit our fundraising page  
for more information  
<https://sgh.give.asia/campaign/support-in-restoring-function-for-spinal-cord-injury-sci?#/>





# Contact Us!

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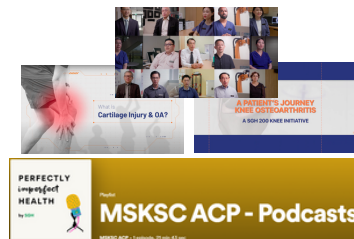


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