The Sheba Medical Center at Tel HaShomer is a Medical Research powerhouse, with over 25 percent of all Israeli medical clinical research conducted at its facilities, and is a key industry partner as an initiator, catalyst and testing center for Israeli medical technology and new drugs. Furthermore, Sheba is the main clinical trial venue for medical scientific studies conducted by the Weizmann Institute of Science, and Tel Aviv and Bar-Ilan universities.

Research Centers of Excellence:

- Research Center for Autoimmune Diseases
- Research Center for Psychiatric and Dementia
- Advanced Technology Center
- Sheba Cancer Research Center
- Genomic Institute
- Regenerative Medicine Research Center
- The Bert W. Strassburger Lipid Center
- The Joseph Sagol Neuroscience Center
- The Leviev Heart Center
- The Multiple Sclerosis Research Center
- Imaging Institute
- Tissue Banking – Research Tools
As part of its efforts to advance human healthcare, The Sheba Medical Center (SMC) established strong research and development foundations, investing in professional human resources and state-of-the-art facilities.

SMC provides a comprehensive and unified environment in which clinicians, scientists, academics and industry gather together to foster the development of therapeutic and diagnostic technologies.

**SMC Research Facts:**

- 3200 researchers, technicians and lab workers
- 25% of Israeli medical research is performed at Sheba
- 750 clinical trials per year
- 750 published articles per year
- The main venue for human clinical trials conducted by the Weizmann Institute, Tel Aviv and Bar-Ilan universities.
- 350 M$ in research grants in the past decade
- 20 biomedical patent applications per year

A major goal of SMC is the translation of basic research into clinical technologies aimed at improving patients’ health. To attain that, SMC encourages the collaboration with the pharmaceutical and medical device industry, and promotes the commercialization of intellectual property generated at the hospital.

Our facilities span the physical infrastructure and the specialized manpower to conduct pre-clinical and clinical research in all medical fields.
SMC Research Infrastructure:

**Laboratories and Pre-Clinical Facilities**
- 85 laboratories spanning 35,000 m² area
- 9 ISO-15189 approved laboratories
- Tissue bank with over 15,000 specimens and depositions from over 400 new patients per year
- Fully-automated MegaLab facility performing over 1000 different clinical tests
- IVC-SPF small animal facility
- Surgery room for big animals with state-of-the-art equipment
- Good Tissue Culture Practice (GCP) laboratory for cell based translational development
- Genomic center equipped with last-generation genome analyzers and microarray facilities
- Advanced Microscopy Unit (multiphoton, microdissection, electron and confocal microscopes)

**Clinical Research**
- Phase I unit
- US Federal Wide Assurance (FWA) designation
- 5,000 m² of laboratories connected (physically and digitally) to surgery rooms
- Surgery and recovery rooms fitting clinical research
- Comprehensive medical simulation center operating low-tech and hi-tech simulation scenarios
- Imaging Research Unit with state-of-the-art equipment (for human and animal research)
- Key-opinion leaders offering consulting in all clinical areas
- 2,400 staff physicians
- Access to 64 medical departments, 110 outpatient clinics and over 1,500,000 annual patient visits
- Home of the National Centers for Autoimmune Diseases, Multiple Sclerosis, Hemophilia, Newborn Screening, Cystic Fibrosis, Glaucoma, Spinal Cord Injuries, Virology, National Blood Bank.
Our Strengths:

**Animal Research and Service Center** provides Specific Pathogen Free (SPF) laboratory animal care. We pioneer in laboratory animal care, animal disease models, driving research innovations from bench to bedside for all biomedical applications.

We provide veterinary services to researchers, staff and students on animal experimentation issues, while promoting best practices for the responsible use of animals. These actions result in quality science hand-in-hand with humane and responsible animal welfare.

**Pathology Research Institute** is the largest pathology department in Israel, and the leader in teaching clinical and medical research needs. Our mission is to improve the diagnosis, treatment and basic understanding of human disease by clinical service, education and research programs.

**Tissue Repositories for an Advanced Biomedical Research Center** aims to facilitate biomedical research, providing the highest quality and well annotated biological bio-specimens. We provide tools for the growing demands of the bio-medical needs to accelerate research and medical product development of novel medications and diagnostic biomarkers and tools.

**Computational Imaging Laboratory, the CILAB** - At the heart of Israel's most advanced Radiology Department, top medical expertise meets state-of-the-art image and signal processing. Enjoying an unlimited access to radiological data and clinical expertise, the CILAB is in a privileged position to foster the development of advanced software and devices that solve challenging medical problems. The CILAB is involved in several joint research projects with Academia and Industry. It is a one-stop-shop for medical device companies, providing support from the basic idea to the validated prototype:

**Cancer and Genome Research Center** is an advanced genomic research center, dedicated to providing the latest genomic research and development tools for scientists and the medical industry, to facilitate high-impact genomic-based cancer product developments. Doctors and scientists are engaged in basic clinical and pre-clinical research that delivers the most advanced diagnostic and treatment modalities to cancer patients. In addition to academic teaching and training, Sheba's doctors collaborate with leading international research groups as well as major pharmaceutical and biotech companies. Numerous clinical studies are conducted for developing new anti-cancer drugs. Advanced technologies such as Gene-sequencing, Microarrays, Bioinformatics, Molecular Cytogenetics, Zebra fish, Stem Cells and others, are employed and constantly improved.
**The Advanced Technology Center** specializes in interdisciplinary translational medical research in the fields of biomedical photonics, drug delivery into the brain and brain tumors and brain MRI. Our main interest is to develop and apply cutting-edge photonic/MRI technologies and provide the services, expertise, data analysis and scientific support necessary for utilizing these technologies in animal models and study the efficacy in humans. The interdisciplinary team includes biologists, chemists and physicists with vast experience in applied medical sciences and a wide range of collaborations within the Sheba Medical Center and with other hospitals, academic institutions and the global pharma/medical device industries.

**Phase I Unit - Therapeutics, Diagnostic, Medical Devices and Data Mining - SMC** has successfully developed the first oncology dedicated Phase I unit in Israel. The Early Phase Trial Unit has an excellent track record of accruals and performance which has already attracted international academic and industry attention. Through the Early Phase Trial Unit, we are positioned to bring additional pharmaceutical and biotech companies to Sheba for innovative drug development programs.

**The Institute of Human Genetics** comprises two major arms that operate in synergy. The genetic medical clinic, that provides specialist consultancy and laboratory services, and the research laboratory. Our primary goal is to provide the patient with superior, cutting edge medical care by coupling the clinical activities with the advanced scientific research and development. The Molecular Diagnosis Research Laboratory collaborates with the Israeli Genetic National Database on an ongoing basis and performs more than 70,000, diverse, diagnostic tests a year and give over 3,000 genetic consultations annually in various fields. All the relevant departments at the Sheba Medical Center enjoy in-house access to the consultancy services of The Institute of Human Genetics.

**Infectious Diseases Research Laboratory** is the largest of its kind in Israel. In addition to the Infectious Diseases Research Laboratory, the unit provides diagnosis, vaccinations and treatment services in the fields of HIV and sexually transmitted diseases, Infections Control, Tropical diseases and travelers' clinic and a Pediatric Infections unit. We have the most advanced molecular microbiology research capabilities. Our lab is equipped with state-of-the-art biosafety level 2+ facilities that enable us to encompass comprehensive infectious diseases research. SMC infrastructures allow us in-house utilization of advanced analysis methods such as Microarray laboratory (for Affymetrix Arrays analysis) and NGS (next-generation sequencing) platforms including the Illumina Miseq and Hiseq platforms. We hold a unique collection of hundreds of clinical (human) and veterinary bacterial isolates of many pathogens, with extremely high clinical value for drug development and target diagnostic tools. Our pathogen repository is available for research and development collaboration and services for various analyses.
**Advanced Technologies in Rehabilitation** holds the most progressive and comprehensive set up of clinical and research laboratories worldwide. In these laboratories we conduct basic, clinical and applicable research. Being the largest hospital in Israel, we have ready access to different patient populations (e.g., neurological, psychiatric, diabetes, orthopedic) and have ongoing collaborations with the clinical leaders in many medical disciplines. Our research encompasses Gait and motor control laboratories, Virtual reality laboratories and wearable sensors for studying motor functions, Robotic systems and tele-rehabilitation.

**Biomedical Informatics Resource** - The vehicle that brings informatics technology to the mainstream community in an effort to help integrate existing informatics resources across SMC and within the BIU in order to fosters collaborations and bring together investigators from different disciplines utilizing medical data mining.

**Design and Biostatistics Resource** - Brings together outstanding investigators from biostatistics and epidemiology who work together to assist with research study design and statistical advice.

**Regulatory Knowledge and Support/Clinical Research Ethics Resource** to enhance regulatory education, compliance, and ethics.

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