

Research Services

Pioneering
Precision Medicine
Through Research.

Pioneering tomorrow's healthcare through research

At Sidra Medicine, we envision a future where transformative research is not confined to labs but is integrated into every patient's journey. This vision fuels our mission to redefine healthcare by making research the cornerstone of exceptional patient care.

Every individual who walks through our doors benefits from the latest advancements in medicine, thanks to seamless access to cutting-edge technologies and research-driven treatments.

Our dedicated research teams work hand-in-hand with medical staff across all departments, ensuring that scientific breakthroughs translate directly into tangible improvements in patient outcomes.

Our approach is based on close collaboration between patients, trainees, physicians, and researchers. This ensures that patient experiences and insights directly contribute to improving their own care and the lives of countless others.

This makes Sidra Medicine a leader in healthcare innovation and sets a new standard for academic medical centers in the region and beyond.





Our commitment to research excellence

Sidra Medicine Research Services provides comprehensive support to empower scientists and foster a thriving research ecosystem. From state-of-the-art facilities to expert guidance on ethics and compliance, we are dedicated to facilitating impactful discoveries that advance healthcare.

- Cutting-edge infrastructure: Access state-of-the-art laboratories, equipment, and technical expertise to accelerate your research.
- Comprehensive support: Benefit from dedicated teams providing financial, HR, grant management, research outcomes, communications, and policy support.
- Robust ethical framework: Conduct research with confidence, guided by stringent policies and procedures ensuring human subject protection, animal welfare, and research safety.
- Expert compliance guidance: Navigate complex regulatory landscapes with ease through our specialized committees and training programs.
- Investing in the next generation: We are committed to providing exceptional training opportunities for aspiring local, regional, and international researchers, empowering them to become leaders in their fields.



Sidra Medicine's translational research programs

At Sidra Medicine, our world-renowned translational research programs are dedicated to advancing healthcare through pioneering research, innovative technologies, and a passionate commitment to improving children's and women's lives.

Translational Research Programs are cross-cutting units that support translational research in strategic disease areas. Each program brings together multiple stakeholders, including Sidra Medicine researchers, clinicians, and clinician scientists, working with analogous disease focus and interests.

A primary objective for each program is to guarantee sustainable advancement in their respective field while aligning with Sidra Medicine's research strategy. Each program has identified a selection of disease groups, referred to as Gold Cohorts, based on strategic and clinical considerations. These Programs serve as umbrella structures that synchronize research efforts within six specific disease areas, carefully selected based on our patients' needs to ensure synergy and effective use of resources.

Sidra Medicine's translational research programs

The Reproductive, Pregnancy and Neonatal Disorders (RPND) Program

The program is committed to fostering multidisciplinary clinical research to improve healthcare and provide enhanced reproductive options for our patients. RPND's objectives are aligned with the Qatar National Health Strategy, targeting significant health issues faced by patients with fertility disorders and pregnancy complications. Within the extensive women's and pediatric services at Sidra Medicine, RPND will concentrate on the following Gold Cohorts:

- Infertility
- Gestational Diabetes Mellitus
- Prematurity

The Immune Dysregulation Program

Immune dysregulation poses a significant clinical challenge, manifesting in diverse conditions like allergies, autoimmunity, inflammation, and cancer. These patients often present with unusual symptoms, complicating diagnosis and treatment. Treatment resistance or lack of established protocols further exacerbate the issue. Immune dysregulation disorders range from common, multifactorial conditions to rare monogenic disorders, which are notably prevalent in Qatar and the MENA region. Studying rare monogenic disorders,

despite their individual rarity, offers valuable insights into pathogenic mechanisms and potential therapeutic targets applicable to more common polygenic immune dysregulation disorders. The planned Gold Cohorts for this program include:

- Monogenic disorders of immune dysregulation
- Inflammatory bowel disorders

Metabolic and Mendelian Disorders

Sidra Medicine's Metabolic and Mendelian Disorders Program, known as Genome 2 Cure (G2C), represents a groundbreaking endeavor designed specifically to address the distinct healthcare requirements of the Qatari population. Its goal is to revolutionize medical practice and improve the well-being of individuals grappling with metabolic disorders, while also serving as a catchment for other Mendelian and rare conditions not addressed by existing programs, ultimately enhancing patient outcomes. The following are the Gold Cohorts recruited in this program:

- Newborn sequencing for screening
- Type I Diabetes
- Mendelian disorders not captured by other programs





The Pediatric Cancer Program

Sidra Medicine's Pediatric Cancer Program addresses the complexities of childhood cancer by focusing on accurate diagnosis and targeted treatments. Leveraging precision medicine, the program aims to understand the diverse molecular profiles of tumors across histological origins. This approach seeks to transform pediatric oncology by improving patient survival through advanced diagnostics and innovative, tailored therapies. The disease population is represented by pediatric (age birth-18 years old) patients with cancer, including newly nosed malignancies, relapsed and refractory or long-term survivor patients with a focus on the following Gold Cohorts:

- Hematologic malignancies
- Central nervous system tumors

Neuroscience Program

Neurological and Psychiatric Disorders (NPDs) encompass a broad range of conditions impacting the nervous system, leading to sensory, motor, cognitive, or behavioral abnormalities. As the national referral center for pediatric NPDs, Sidra Medicine encounters numerous cases with unresolved diagnoses. The Neuroscience Program is a multidisciplinary clinical and research initiative focused on building a knowledge base on priority NPDs within Middle Eastern populations. This program aims to advance research, enabling improved NPD diagnosis and the development of tailored therapeutic interventions.

The Program will build a database/registry of curated electronic health records and clinical data for NPDs focusing on three Gold Cohorts:

- Epilepsy
- Autism
- Cerebral palsy

The Congenital Malformations Program

Congenital malformations (CM) encompass anatomical, physiological, and genetic abnormalities arising during embryonic or fetal development. These include craniofacial, cardiac, renal, and urinary system anomalies. Despite biomedical advancements, the etiology and mechanisms of many CMs remain elusive. The CM-CRP addresses the multifaceted nature of congenital anomalies in Qatar. By investigating genetic, environmental, and developmental factors, the program aims to improve diagnostic accuracy, refine therapeutic interventions and mitigate the impact of CMs on human health. Each of the following Gold Cohort focuses on a specific subset of congenital anomalies prevalent in Qatar and of global interest:

- Craniofacial Malformations
- Heart Malformations
- Kidney and Urinary Tract Malformations

Sidra Medicine's Clinical Research Programs are at the forefront of advancing healthcare through innovative research and a collaborative approach. The establishment of Gold Cohorts ensures that research efforts are strategically aligned with clinical priorities, ultimately contributing to the advancement of healthcare for children and women in Qatar and beyond.



Where innovation
meets care

Sidra Medicine's Research Operations

Sidra Medicine's Research Operations drive innovation in healthcare by integrating cutting-edge clinical trials and advanced research core services. Our Research Operations and Services team enables our work every step of the way by providing the necessary infrastructure and resources, creating an environment where groundbreaking discoveries thrive. The following initiatives enhance patient care, cementing Sidra Medicine's role as a leader in precision medicine:

Clinical Trials Office (CTO)

Sidra Medicine's Clinical Trials Office (CTO) stands as a beacon of hope for pediatric patients facing rare and complex diseases. By harnessing the power of research, the CTO offers innovative treatment options and paves the way for a future of personalized healthcare. Our focus on rare diseases, particularly those prevalent in the Arab region, sets us apart. We delve into the genetic intricacies of these conditions, seeking to develop therapies that cater to the unique needs of children in the Middle East. This personalized approach extends to our industry-sponsored trials, where we address critical and rare conditions. At the heart of our CTO lies a commitment to ethical and regulatory excellence. All clinical trials undergo rigorous evaluation by an independent Institutional Review Board and receive approval from Qatar's Ministry of Public Health. This ensures unwavering adherence to global standards and the protection of our participants' well-being.

To propel our research forward, we actively collaborate with leading international healthcare institutions, pharmaceutical companies, and clinical research organizations. These partnerships allow us to conduct robust Phase 1 through Phase 4 studies, leveraging our extensive diagnostic research capabilities to enhance trial outcomes. Our CTO enables families to access pioneering investigational treatments locally, reducing the need to travel abroad and fostering medical advancements within the country.

Research Core Services

Sidra Medicine's core services serve as a vital bridge, connecting research discoveries with clinical practice to enhance patient care. Each core facility within the core services boast state-of-the-art equipment and technology, operated by a team of highly skilled

researchers. This infrastructure empowers researchers and clinicians to collaborate seamlessly, fostering a holistic approach to patient care. The multidisciplinary nature of the core services encourage cross-pollination of ideas and expertise. Research investigators and healthcare providers work together with core facility experts, leveraging their combined knowledge to deliver the highest quality care possible. This synergy not only benefits patients directly but also deepens our understanding of diseases affecting women and children in Qatar, paving the way for future breakthroughs and personalized treatment strategies.

Advanced Research Cores (ARC)

Sidra Medicine's Advanced Research Cores (ARC) represent a comprehensive suite of capabilities designed to propel precision medicine and translational research. Encompassing six core facilities – genomics, omics, flow cytometry, advanced imaging, informatics, and zebrafish functional validation – the ARC provides a seamless workflow for complex scientific projects. This multidisciplinary approach empowers researchers to navigate the entire research journey, from initial large-cohort screenings to targeted validations and in-depth data analysis. The ARC goes beyond standard medium- and high-throughput sequencing, offering access to third-generation sequencing and single-cell services. Additionally, advanced imaging and cell analysis capabilities further enhance the research toolkit.





The full spectrum of Sidra Medicine's Advanced Research Cores (ARC) include:

Clinical Genomics Laboratory (CGL):

The Clinical Genomics Laboratory (CGL) provides access to a range of medium- to high-throughput library preparation and sequencing methods. Industry-leading sequencers and automation platforms ensure efficient workflows, while rigorous sample quality control guarantees data integrity and reliability. The CGL empowers researchers to conduct both large-scale population studies and focused genomic analyses, accelerating discoveries in genomic medicine.

Omics Core (OC):

The Omics Core (OC) serves as a hub for translational and precision medicine, supporting research projects and international collaborations. By ensuring access to the highest quality biospecimen, the OC enables researchers to undertake comprehensive studies. Additionally, the OC complements CGL offerings with specialized support and 3rd generation sequencing capabilities, allowing for a deeper understanding of complex biological systems and disease mechanisms.

Genomic Data Science Core (GDSC):

The Genomic Data Science Core (GDSC) utilizes state-of-the-art tools and best practices, along with a High-Performance Computing (HPC) infrastructure, to process and analyze Whole Genome (WGS), Whole Exome (WES), and (sc) RNA-seq data, delivering results to end users quickly and securely. It provides variant calling, CNV, SV analysis, gene quantification matrices, differential gene expression analysis, and tailored consultancy services.

Zebrafish Core (ZC):

The Zebrafish Core (ZC) leverages the versatility of zebrafish to develop patient-specific genotype models. This approach enables researchers to investigate genetic

variations with high accuracy. The ZC serves as an invaluable tool for validating gene discoveries and deepening the understanding of a wide range of diseases, including neurological disorders and congenital anomalies. Cutting-edge zebrafish technologies are employed to explore potential treatments. Animal husbandry, training, and tailored research consultations are provided to support zebrafish studies.

Advanced Imaging Core (AIC):

The Advanced Imaging Core (AIC) enables precision medicine by providing cutting-edge imaging technologies and expertise. The state-of-the-art facility handles diverse projects, from high-throughput screening of large sample sets to in vivo imaging. Advanced imaging systems allow researchers and clinicians to visualize and analyze complex biological processes with high resolution and precision. This fosters breakthroughs in diagnostics, therapeutics, and disease understanding. The AIC's collaborative and customer-focused approach ensures advanced imaging is accessible and impactful for the research and clinical community.

Flow Cytometry Core (FCC):

The Flow Cytometry Core (FCC) provides a multifaceted phenomics platform dedicated to establishing cellular, molecular, and functional phenotypes that complement genomics, transcriptomics, and clinical phenotypic analyses of patients. FCC supports a wide array of applications, from basic research to clinical services, ensuring that cellular and molecular data are integrated seamlessly with broader omics approaches to foster more comprehensive insights into health and disease. In addition to local efforts, FCC actively collaborates with international institutions, facilitating global partnerships that drive innovation in flow cytometry research.

Advanced Cell Therapy Core (ACTC)

Sidra Medicine's Advanced Cell Therapy Core (ACTC) stands at the forefront of personalized medicine, bridging the gap between cutting-edge research and clinical care. By harnessing the transformative power of cell and gene therapies, the ACTC paves the way for innovative and individualized treatment options for patients.

Key activities:

- Private Stem Cell Banking for innovative use of cord blood stem cells.
- Processing and cryopreservation of Hematopoietic Stem Cells for transplantation
- Manufacturing of experimental and possibly marketed gene therapy products
- Manufacturing and Biobanking of Mesenchymal Stromal Cells for multiple clinical applications
- Regenerative Medicine

Good Manufacturing Practices (GMP) Facility

Sidra Medicine launched Qatar's first Good Manufacturing Practices (GMP) facility for cell and gene therapy in 2023. This state-of-the-art facility provides advanced and experimental treatments, while combining research and development (R&D) activities with commercial manufacturing, creating a virtuous cycle that drives innovation and revenue generation.

Key features:

- Equipped with the most advanced technology in the field.
- Staffed by highly trained and clinically licensed experts
- ICCBBA is licensed for ISBT 128 use by the International Society of Blood Transfusion.
- Adherent to international standards and guidelines, including FACT-JACIE, FDA, JCI

- ISCT, and GMP Cleanroom standards
- Licensed by Qatar's Ministry of Public Health (MOPH).
- ISO 9001:2015 Quality Management System certified.

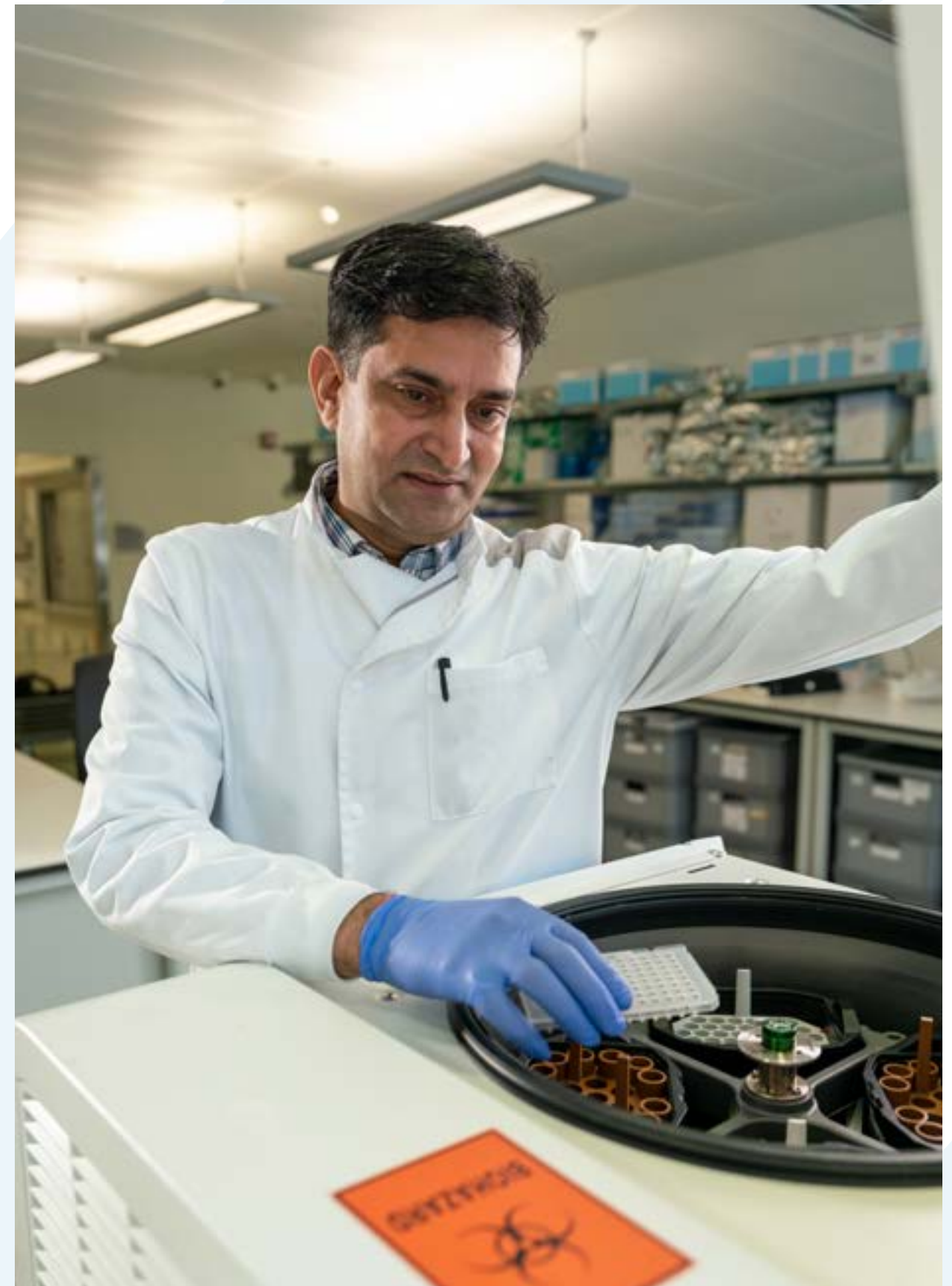
These certifications and licenses ensure that Sidra Medicine's GMP facility operates at the highest standards of quality and compliance.

Your Research Support Network at Sidra Medicine

At Sidra Medicine, we understand that innovative research requires more than just brilliant minds. It needs a robust support system.

Our Research Operations and Services team plays a pivotal role in driving innovation and implementing the research strategy within the organization. By streamlining research processes, managing resources, and ensuring quality, they create an environment where researchers can focus on discovery and experimentation. This team also acts as a bridge between strategic leadership and operational execution, translating high-level goals into actionable plans. They leverage cutting-edge tools, foster cross-functional collaboration, and prioritize data-driven decision-making to enhance research efficiency.

Partner with Sidra Medicine Research Operations and Services and unlock your full research potential. Our dedicated teams are here to support you every step of the way, fostering a collaborative and innovative environment where groundbreaking discoveries thrive.





Institutional Collaborations and Medical Education

We are proud to partner with leading educational and research institutions worldwide, working together to conduct impactful research and deliver world-class healthcare.

Together, we are:

- Driving innovation in healthcare
- Advancing medical knowledge
- Improving patient outcomes
- Shaping the future of medicine

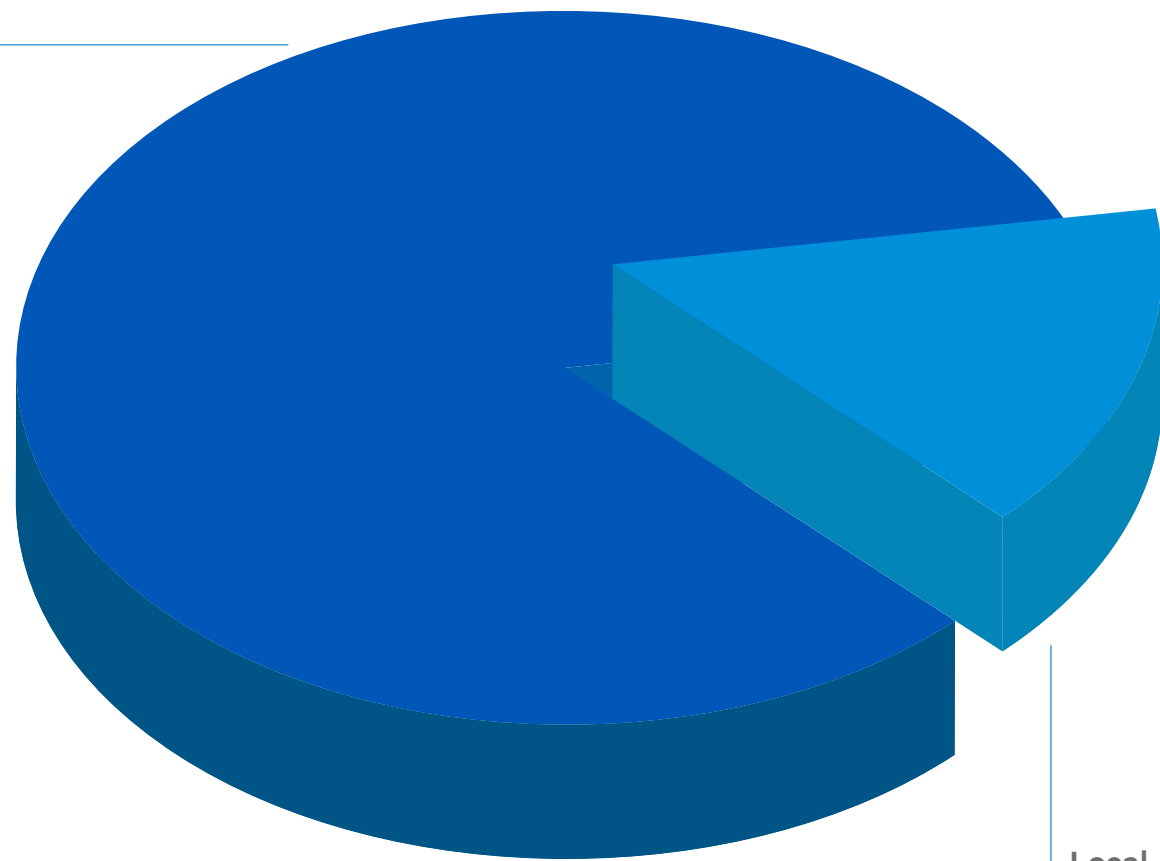
Our Impactful Collaborations

Qatar Precision Health Institute (QPHI): Sidra Medicine's collaboration with the Qatar Precision Health Institute (QPHI) exemplifies a synergistic partnership to advance precision medicine in Qatar. QPHI, an umbrella organization encompassing the Qatar Genome Program (QGP) and Qatar Biobank (QBB), provides a wealth of population-level genomic data and biospecimens. Sidra Medicine leverages these resources, along with its own clinical and research expertise, to develop and implement personalized healthcare strategies.

Children's Hospital of Philadelphia (CHOP): Sidra Medicine signed a Memorandum of Understanding (MOU) with the Children's Hospital of Philadelphia (CHOP) to develop the first-ever pediatric hematopoietic stem cell transplant (HSCT) program in Qatar. This MOU enables knowledge transfer and expertise sharing from CHOP's renowned Cellular Therapy and Transplant Section (CTTS) to Sidra Medicine.

Our partners

International, 69
85%



Local, 12
15%

We are honored to collaborate with a diverse range of institutions, including:

Local Partners

- Anti-Doping Laboratory
- Carnegie Mellon University in Qatar
- Hamad Bin Khalifa University (HBKU)
- Hamad Medical Corporation (HMC)
- Ministry of Public Health – Qatar
- Primary Health Care Corporation (PHCC)
- Qatar Computing Research Institute (QBRI)
- Qatar Museum Authority (QMA)
- Qatar Precision Health Institute
- Qatar University (QU)
- Texas A&M University - Qatar
- University of Calgary in Qatar (UCQ)
- University of Doha for Science and Technology (UDST)
- Weill Cornell Medicine – Qatar

International Partners

- Children's Hospital of Philadelphia
- Harvard Medical School
- Istanbul Ticaret University
- King's College London
- Mahidol University
- Marmara University
- Middle East Technical University
- National Institute of Allergy and Infectious Diseases (NIAID)
- Osaka University
- The Foundation for Liver Research - UK
- The Research Foundation for the State University of New York
- UK Biobank
- University of Aberdeen
- University of Calgary
- University of Cambridge
- University of Florence
- University of Genova
- University of Minnesota
- University of Murcia
- University of Oxford
- University of Pau and Pays de l'Adour
- University of Rome
- Weill Cornell Medical College

Investing in the next generation of scientists is investing in a healthier future. At Sidra Medicine, we are committed to providing exceptional training opportunities for aspiring local, regional, and international researchers, empowering them to become leaders in their fields.

To apply for training at our research facilities, or for an opportunity to complete your research requirement as part of your MSc or PhD degree, please send your CV to externship@sidra.org. More information on our externship program can be found on our website.



Getting to Sidra Medicine

Visitor Directions

We are located in Al Gharraffa, across from Education City, next to the Qatar Science & Technology Park and in front of the National Convention Center.

Access our Outpatient Center and the Hospital Building from Al Luqta Street (heading west towards the Dukhan Hwy) or through the Qatar Science and Technology Park entrance off Al Gharrafa Street (heading south towards Al Rayyan Road).

We offer valet parking at these locations:

- Outpatient Clinic - Main Entrance
- Hospital - Women's Entrance (Tower D)
- Hospital - Main Entrance (Between Tower B & C)



(+974) 4003 3333
Sidra.org