



# *Advancing Precision Health through Domestic, Regional, and Global Collaboration and Partnerships*

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Research Development and Innovation Advisor to the Chairperson of and Qatar Foundation and  
Executive Director of RDI at CPO

February 2,  
2025





# Acknowledgement



*The National  
Academies of* | SCIENCES  
ENGINEERING  
MEDICINE

# Advancing **Precision Health** through Domestic, Regional, and Global **Collaboration and Partnerships**

## Outline

- **Milestones in Precision Health:** Where We Started and Where We Are - Qatar
- **Driving Precision Health Forward** Through National Synergies & Collaborations
- **The Case for Competitive Collaborations in the MENA region**
- **Rethinking Global Collaborations:** Towards New Models Rooted in Co-Creation and Shared Innovation
- **The Road Ahead:** Embracing Emerging Opportunities in Precision Health





*Skyscrapers Rise in the Desert, But Can Science and R&D Thrive?*

**ABSOLUTELY**

*Qatar: Building and RDI Ecosystem from the Ground Up?*







# QATAR FOUNDATION

AN ECOSYSTEM BUILT FOR IMPACT

**For Education, Science, and  
Community Development**

Qatar Foundation is not a foundation, it is not a university, it is not a campus, it is a comprehensive ecosystem focusing on unlocking human potential . Built to be an engine of innovation and laboratory for Qatar and the world.





**Our journey  
started with  
one school**



**أكاديمية قطر  
Qatar Academy**

**Established in  
1996**

**# of Graduates  
1,671**



# Our ecosystem has evolved to 13 mainstream and specialized schools



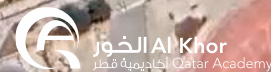
Established in  
**1996**  
# of Graduates  
**428**



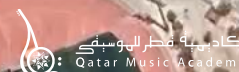
Established in  
**2001**  
# of Graduates  
**3,815**



Established in  
**2005**  
# of Graduates  
**308**



Established in  
**2008**  
# of Graduates  
**180**



Established in  
**2011**  
# of Graduates  
**120**



Established in  
**2011**  
# of Graduates  
**120**



Established in  
**2012**  
# of Graduates  
**101**



Established in  
**2014**  
# of Graduates  
**101**



Established in  
**2016**  
# of Graduates  
**47**



Established in  
**2018**  
# of Graduates  
**47**



Established in  
**2019**  
# of Graduates  
**47**



Joined QF in  
**2019**  
# of Graduates  
**47**





## 7 Leading International Universities

**vcuarts**  
QATAR

  
**Weill Cornell  
Medicine-Qatar**

**ATM**  
TEXAS A&M  
UNIVERSITY at QATAR

**Carnegie  
Mellon  
University  
Qatar**

  
جامعة جورجتاون قطر  
GEORGETOWN UNIVERSITY QATAR

Northwestern | QATAR

**HEC**  
PARIS  
IN QATAR | في قطر

Established in

**1998**

Alumni

**1,109**

Established in

**2001**

Alumni

**588**

Established in

**2003**

Alumni

**1,628**

Established in

**2004**

# of Graduates

**1,274**

Established in

**2005**

# of Graduates

**937**

Established in

**2008**

# of Graduates

**842**

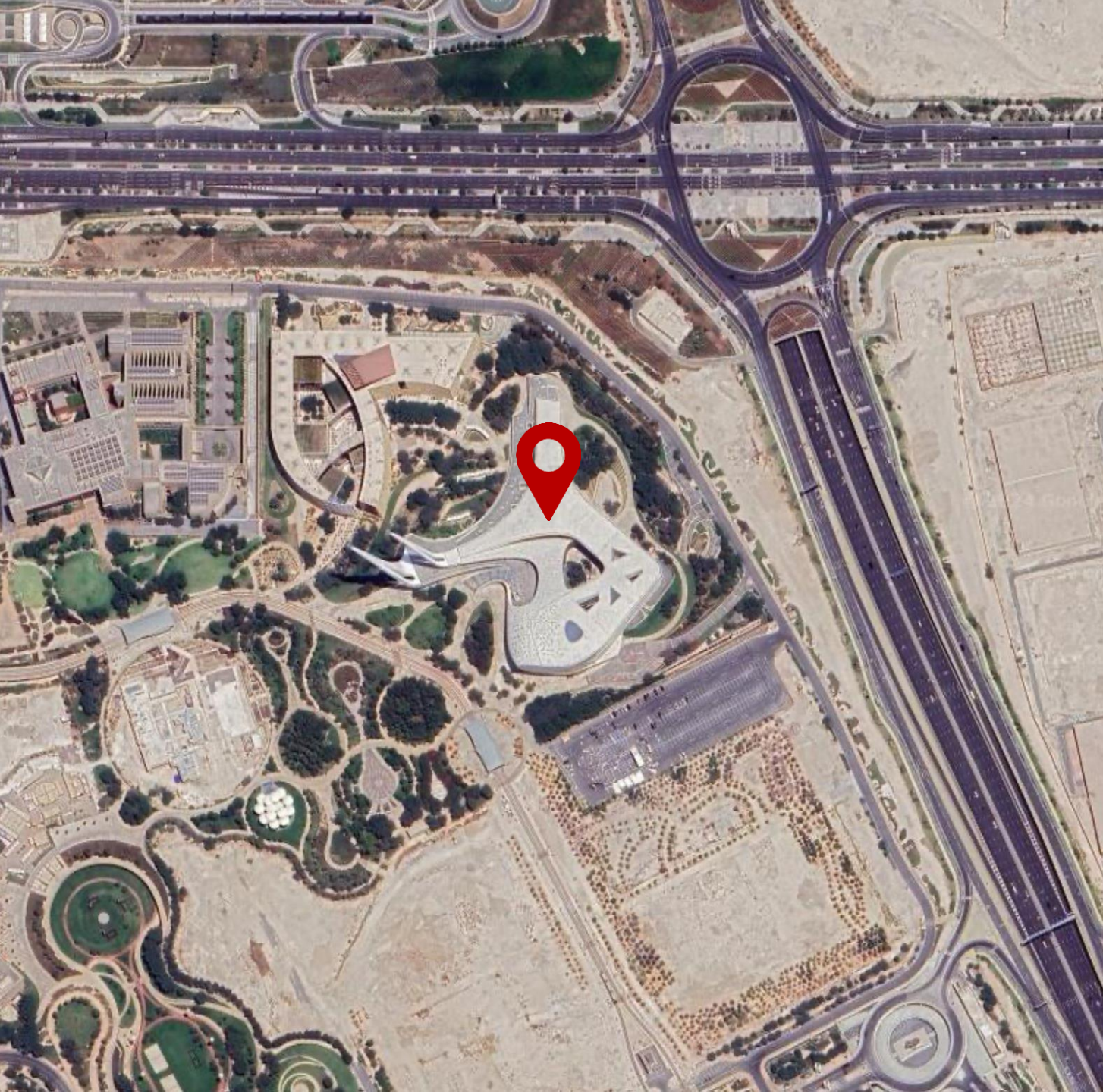
Established in

**2010**

# of Graduates

**842**





# 1 Homegrown University



Established in

**2010**

Alumni

**2,093**

## Colleges

- College of Health and Life Sciences
- College of Humanities and Social Sciences
- College of Islamic Studies
- College of Law
- College of Public Policy
- College of Science and Engineering



# Education City: a unique multiversity model







# Our research ecosystem

واحة قطر للمعلوم  
والتكنولوجيا  
QATAR SCIENCE & TECHNOLOGY PARK

QCRI  
معهد قطر لبحوث الحوسبة  
Qatar Computing Research Institute  
جامعة حمد بن خليفة  
HAMAD BIN KHALIFA UNIVERSITY

QEERI  
معهد قطر لبحوث البيئة والطاقة  
Qatar Environment & Energy Research Institute  
جامعة حمد بن خليفة  
HAMAD BIN KHALIFA UNIVERSITY

QBRI  
معهد قطر لبحوث الطب الحيوي  
Qatar Biomedical Research Institute  
جامعة حمد بن خليفة  
HAMAD BIN KHALIFA UNIVERSITY

سدرة للطب  
Sidra Medicine

QP  
معهد قطر للرعاية الصحية الدقيقة  
Qatar Precision Health Institute  
عضو في مؤسسة قطر  
Member of Qatar Foundation

Established in

2004

Established in

2009

Established in

2009

Established in

2009

Established in

2018

Established in

2024



## Our Policy/Think Tanks Hub



Established in  
**2006**

UN-affiliated advocate  
for family policy



Established in  
**2009**

Global education  
thinktank



Established in  
**2013**

Global healthcare  
initiative and Platform

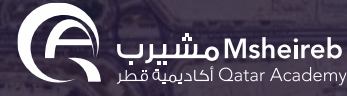
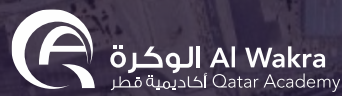
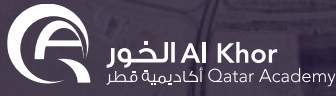
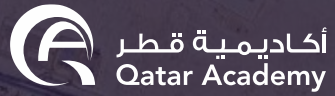


Established in  
**2022**

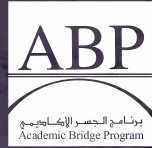
Sustainability policy,  
research, and  
advocacy hub



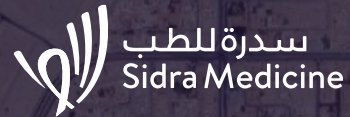




Northwestern | QATAR



جامعة جورجيتاون قطر  
GEORGETOWN UNIVERSITY QATAR





# SOCIAL IMPACT

Centers established by QF have grown, matured, and ultimately become independent, as they continue to serve the people of Qatar and beyond:

- Qatar National Library
- Social Development Center
- Reach Out To Asia
- Qatar Career Development Center
- Qatar Diabetes Association
- Qatar Debate
- Qatar Philharmonic Orchestra
- **Qatar National Research Fund**
- **Qatar Research, Development, and Innovation**

# NATIONAL IMPACT

QF has laid the foundations for:

- Qatar's national research strategy
- Qatar's national AI strategy
- Qatar's overarching RDI governance

And its establishment of Qatar National Research Fund has enabled:

**\$1.5bn**

to be  
committed  
to research

**5,900**

research  
projects to  
be funded

**1,100**

research  
collaborations  
to be formed in  
67 countries



## Qatar University: 18 Research Centers

### Research Centers (Under VPRGS)

1. Center for Advanced Materials (CAM)
2. Environmental Studies Center (ESC)
3. Central Laboratories Unit (CLU)
4. Laboratory Animal Research Center (LARC)
5. Biomedical Research Center (BRC)
6. Social and Economic Survey Research Institute (SESRI)
7. Ibn Khaldoun Center for Humanities & Social Sciences
8. Qatar University – Young Scientists Center (QU-YSC)
9. Agricultural Research Station (ARS)

### Research Centers (Under CAS)

10. Center for Sustainable Development (CSD)
11. Gulf Studies Center (GSC)

### Research Centers (Under CENG)

12. Kindi Lab for Computing Research (KINDI)
13. Qatar Transportation and Traffic Safety Center (QTTSC)
14. Gas Processing Center (GPC)

### Research Centers (Under CBE)

15. Center for Entrepreneurship (CFE)

### Research Centers (Under LAWC)

16. Centre for Law & Development (CLD)

### Research Centers (Under CEDU)

17. Educational Research Center (ERC)
18. National Center for Educational Development (NCED)

# QU Health Since 2017

College of  
Nursing  
2022

College of  
Dental Medicine  
2020

College of  
Health Sciences  
2016

College of  
Medicine  
2014

College of  
Pharmacy  
2007



## Years of establishment



- 2007** College of Pharmacy  
500+ Alumni
- 2014** College of Medicine  
150 Alumni
- 2016** College of Health Sciences  
980+ Alumni
- 2018** College of Dental Medicine  
First batch expected to graduate in 2025
- 2022** College of Nursing  
First batch expected to graduate in 2026

## Programs



## 740+ Publications



120 by Graduate Students

Average  
Impact  
Factor

6.6



81%

in Q1 and Q2 in international journals

23  
QU Health  
Faculty

Among Global Top  
2% highly cited  
researchers in 2023

## Who we are?



Undergraduate 1580+ Graduate 200+ Students



## Funding \$25 M

Earned in research funding  
between 2021 and 2024



## Accreditations

- 2024-2030** College of Medicine  
Full 6-year accreditation by **TEPDAD**
- 2014-2028** Doctor of Pharmacy  
First international program to be awarded full **CCAPP**
- 2012-2028** BSc Pharmacy  
First international program to be awarded full **CCAPP**
- 2006-2030** BSc Biomedical Sciences  
Full academic accreditation by **NAACLS**
- 2017-2025** BSc Human Nutrition  
Full academic accreditation by **ACEND**

225+  
Admin and Academic staff

160+  
Faculty



350+  
Clinical  
Affiliates

## Faculty and Staff Statistics

## Strategic Partnerships

National  
30

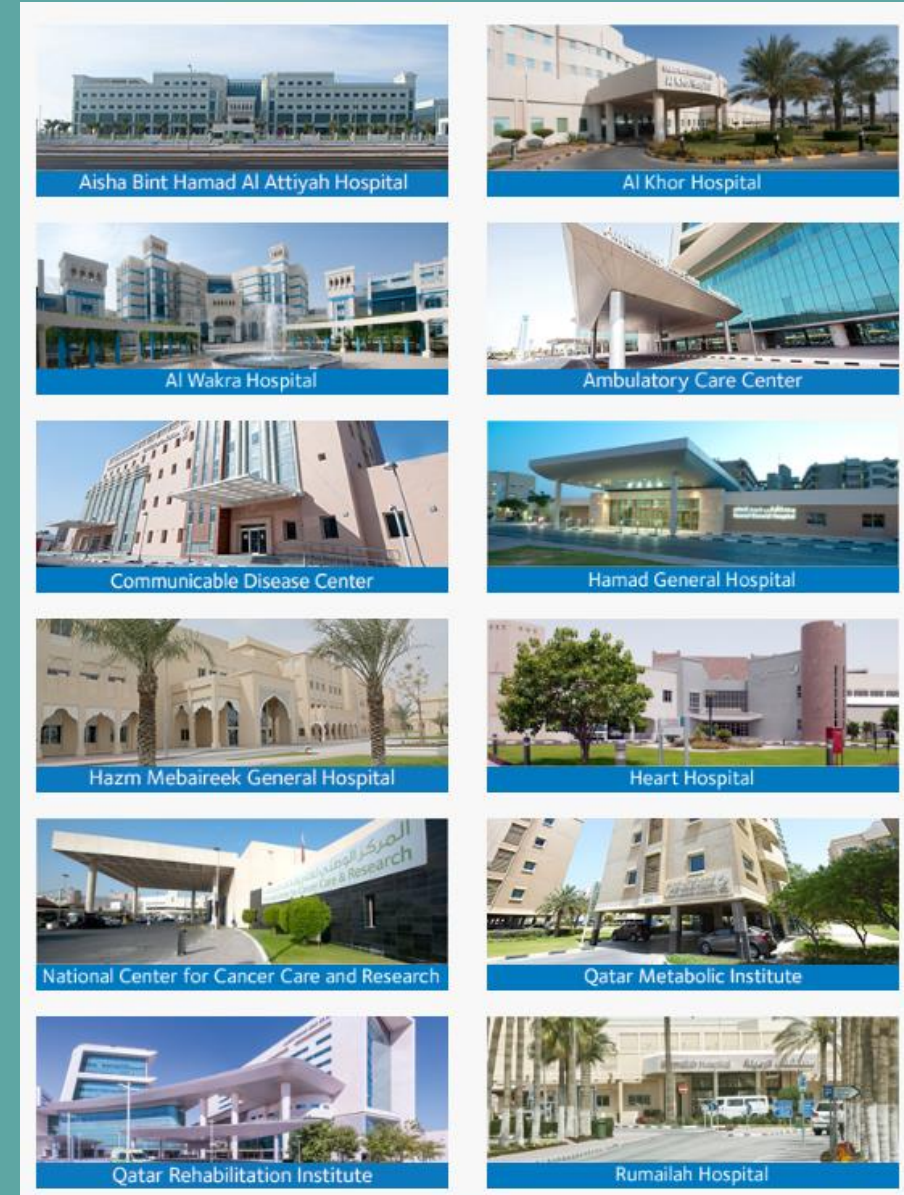
Regional  
24

International  
56



# Hamad Medical Corporation - Hospitals

- 1957:** Rumailah Hospital
- 1982: Hamad General Hospital
- 1988: Women's Hospital
- 2004: National Center for Cancer Care & Research
- 2005: Al Khor Hospital
- 2011: Heart Hospital
- 2012: The Cuban Hospital
- 2012: Al Wakra Hospital
- 2016: Communicable Diseases Center
- 2017: Qatar Rehabilitation Institute
- 2017: Ambulatory care Center
- 2017: Women's Wellness & Research Center
- 2018: Hazm Mebaireek General Hospital
- 2020: Mesaieed Hospital
- 2020: Ras Laffan Hospital
- 2022:** Aisha Bint Hamad Al Attiyah Hospital







المركز الوطني لعلاج وأبحاث السرطان  
National Center for Cancer Care & Research

عضو في مؤسسة حمد الطبية  
A Member of Hamad Medical Corporation



## A new Clinical Trial Unit

### Mission

- To contribute to the advancement of medical knowledge to significantly benefit the health and wellbeing of people living in Qatar.

### Vision

- To become a local, regional and international premier center of excellence in designing, delivering, and implementing collaborative and innovative clinical trials.





# استراتيجية قطر للبحوث والتطوير والابتكار 2030

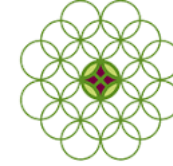
## خارطة الطريق نحو بناء اقتصاد المعرفة على النحو المستهدف في رؤية قطر الوطنية 2030



استراتيجية قطر للبحوث والتطوير  
والابتكار 2030



إنشاء مجلس قطر للبحوث  
والتطوير والابتكار



استراتيجية التنمية الوطنية  
National Development Strategy

استراتيجية التنمية الوطنية الثالثة  
2004-2030



رؤية قطر الوطنية 2030





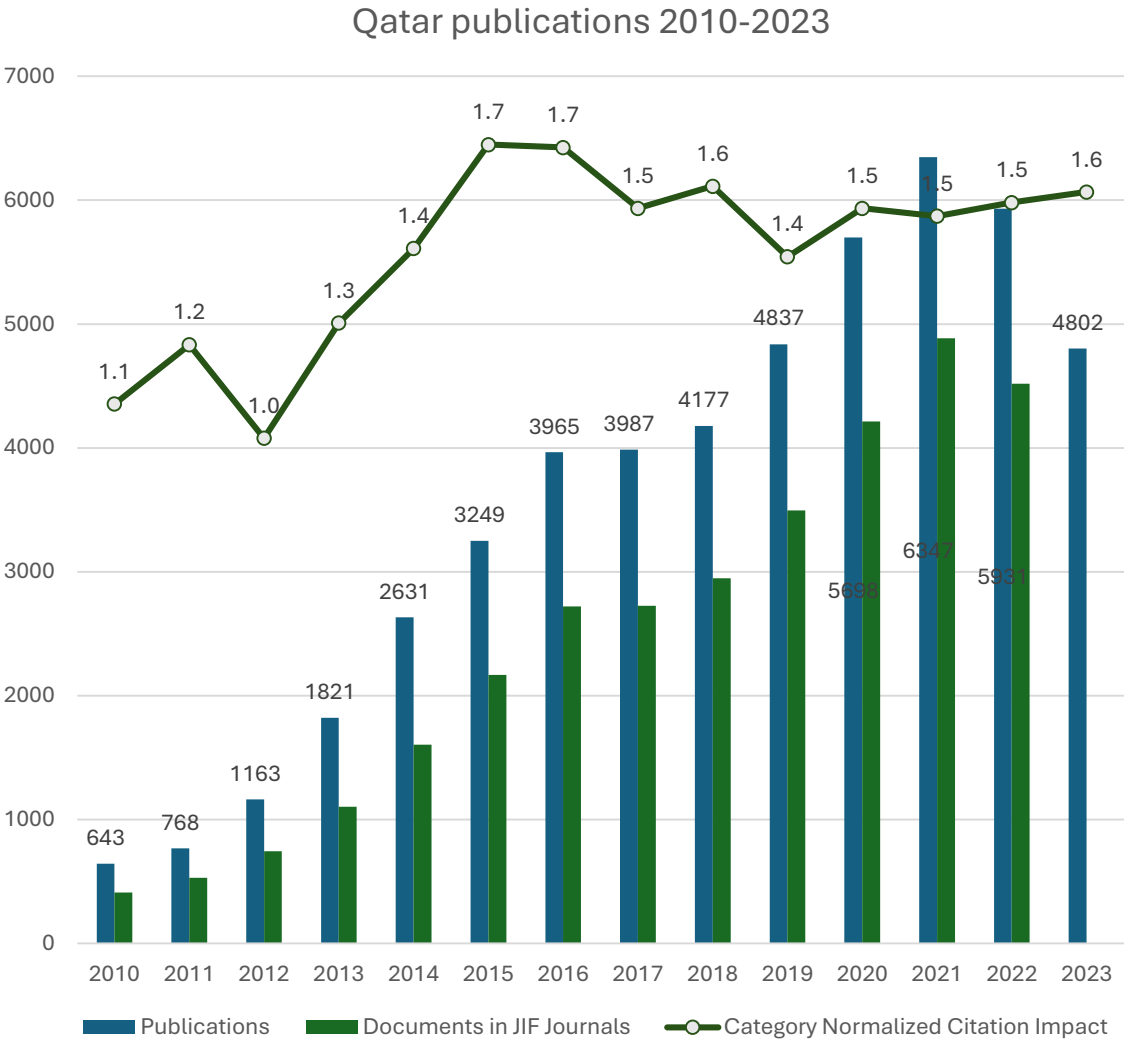
<div><div></div><div>HomeResourcesPrograms</div></div>	
<div><div>Innovation</div><div>Alchemist Doha</div><div>Knowledge Transfer Partnership Qatar (KTP-Q)</div><div>Industry Innovation Challenge (IIC)</div><div>Technology Development Grant (TDG)</div><div>Qatar Open Innovation (QOI)</div><div>Qatar Spain Innovation Program (QASIP)</div></div>	<div><div>Scientific Research</div><div>Academic Research Grant (ARG)</div><div>Academia-Industry Cooperation Call (AICC)</div><div>Climate Change and Environment Call (CCEC)</div><div>Economic Sustainability Call (ESC)</div><div>Food Security Call (FSC)</div><div>Modernizing Charitable Sector Call (MCSC)</div><div>Path Towards Precision Medicine (PPM)</div><div>Pathways Toward Prosperity (PTP)</div></div>
<div><div>Capability Building Program</div><div>Corporate Innovation Leaders</div><div>Product Management for SMEs</div><div>Government Innovation Leaders Program</div><div>Technology Innovation Training Program</div><div>Conference and Workshop Sponsorship Program (CWSP)</div></div>	<div><div>Talent Development</div><div>Displaced Arab Researcher (DAR)</div><div>Graduate Student Research Award (GSRA)</div><div>Undergraduate Research Experience Program (UREP)</div><div>Highschool Research Experience Program (HSREP)</div></div>

Grant Funding in Precision Medicine: \$100 Million

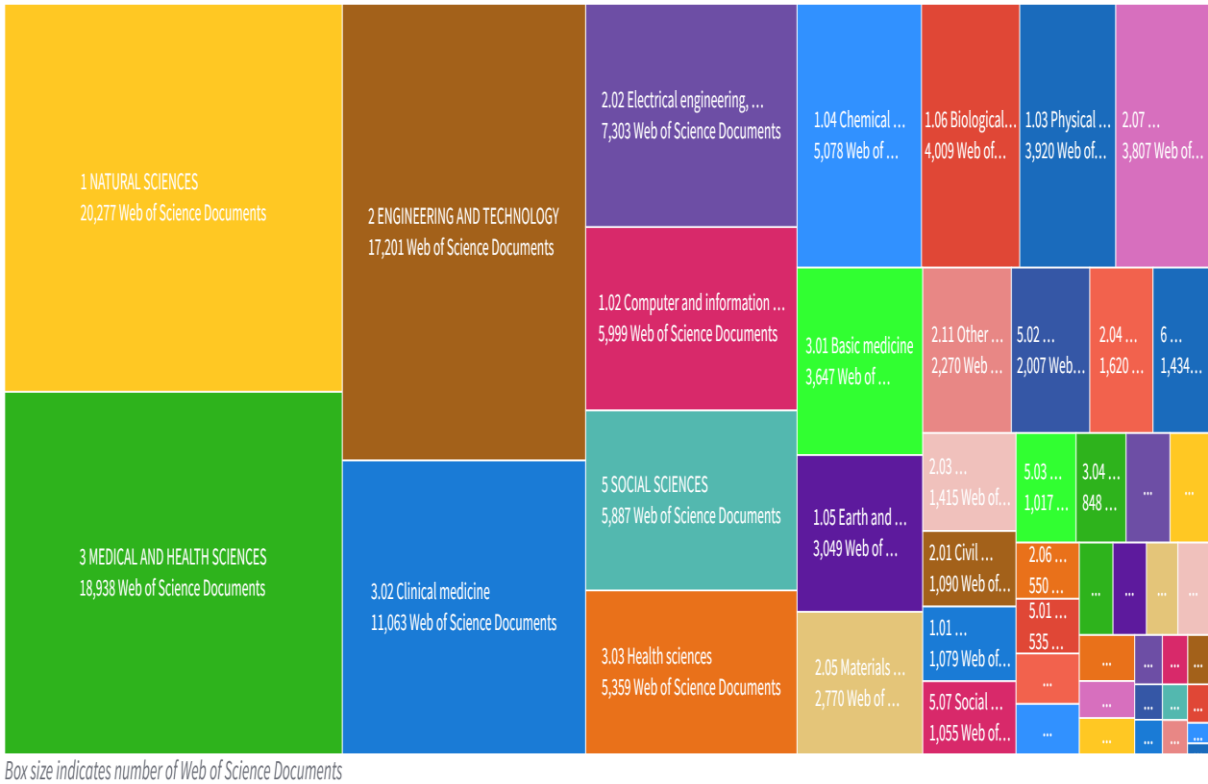
Path to Precision Medicine Program: \$30 M



# Over the years, Qatar's R&D workforce and research productivity has shown growth in both the quantity and quality of their scientific outputs



The top 3 fields in terms of research output were Natural Sciences, Medical & Health Sciences and Engineering & Technology



Source: QRDIC Council Calivate Incites Analytics. InCites dataset updated 2024-01-25. Includes Web of Science content indexed through 2023-12-31.

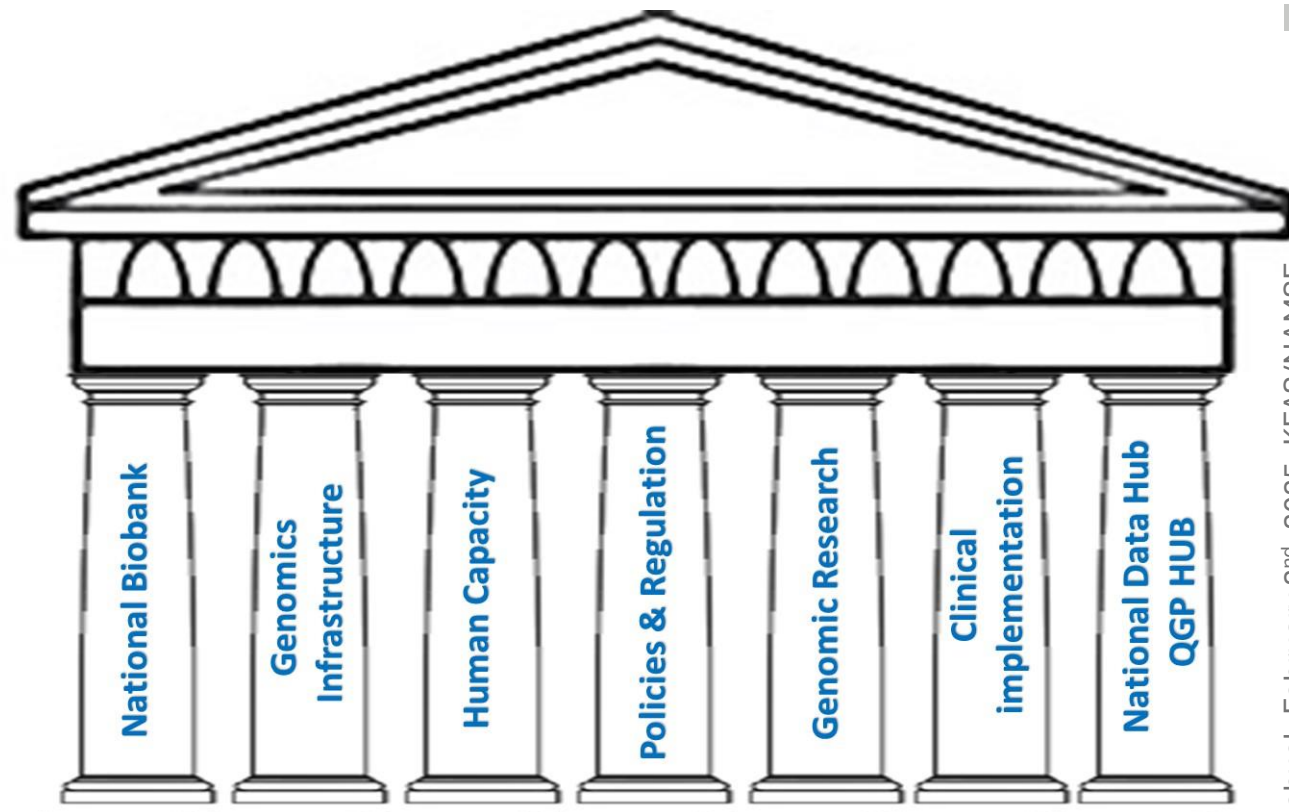


# Qatar launches genome project

PUBLISHED ON DECEMBER 11, 2013 | 02:55 AM



## A national project built on “7 Pillars”



### Vision

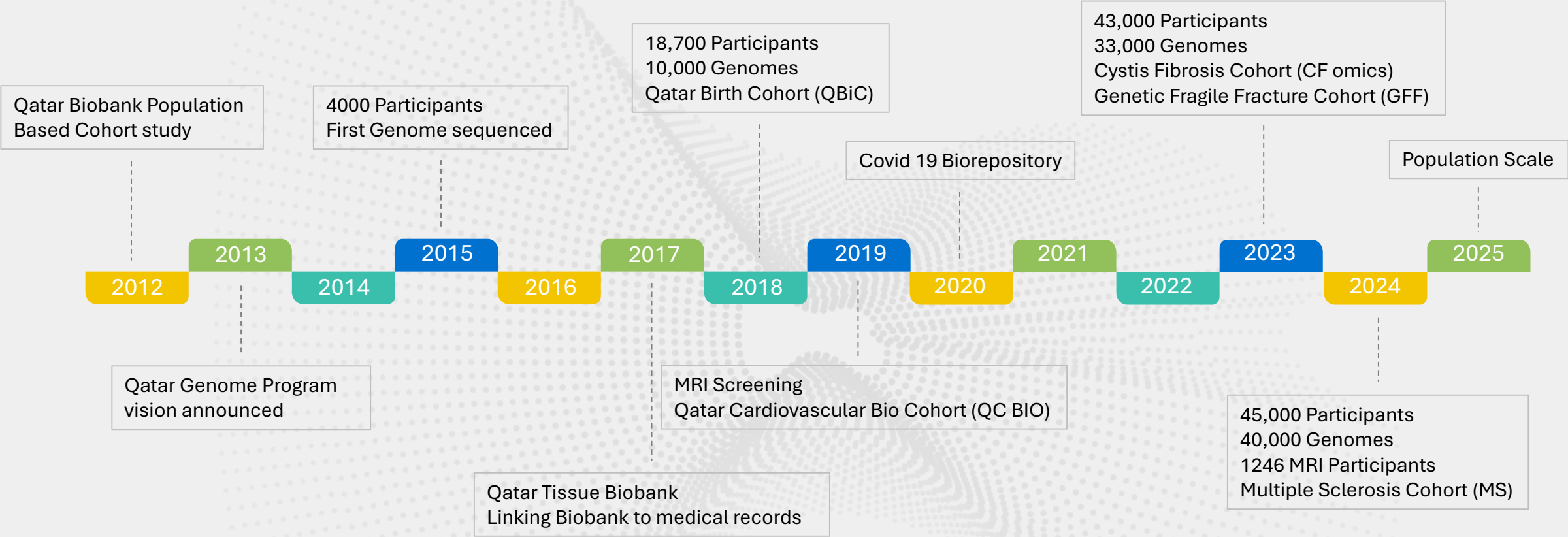
“Positioning Qatar as a pioneer in the implementation of advanced personalized healthcare”.

### Mission:

“Through innovation and integration of genomic and other ‘omics’ technologies into medical and research practices, Qatar seeks to improve population healthcare and contribute to a knowledge-based economy”.

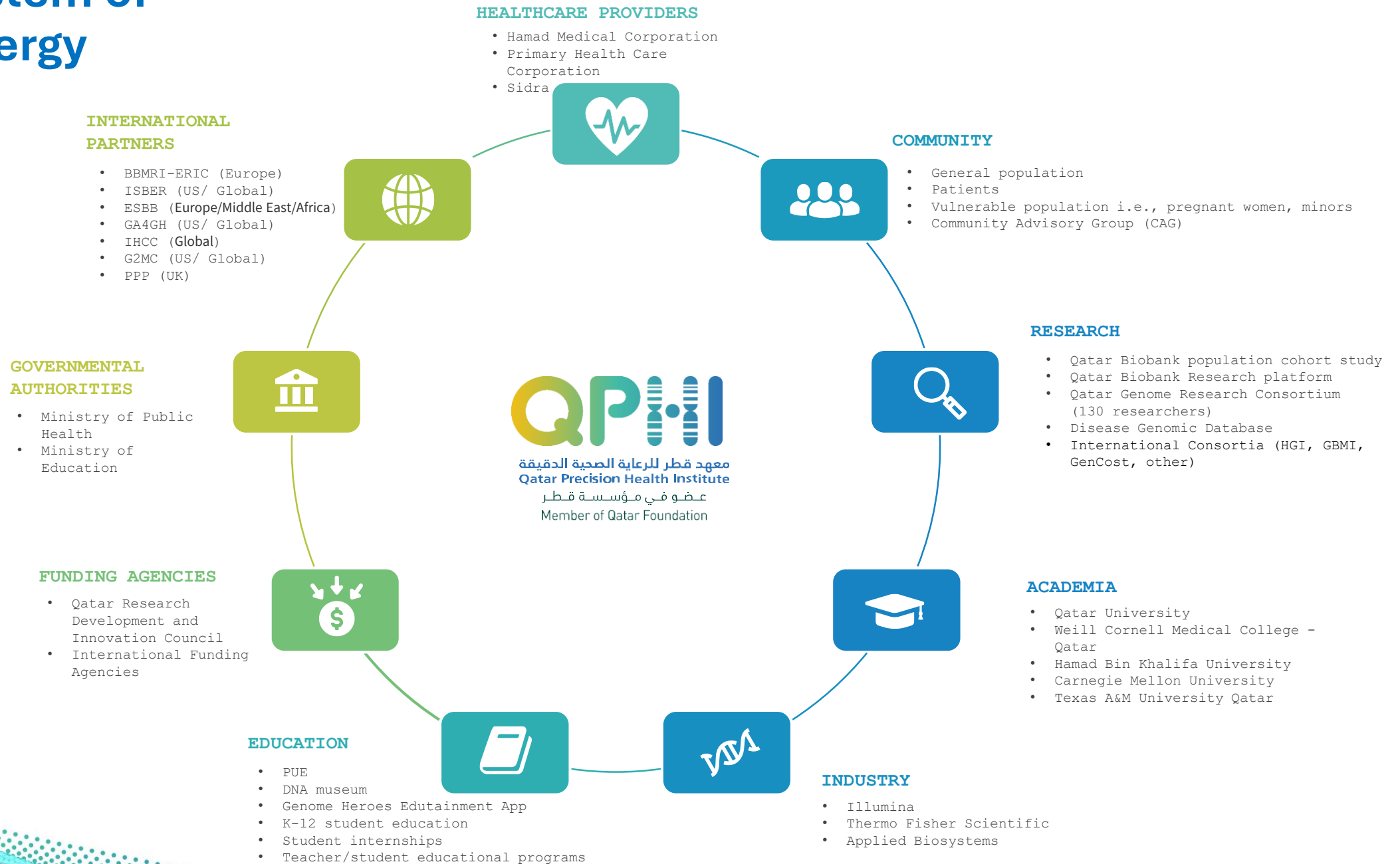


# Qatar Precision Health Institute



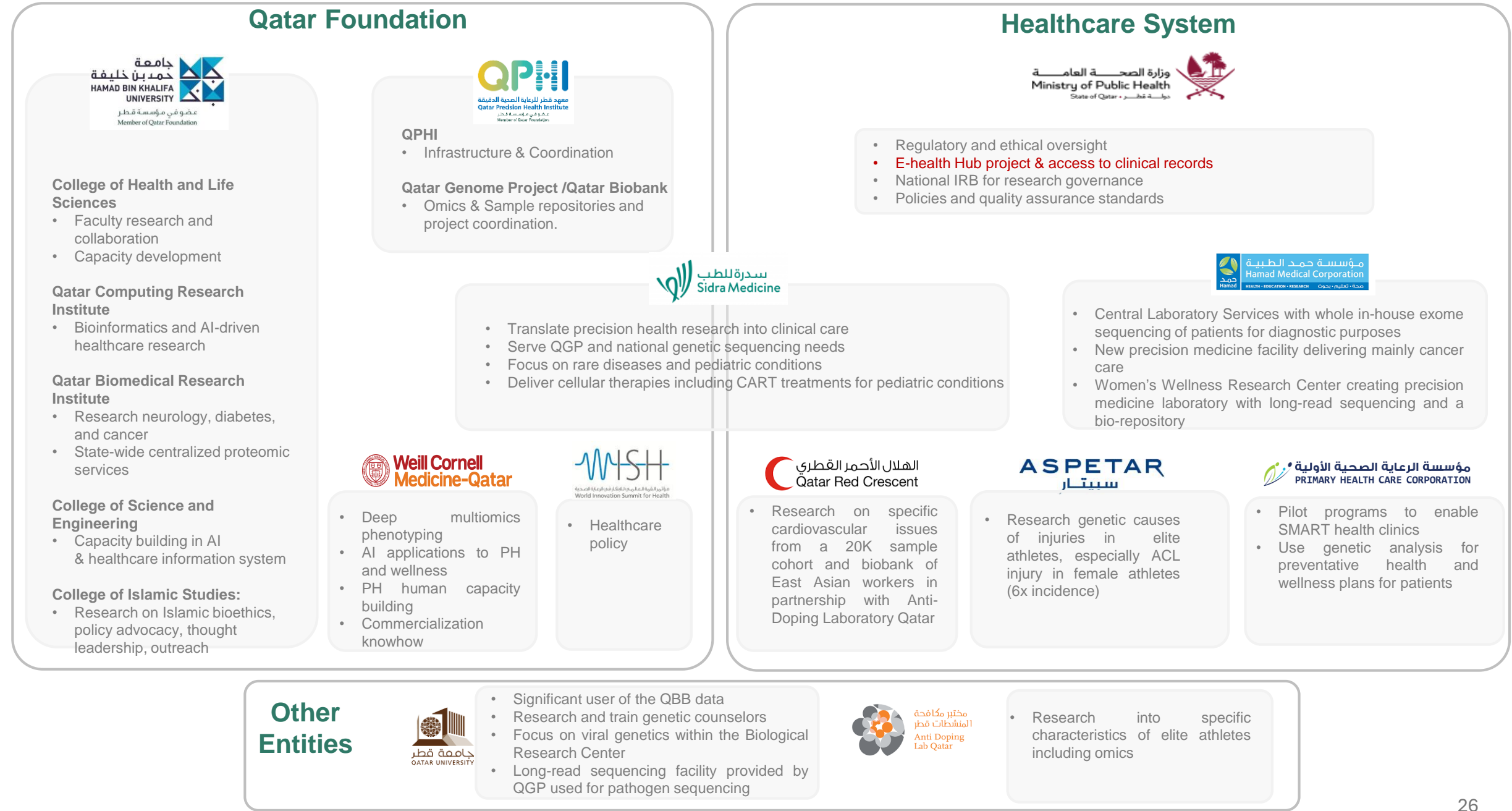


# Ecosystem of Synergy





# Precision Health Ecosystem in Qatar





# Research Core Platforms



## Clinical Genomics Laboratories

Whole Genome Sequencing  
Whole Exom Sequencing  
Whole Transcriptome Sequencing  
Small RNA sequencing  
Single cell Sequencing

## Genomic Data Science Group

## Zebrafish Core Facility

## Omics Core Facility

Automated DNA/RNA extraction  
PacBio long-read sequencing  
Bionano Optical Mapping  
Sanger Sequencing  
Array Genotyping and  
Methylation Nanostring nCounter

## Infrastructure Services

## Software Development Services

## Data Management Services

# National Genome Sequencing Facility

# Research Core Services



## Flow Cytometry Service

High-Dimension flow cytometry (30+ parameters)  
Cell Sorting 30 parameters  
Nanoparticle Tracking Analysis Phenotypic  
Analysis of microvesicles  
Sperm DNA Fragmentation  
Multiplexed serological assays (CoVID-19)

## Advanced Imaging Services

Advanced confocal systems Zeiss LSM880  
Time-Lapse and Live Cell Imaging  
Z stack and 3-D imaging  
Super resolution Imaging (AiryScan/Fast AiryScan)  
LASER Capture Microdissection

## Proteomics Service

High-dimension SomaScan assay  
Multiplex bead arrays  
Custom multiplexed Immunoassays

## Analytical Chemistry

Untargeted analysis of lipidome  
Untargeted analysis of metabolome  
Quantification of short-chain fatty acids  
Quantification of saturated, monounsaturated and polyunsaturated fatty acids  
Quantification of amino acids  
Simultaneous quantification of elements by ICP-QQQ - under development

## Proteomics Service

High-dimension SomaScan assay  
Multiplex bead arrays  
Custom multiplexed Immunoassays

## GMP Lab Services

Bone Marrow Transplant  
Hematopoietic Stem Cell Transplant  
Cell Therapy  
Gene Therapy  
Regenerative Medicine Production  
Cord Blood banking



# Mission

We provide children and women with outstanding tertiary healthcare services in an innovative and ultramodern facility specially designed to promote healing. We collaborate with academic partners, leading research institutions and Qatar's health sector to train students and staff. We will deliver leading clinical and translational research of value to the population of Qatar and the world.



# Translational Research Programs

## Programs (Disease oriented)

Neurological  
Disorders

Cancer

Metabolic  
Disorders

Immune  
Dysregulations

Congenital Structural  
Malformations

Reproductive &  
Perinatal Disorders



## Gold Standard Cohorts (Disease specific)



Autism  
Epilepsy  
Neuromuscular



Pediatric Solid Tumors  
Leukemia



Childhood Diabetes  
Inborn Errors of Metabolism



Immune Deficiencies  
Inflammatory Bowel Disease



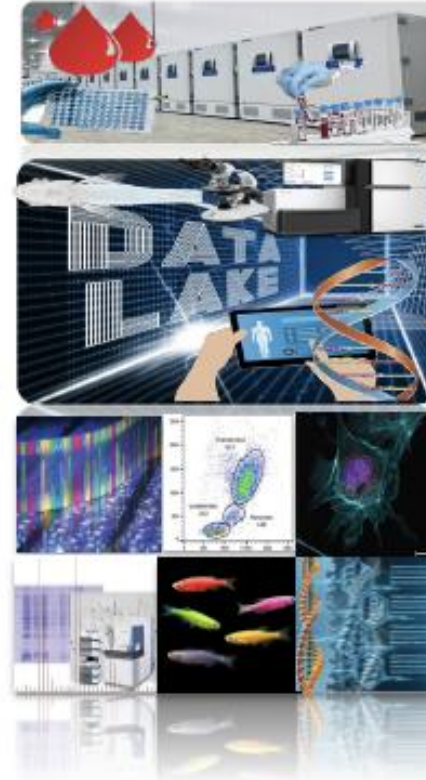
Craniofacial disorders  
Congenital heart disease



Infertility  
Pre-term birth  
Gestational Diabetes



## Biorepositories → Diagnostic Platforms



## Clinical Trials → Personalized Therapies





# Our Collective Challenge?

*How can investments in education and R&D infrastructure be transformed into a thriving innovation ecosystem that fosters startups, attracts foreign investment, and drives economic growth and societal impact?*

Can we do it alone?

No



The road least traveled in our region

From Genes to mechanisms, novel targets/pathways, and novel therapies

Validating and translating biomarker discoveries to new diagnostics

Developing novel biomarkers

**Our Top Priority: LOCALIZING DISCOVERIES and INNOVATIONS:**  
Building a Strong Translational Pipeline and a Foundation for  
Technology Transfer, Innovations and Startups



# Our Precision Health Priorities

- Accelerating PM/PH clinical implementation
- Building an Entrepreneurship and Startup Ecosystem to Drive Innovation in Precision Health
  - Industry engagement and partnerships

Attract International Funding  
"Yes, We Can!"

*Funding follows those who tackle the hardest scientific questions and address critical unmet needs.*



# What is missing/next?

- Inject new funding into the system to drives progress, fuels innovation, and ensures sustainable growth
- Build Critical Mass
- Invest in Innovation/Science Parks/Incubators
- Address regulatory gaps
- Incentivize and promote industry engaement and partnerships (e.g., clinical trials/drug discovery)
- **Expand regional and global collaborations**

# Building local synergies and fostering collaborations within a coordinated ecosystem is an essential foundation for impactful international partnerships

- Strategic alignment
- Integration
- Consolidating our efforts
  - Investment and Research
  - Regional and Global visibility

- *We are stronger and more impactful as a unified and integrated ecosystem than isolated institutions.*

QF Precision Health  
Thematic Executive  
Committee

Qatar National Precision  
Health Executive  
Committee



# Redefining and Rethinking Global Collaborations

International Partnerships foster mutual learning and create synergies that amplify impact.

## Redefining Collaborations

- Focusing on niche areas and unique challenges and opportunities that are specific to the region with the aim of global impact.
- Prioritizing areas that align with our priorities, investments and strategic goals

## Rethinking Collaborations

- Shifting focus from capacity building to co-creation and co-innovation
  - Focus on attracting international funding to support local research
- Focus on collaborations that push boundaries and define the future innovation landscape and opportunities

# Regional Collaborations: Leveraging our strengths

- Small populations
- Integrated healthcare systems
- Distinct genetic lineages
- Understudied Populations
- Arab countries are genetic treasure troves, offering unique opportunities to uncover disease causes and pioneer solutions for rare conditions.
- Greater prevalence of recessive genetic disorders, providing valuable insights into the genetic underpinnings of diseases.
- EM/HRs
- Similar language and culture
- Proximity



# Limited Regional Collaboration: A Barrier to Local Scientific Growth



*“While publication rates have risen, countries in the MENA have collaborated very little with each other. In 2019, **only 5% of articles had a co-author from another country within the region.** This low level of regional collaboration indicates a certain **dependency on scientific expertise from overseas.**”*

*Relying heavily on international partnerships outside the region can limit the development of local research networks and hinder the growth of regional expertise.”*



Figure 36: Top 10 collaborating countries with Saudi Arabia



Figure 14: Top 10 collaborating countries with Saudi Arabia in the period 2014-2023

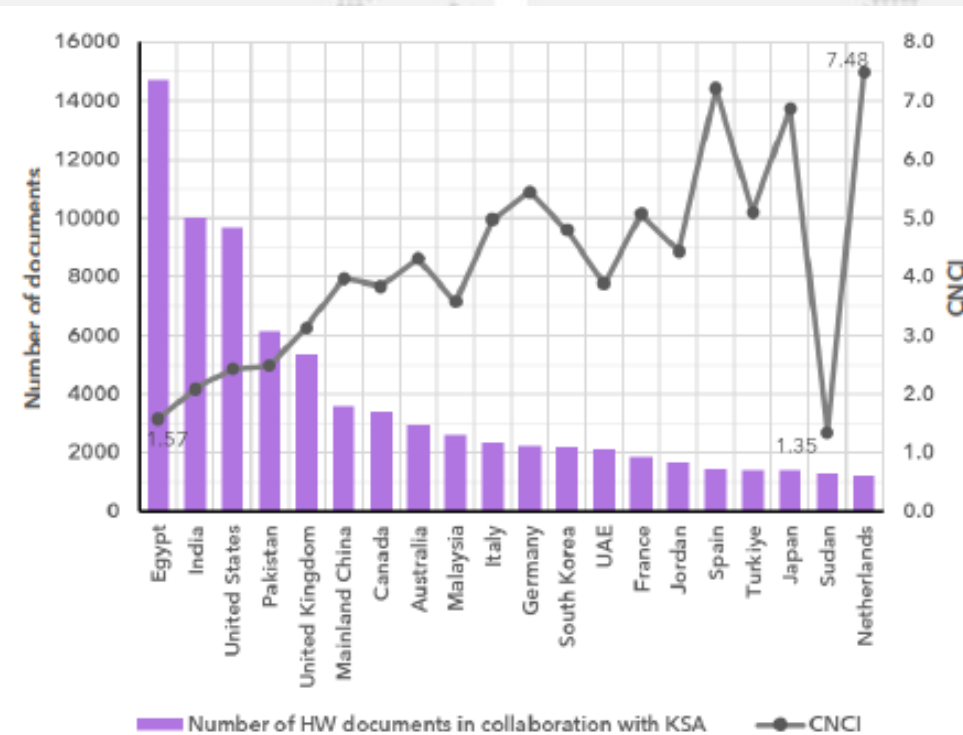


Figure 35: Top 20 collaborating countries with Saudi Arabia in the area Health and Wellness in the period 2014-2023



# Shaping the Future of Precision Health in the Middle East: The Case for Competitive Collaboration

11/06/08

## Gulf states should work together on research

*Weill Cornell Medical College in Qatar's Education City, was the first American medical school established overseas Copyright: Flickr/Vobios*



By: **Wael K. Al-Delaimy and Hilal A. Lashuel**



A regional strategy and a focus on capacity building would strengthen Gulf investments in S&T, say *Wael K. Al-Delaimy and Hilal A. Lashuel*.



We and many fellow Arab scientists have been following the development of ambitious research and education projects in Gulf countries with great interest.



Healthy scientific research competitiveness would still ensure different countries have a leading edge in particular scientific areas. Something similar happens in the United States, for instance, between Harvard University and the Massachusetts Institute of Technology (MIT). Located in the same city, they compete with each other and have their own unique research profile and reputation. Yet their scientists and institutions collaborate, building on their respective strengths and synergies. Examples of their joint initiatives include The Broad Institute of MIT and Harvard, and The Harvard-MIT Division of Health Sciences and Technology.

### Developing a regional strategy

Gulf states should establish joint committees to coordinate and develop initiatives that enhance national capabilities and regional competitiveness in science and technology. They could help put the region on the global research map by identifying economically important and regionally relevant research areas to focus on.

## Harnessing Competition for Collective Success

# The Case for Competitive Collaboration:

Leveraging healthy competition to foster innovation while collaborating on shared goals.

## Benefits

Shared resources, accelerated progress, and mutual learning.

Pooling resources and expertise

Accelerating data generation and analysis

Bridging knowledge and infrastructure gaps

Enhancing policy development and regulatory alignment

## How?

Cross-boarder initiatives in PH

Regional consortia and data-sharing platforms

Coordinated training programs

Funding mechanisms that encourage collaborations

Harmonizing regulatory frameworks and data-sharing policies



# Precision Health: Opportunities

- Preventive Health and Wellness
- Integration of social, health and molecular determinants of health (*genomic, transcriptomic, proteomic, metabolomic, etc*)
- Integration of **multi-omics** data with clinical and wearable data.
- Patient-Centered Care and Decision Support
- Bringing precision health to homes: Integration into daily life, Remote Diagnostics, Wearable and Remote Monitoring, Predictive models, Portable Imaging Devices with AI
- Pioneering affordable innovations in precision health is essential to ensure equitable access and empower individuals to take responsibility for their health.
- Empowering individuals to take control of their health through effective integration of wearables, AI and machine learning into healthcare and wellness and bringing preventive care to the patients environment and daily routines.
- Training programs for researchers, clinicians, and data scientists in precision health.



# Thank You

*“We prepared for the future, and, in time, found ourselves living in it”*

*H.H. Sheikha Moza Bint Nasser*

QATAR DAY  
اليوم قطر

2025