

2018

State of
the Field

Focused Ultrasound



FOCUSED
ULTRASOUND
FOUNDATION



Inquiries for reproduction can be directed to Emily White at
ewhite@fusfoundation.org

Date 9.11.2018

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2 Focused Ultrasound Overview

- 2 Letter From the Chairman
- 3 Focused Ultrasound Overview

4 State of the Field

- 4 State of Research and Regulatory Approval by Indication
- 6 State of Research and Regulatory Approval by Indication and 2017 Global Development Landscape — Oncology
- 7 2017 Global Development Landscape
- 10 Developmental Stages of Clinical Indication
- 11 Body System Indication Expansion
- 12 Expanding Areas of Research by Body System and Indication
- 13 Number of Clinical and Preclinical Research Sites by Body Systems
- 14 Patient Treatments
- 15 Cumulative Patient Treatments by Indication
- 16 Cumulative Brain Treatments by Indication
- 17 Cumulative Other Treatments by Indication
- 18 Mechanisms of Action
- 19 Research Sites Investigation Mechanisms of Action
- 20 Technical Research Sites
- 21 Abstracts Presented at FUS Symposia
- 21 FUS Publications
- 21 FUS Citations

22 Focused Ultrasound Foundation

- 22 Activities and Webinar Attendance
- 23 Newsletter Distribution
 - Website Visits
 - Symposium Attendance and Presentations
 - FUS Media Placements in the US
- 24 Sponsorships
- 25 Invited Talks
- 26 Centers of Excellence
- 27 Workshops and Webinars

28 Veterinary Program

- 28 Program Sites and Promising Areas of Research

29 Funding

- 29 Research Projects Funded by FUSF
- 29 Total Awards for All FUS NIH Research Grants

30 Manufacturers

- 30 FUS Industry by Region, Clinical Devices Manufacturers
- 32 FUS Industry by Region, Other FUS Companies
- 34 Clinical Device Manufacturers
- 35 Other Manufacturers
- 36 FUS Regulatory Approval by Indication and Region
- 38 FUS Regulatory Approval by Region and FUS Manufacturer
- 40 First Global Regulatory Approval for Companies by Indication
- 43 Contact Information for Commercially Approved Manufacturers
- 43 FUS Partners

44 Commercial Treatment

- 44 Sites Worldwide
- 45 Sites by Country
- 46 Indication Master Key
- 47 Sites by Indication and Region
 - 49 North America
 - 53 South America
 - 54 Europe
 - 67 Africa
 - 67 Oceania
 - 68 Asia, Except China
 - 74 China

83 Clinical Research

- 83 Sites Worldwide
- 84 Sites by Country
- 85 Indication Master Key
- 86 Sites by Indication and Region
 - 88 North America
 - 90 South America
 - 91 Europe
 - 96 Oceania
 - 97 Asia

102 Preclinical Research

- 102 Sites Worldwide
- 103 Sites by Country
- 104 Indication Master Key
- 105 Sites by Indication and Region
- 108 All Body Systems
 - 108 North America
 - 114 Europe
 - 120 Oceania
 - 122 Asia
- 126 Oncological
 - 126 North America
 - 128 Oceania
 - 130 Europe
 - 134 Asia

136 Mechanisms of Action Research

- 136 Sites Worldwide
- 137 Sites by Country
- 138 Sites by Action and Region
 - 140 North America
 - 143 Europe
 - 144 Oceania
 - 146 Asia

148 Technical Research

- 148 Sites Worldwide
- 149 Sites by Country
- 150 Sites by Region
 - 151 North America
 - 152 Europe
 - 153 Asia

155 FUSF Board of Directors and Council

Dear Friends,

The past year has brought with it many notable achievements, but one milestone best exemplifies the immense progress in the field. There are now more than 100 clinical indications for which focused ultrasound is in various stages of research, development, and commercialization. Every year there seems to be an astonishing increase from the mere handful that existed when the Foundation was founded in 2006.

Counted among those indications are Alzheimer's disease and pediatric brain tumors, both of which marked their first-in-human treatments this year. Another pioneering trial is the first to combine focused ultrasound and cancer immunotherapy.

The Foundation continues to drive growth in the field, thanks to the involvement of our donors, board, and council, and the dedication of our team. We now find that, in such a robust field, our challenge is to maintain focus and devote our finite resources to high-value targets. We are constantly surveying the field to prioritize the mechanisms of action that are most likely to translate into new applications, and the clinical indications that are mostly likely to provide true, unique value.

As was the case last year, the 2018 State of the Field includes new charts, graphs, and data summaries. This year we have added sections delineating research sites working with specific mechanisms of action and technical aspects of focused ultrasound. Additionally, there is considerably more content related to the commercialization space—an area of interest if we are to see widespread adoption of this technology. These additions reflect how the field of focused ultrasound has grown and changed over time, further demonstrating its impressive trajectory.

In closing, the State of the Field 2018 Report represents progress that is only possible through the hard work, time, and resources of everyone in the field along with collaboration among all stakeholders (this includes donors, researchers, clinicians, the Foundation, etc.) who have become our critical partners in the pursuit of our vision: that focused ultrasound will one day be used to improve the lives of millions of patients around the world suffering from a broad spectrum of serious medical disorders.

The revolution continues.

Be well,



Neal F. Kassell, MD
Chairman

The Technology

Focused ultrasound is an early-stage, noninvasive therapeutic technology with the potential to improve the lives of millions of patients with a variety of serious medical disorders. It offers a disruptive, game-changing alternative or complement to surgery, radiation therapy, drug delivery, and cancer immunotherapy.

This revolutionary technology has the potential to increase the quality and length of life and decrease the cost of care by transforming the treatment of such indications as:

- benign and malignant tumors of the brain, breast, prostate, liver, and pancreas
- Parkinson’s and Alzheimer’s disease and epilepsy
- depression and obsessive-compulsive disorder
- arthritis and hypertension
- uterine fibroids

Focused ultrasound treats tissue with multiple intersecting beams of high-frequency sound focused accurately on targets deep in the body without damaging surrounding structures, much like beams of light can be focused on a point with a magnifying glass. At the focal point where the beams converge, the ultrasound energy can act in multiple ways to induce a variety of biological effects enabling the treatment of a wide variety of medical disorders. Currently there are 18 mechanisms of action including:

TISSUE DESTRUCTION

- **Thermal Ablation:** coagulative cell death
- **Histotripsy:** mechanical cell disruption
- **Microvascular disruption:** ischemic cell death
- **Sonodynamic therapy:** activation of cell-toxic drugs

IMMUNOMODULATION

- **Tumor cell disruption:** increased immune cell trafficking; exposure of tumor antigens and release of cytokines
- **Augmentation of immunotherapy drugs**
- **Enhanced drug delivery**

DRUG DELIVERY

- **Focal delivery of therapeutic agents**
- **Increased vascular permeability and blood-brain barrier opening**
- **Increased cell membrane permeability**

RADIATION

- **Alternative to ionizing radiation**
- **Decreased radiation dose:** tumor preconditioning and sensitization

The Problem

It can take decades for a new therapeutic technology like focused ultrasound to become a mainstream standard of care. Every year that is subtracted from that process could reduce death, disability, and suffering for countless people.

The Focused Ultrasound Foundation

The Foundation is a unique medical research, education, and advocacy organization created to accelerate the development and adoption of focused ultrasound. To achieve its goals, the Foundation utilizes an approach that is entrepreneurial, high-impact, market-driven, and results-oriented.

Major initiatives include:

- Influencing the direction of the field, setting research priorities, and creating an urgent, patient-centric culture
- Providing resources: both human and financial capital
- Fostering collaboration and stimulating innovation
- Creating, aggregating, and sharing knowledge
- Cultivating the next generation of clinicians and scholars
- Increasing awareness

The Foundation has a robust research program and organizes, conducts, and supports clinical trials and preclinical laboratory studies with an emphasis on brain disorders, cancer, and immunotherapy. It is the largest non-governmental source of focused ultrasound research funding.

State of Research and Regulatory Approval by Indication

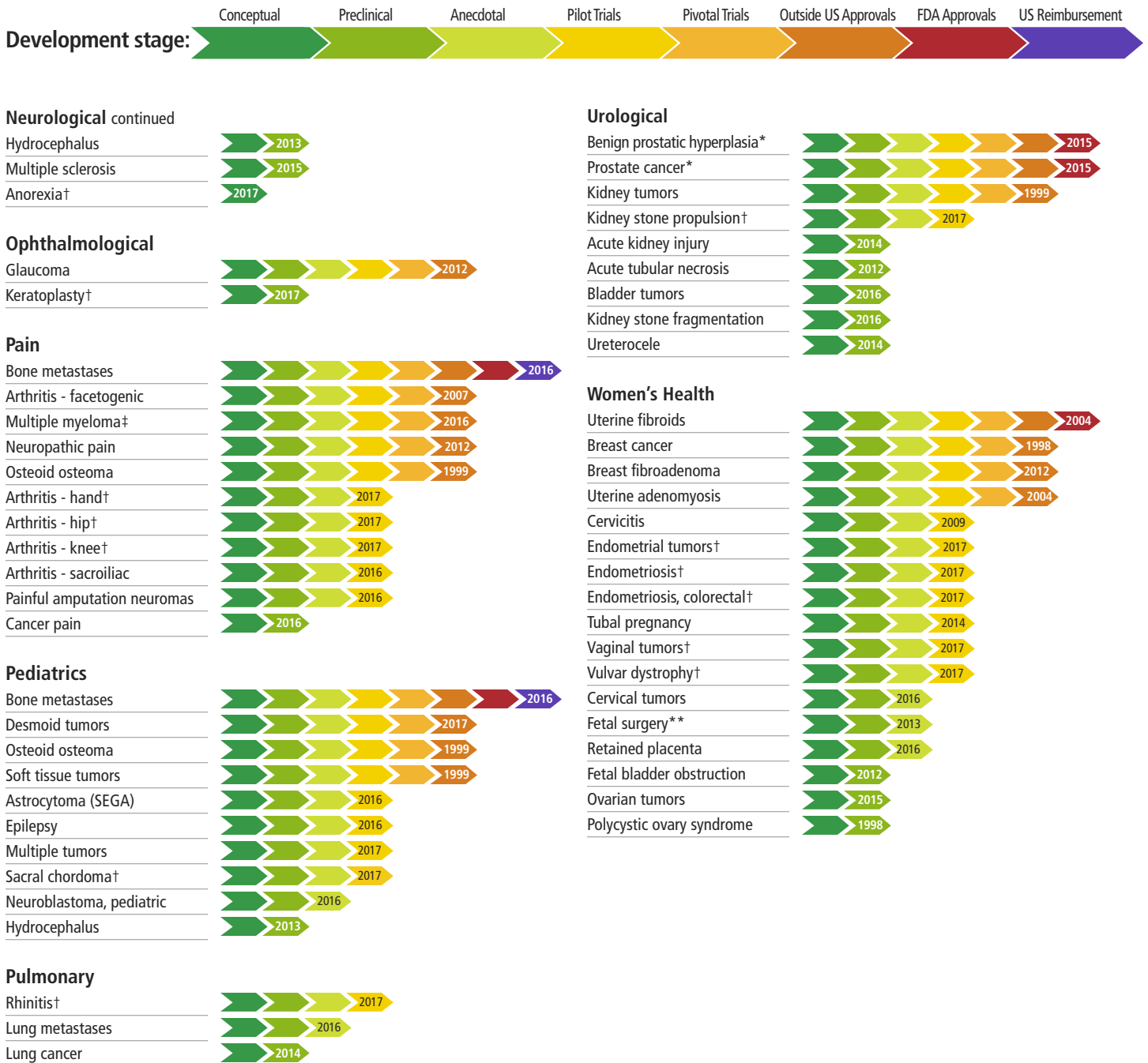


† New in 2017

‡ Multiple myeloma approval is based on bone metastases.

Year denotes first in world occurrence of development stage.

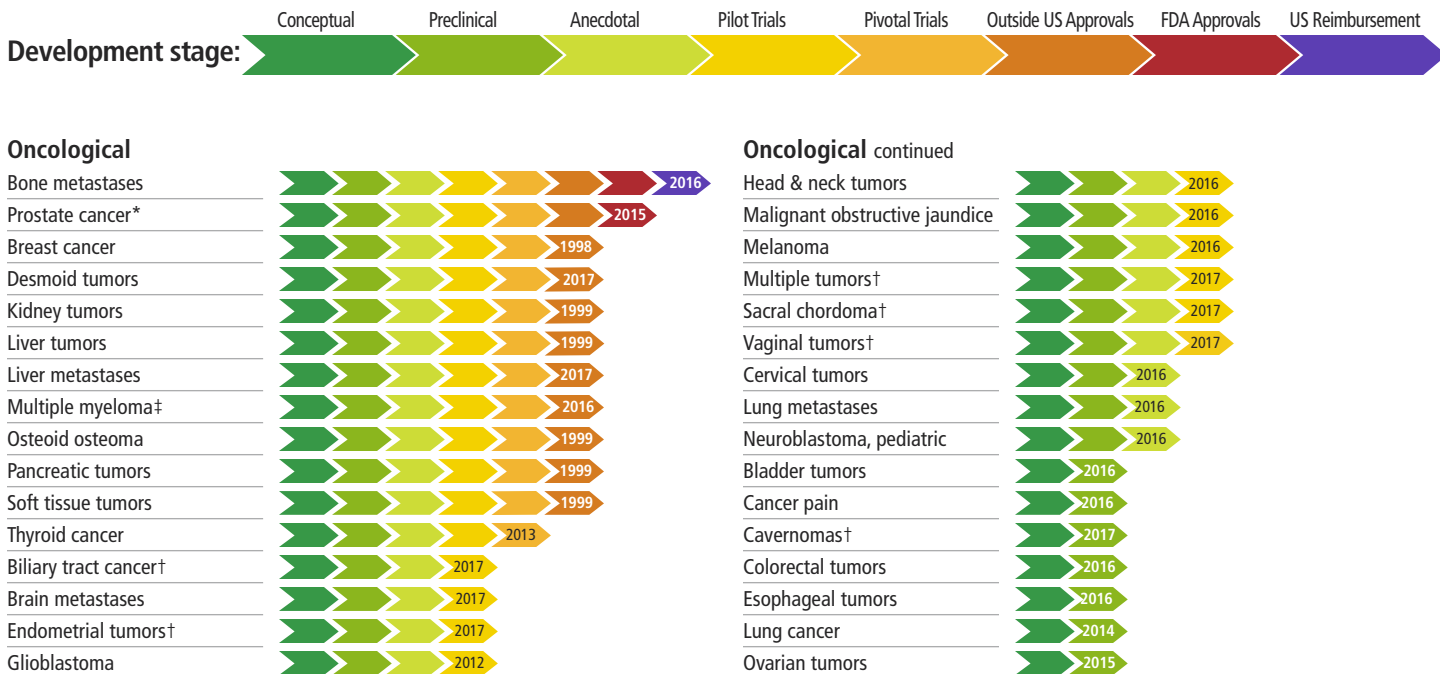
State of Research and Regulatory Approval by Indication continued



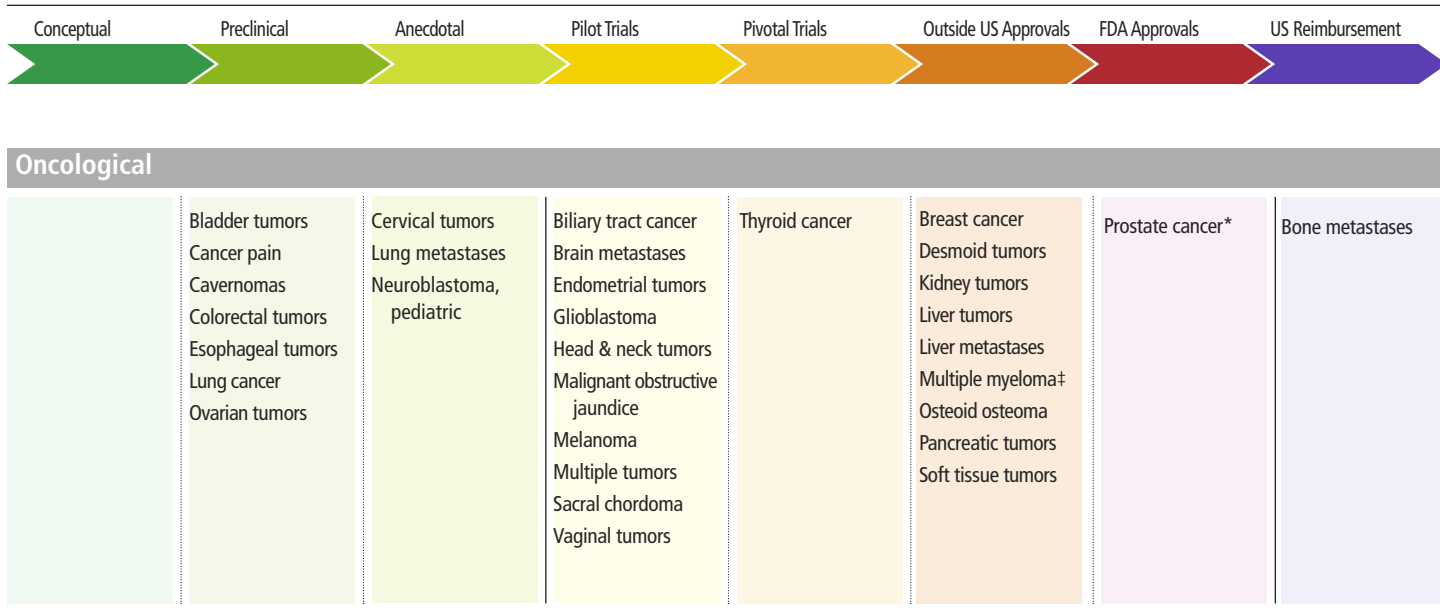
† New in 2017
 ‡ Multiple myeloma approval is based on bone metastases.
 Year denotes first in world occurrence of development stage.

* FDA approval is for prostate tissue ablation.
 ** Fetal surgery is twin-twin transfusion syndrome.

State of Research and Regulatory Approval by Indication — Oncology



2017 Global Development Landscape — Oncology



† New in 2017

‡ Multiple myeloma approval is based on bone metastases.

Year denotes first in world occurrence of development stage.

* FDA approval is for prostate tissue ablation.

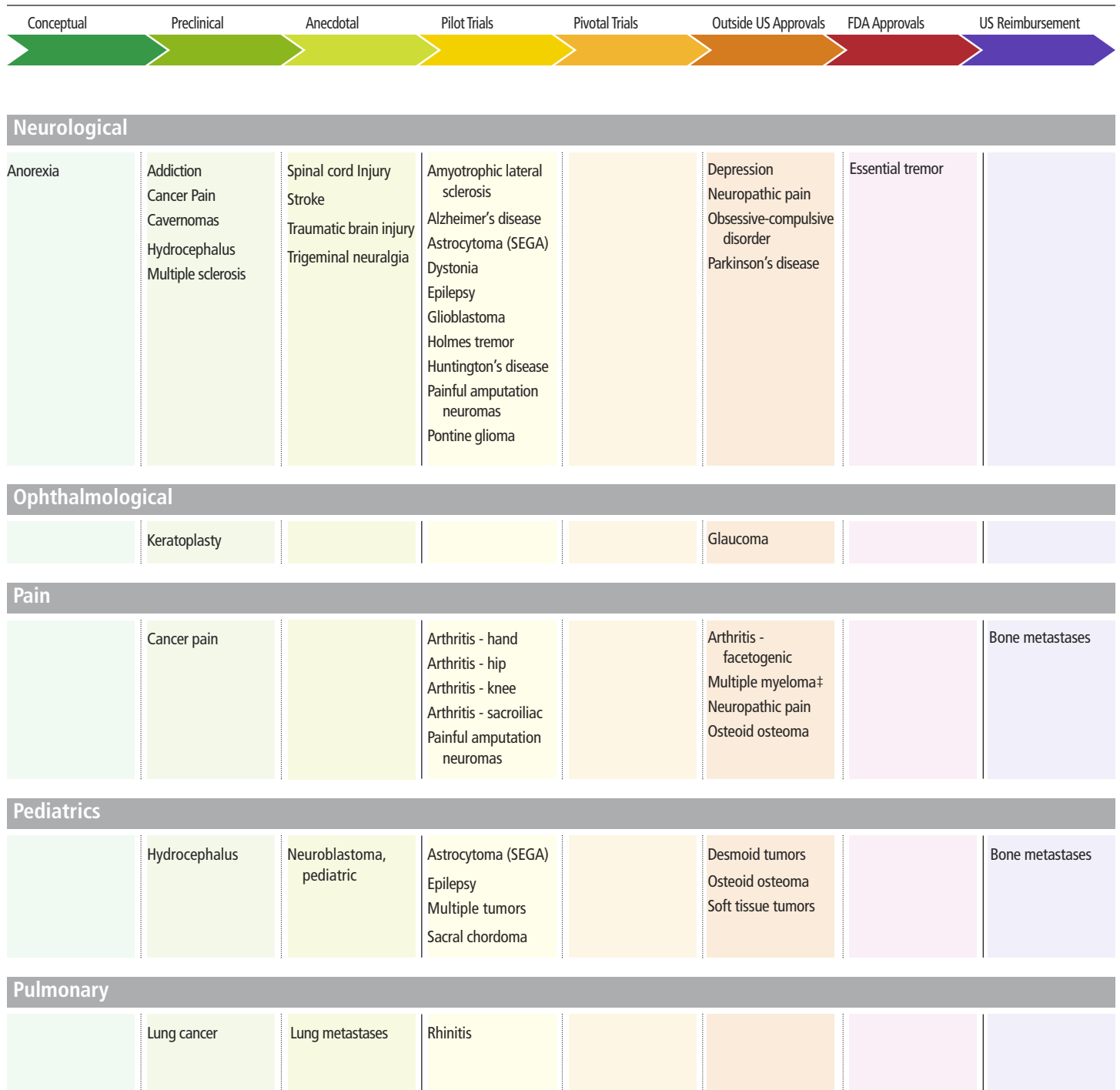
2017 Global Development Landscape



Conceptual	Preclinical	Anecdotal	Pilot Trials	Pivotal Trials	Outside US Approvals	FDA Approvals	US Reimbursement
Cardiovascular							
	Atherosclerosis Cardiac pacing Congestive heart failure Deep vein thrombosis Heart valve calcification Hypoplastic left heart syndrome Septal perforation	Arteriovenous malformations Fetal heart anomalies	Atrial fibrillation Varicose veins	Peripheral artery disease	Hypertension		
Endocrine Disorders							
	Diabetes	Insulinoma	Grave's disease Hyperparathyroidism	Thyroid cancer	Thyroid nodules		
Gastrointestinal							
	Colorectal tumors Esophageal tumors Liver fibrosis		Biliary tract cancer Malignant obstructive jaundice		Liver tumors Pancreatic tumors		
Miscellaneous							
	Obesity Ultrasound-induced local anesthesia		Head & neck tumors Hypersplenism Melanoma Multiple tumors Root canal endodontia				
Musculoskeletal							
	Disc degeneration Muscle atrophy		Arthritis - hand Arthritis - hip Arthritis - knee Arthritis - sacroiliac Bone tumors, benign Epicondylitis Plantar fasciitis Sacral chordoma		Arthritis - facetogenic Desmoid tumors Multiple myeloma† Osteoid osteoma Soft tissue tumors		Bone metastases

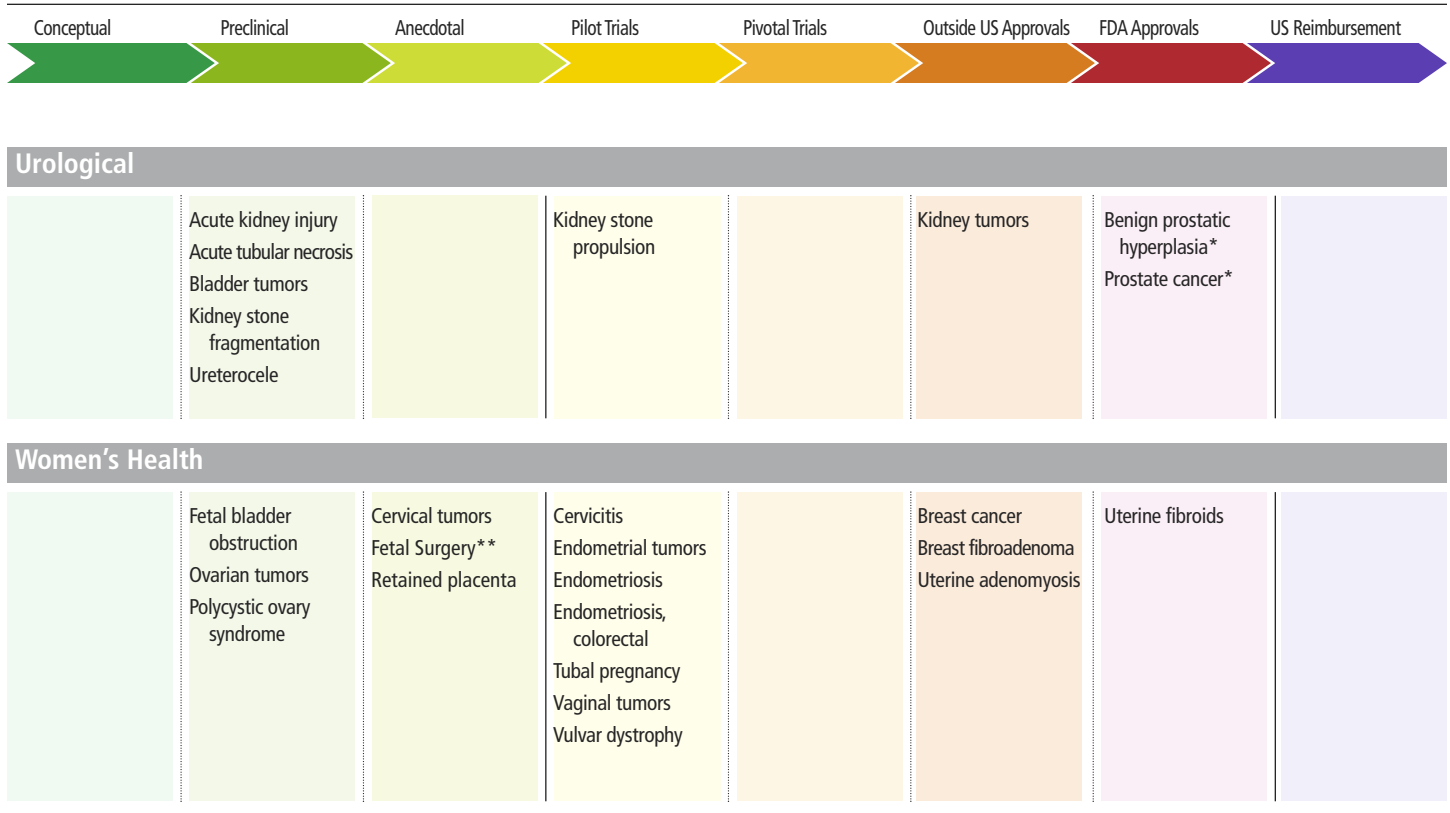
† Multiple myeloma approval is based on bone metastases.

2017 Global Development Landscape continued



† Multiple myeloma approval is based on bone metastases.

2017 Global Development Landscape continued



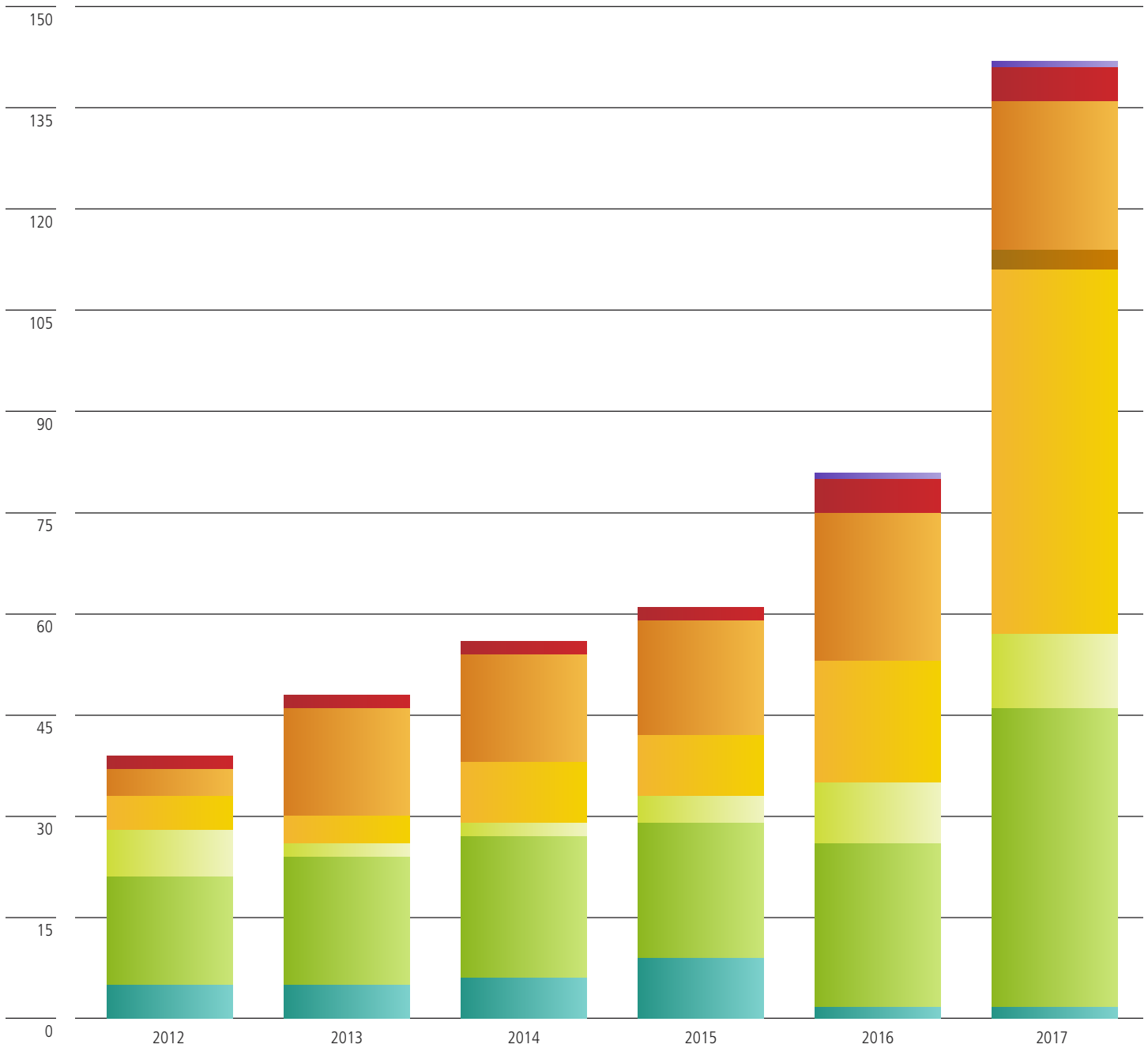
Early research stages tend to have lower costs and shorter timelines as compared to clinical trials. The significant increase in both expense and time is largely due to increased regulatory requirements that are necessary to ensure patient safety during the new medical device evaluation.

* FDA approval is for prostate tissue ablation.
 ** Fetal surgery is twin-twin transfusion syndrome.

Developmental Stages of Clinical Indications

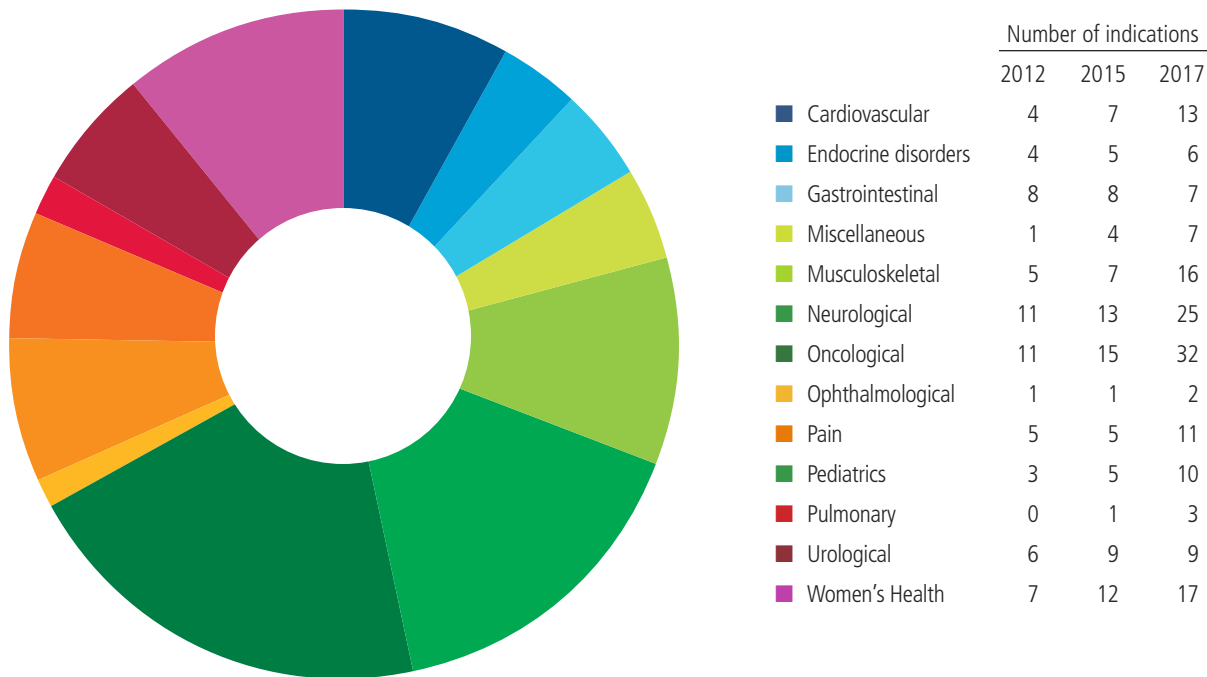
Development stage: ■ Conceptual ■ Preclinical ■ Anecdotal ■ Pilot Trials ■ Pivotal Trials ■ Outside US Approvals ■ FDA Approvals ■ US Reimbursement

Number of indications



Indications that have Outside US Approvals, FDA Approval, and US Reimbursement are repeated in each category.

Body System Indication Expansion



The field of focused ultrasound is growing and expanding across all body systems with significant growth in neurological, oncological, musculoskeletal, and pediatric indications. See next page for details.

Expanding Areas of Research by Body System and Indication

Neurological, oncological, and musculoskeletal indications have seen tremendous growth and expansion over the last five years.

Development stage: ■ Conceptual ■ Preclinical ■ Anecdotal ■ Clinical Trials ■ Outside US Approvals ■ FDA Approvals ■ US Reimbursement



Number of Clinical and Preclinical Research Sites by Body System

MUSCULOSKELETAL	NEUROLOGICAL	ONCOLOGICAL	PEDIATRICS	WOMEN'S HEALTH
145 sites	213 sites	481 sites	158 sites	197 sites
36 North America 60 Europe 43 Asia 3 South America 3 Oceania	113 North America 76 Europe 23 Asia 0 South America 1 Oceania	177 North America 175 Europe 123 Asia 2 South America 4 Oceania	55 North America 57 Europe 41 Asia 2 South America 3 Oceania	46 North America 60 Europe 83 Asia 1 South America 7 Oceania

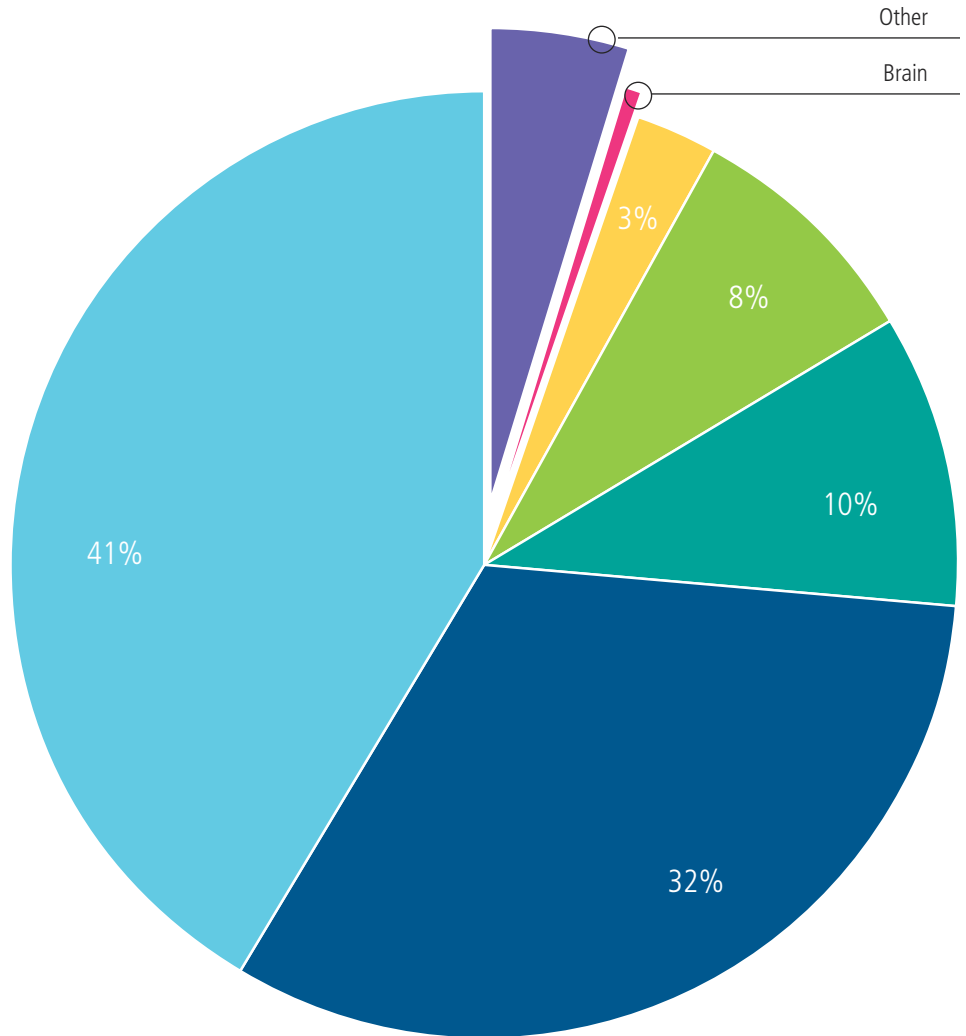
The past several years have seen a significant growth in the number of indications under investigation for treatment using focused ultrasound. The most pronounced growth has been in areas of research for neurological, oncological, and musculoskeletal (including pain) applications.

Cumulative Patient Treatments by Indication

All Indications

215,720 Total Treatments

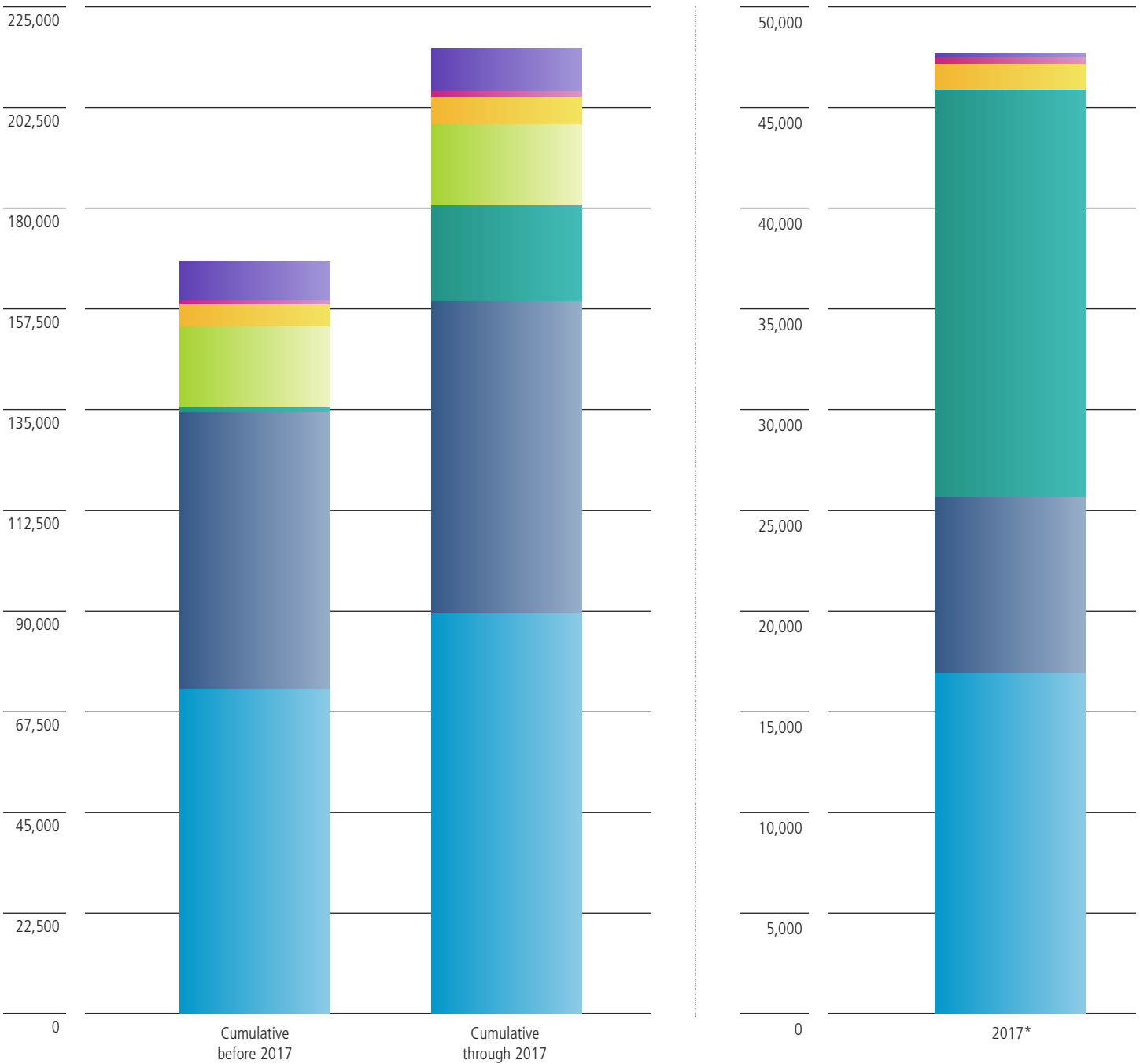
Uterine fibroids	89,353	41%
Prostate diseases	69,825	32%
Breast tumors	21,444	10%
Liver tumors	18,000	8%
Glaucoma	6,142	3%
Brain	1,221	1%
Other	9,735	5%



Manufacturer-supplied data. The number of patient treatments reported is lower than the actual number of procedures because of incomplete reporting from manufacturers and treatment sites.

Patient Treatments

Uterine fibroids Prostate diseases Breast tumors Liver tumors Glaucoma Brain Other



*Cumulative patient data from Shenzhen PRO-HIFU Medical Tech Co., LTD and Shanghai A&S Co., LTD included for the first time in 2017. As of the date of publication, no patient treatment data was available from Chongqing Haifu (HIFU) Medical Technology Co., LTD.

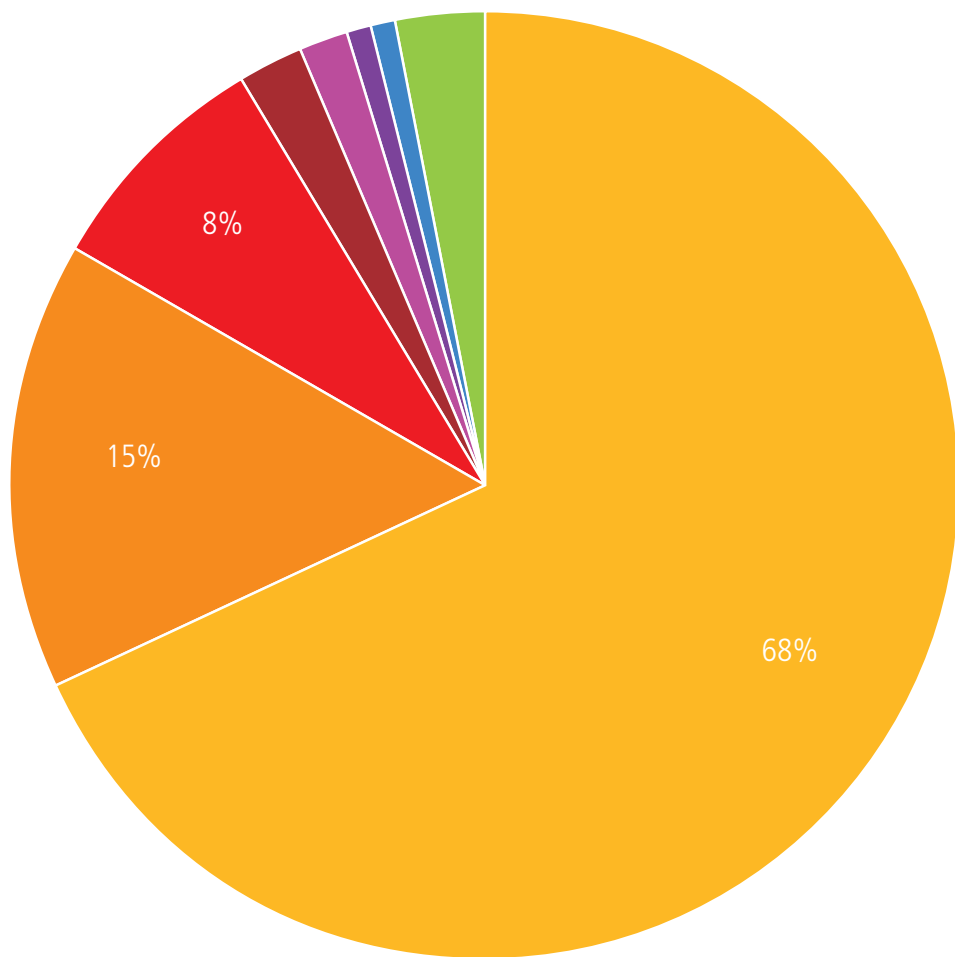
Cumulative Brain Treatments by Indication

There was tremendous growth in 2017 in the number of brain treatments, 353 in 2017.

1,221 Total Brain Treatments

Essential Tremor	833	68%
Parkinson's disease	187	15%
Neuropathic pain	97	8%
Brain tumors	27	2%
Mental health*	21	2%
Alzheimer's disease	11	1%
Other movement disorders**	8	1%
Other brain	37	3%

* Includes OCD and Depression
 ** Includes Epilepsy and Dystonia



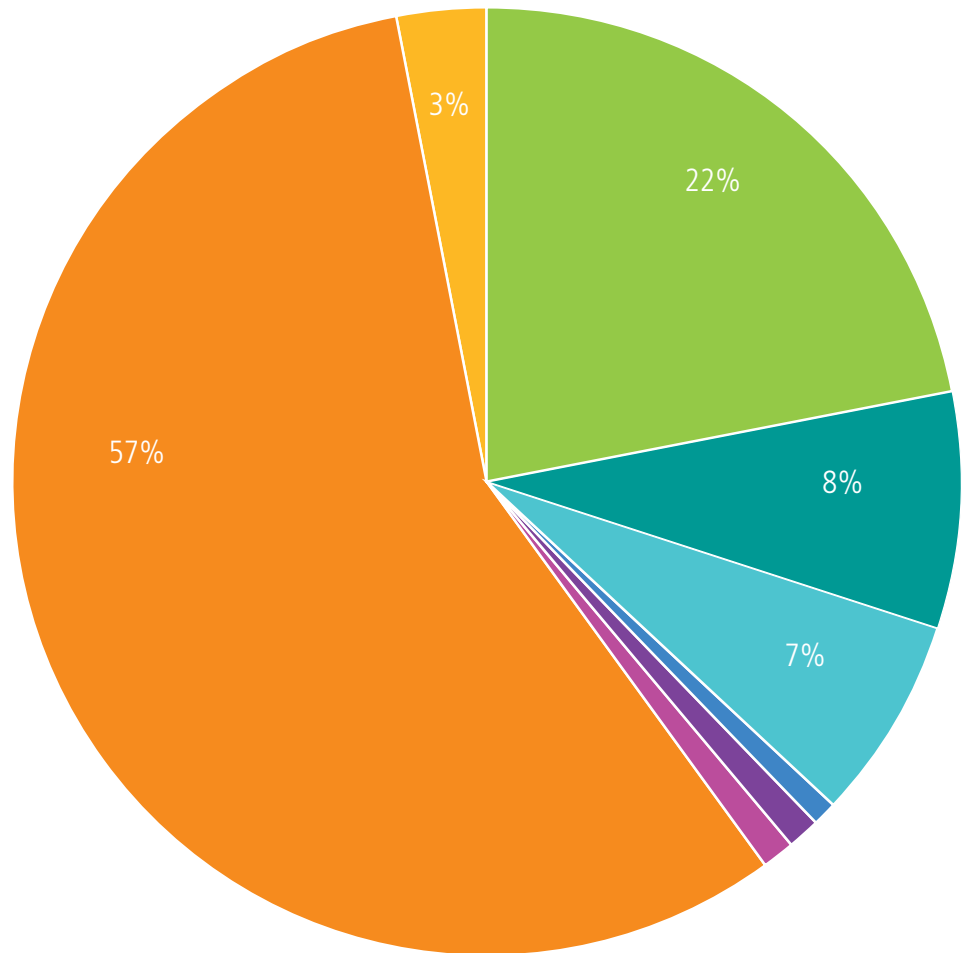
Cumulative Other Treatments by Indication

9,735 Total Other Treatments

Bone metastases	2,173	22%
Thyroid nodules	803	8%
Pancreatic cancer	705	7%
Hypertension	69	1%
Back pain	60	1%
Parathyroid	55	1%
Cancer unspecified*	5,590	57%
Other**	280	3%

* Not all manufacturers are providing specific cancer indications. The Foundation is working to clarify this for 2019 State of the Field Report.

** Other indications include: Adenomyosis, Kidney tumors, Rectal carcinoma, Soft tissue tumors, Varicose veins



Mechanisms of Action

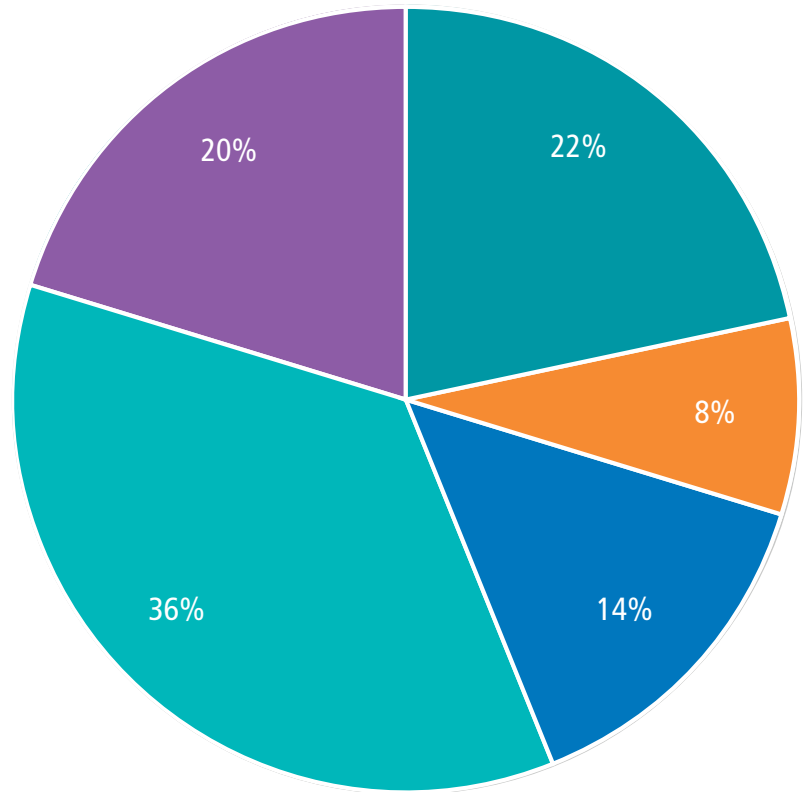
Biomechanisms

Focused ultrasound is a platform technology that affects tissue through multiple mechanisms, thereby enabling the treatment of a wide variety of medical disorders.

<p>DRUG DELIVERY</p> <p>6 mechanisms</p>	<p>IMMUNOMODULATION</p> <p>2 mechanisms</p>	<p>INCREASED VASCULAR PERMEABILITY</p> <p>5 mechanisms</p>	<p>TISSUE DESTRUCTION</p> <p>6 mechanisms</p>	<p>OTHER</p> <p>12 mechanisms</p>
<p>BBB opening Drug delivery vehicles Hyperthermia Sonoporation Therapeutic delivery (i.e., nanoparticles, liposomes) Vasodilation</p>	<p>Immune cell delivery Immunotherapeutic delivery</p>	<p>BBB opening Drug delivery Hyperthermia Stem cell delivery Therapeutic delivery (i.e., nanoparticles, liposomes)</p>	<p>Denervation Histotripsy Hyperthermia Mechanical ablation Thermal ablation Vascular disruption</p>	<p>Amplification of cancer biomarker Angiogenesis Cardiac pacing Clot lysis Hemostasis Neuromodulation Radiosensitization Sensitization to chemotherapy Sonodynamic therapy Stem cell homing Vasoconstriction Vasodilation</p>

Research Sites Investigating Mechanisms of Action*

- Drug delivery
- Immunomodulation
- Increased Vascular Permeability
- Tissue destruction
- Other



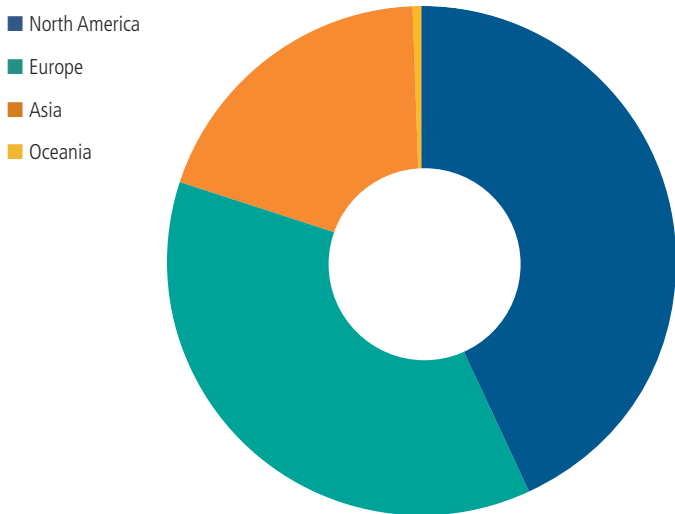
DRUG DELIVERY	IMMUNOMODULATION	INCREASED VASCULAR PERMEABILITY	TISSUE DESTRUCTION	OTHER
119 sites	44 sites	76 sites	195 sites	110 sites
65 North America 26 Europe 27 Asia 0 South America 1 Oceania	28 North America 9 Europe 6 Asia 0 South America 1 Oceania	40 North America 17 Europe 19 Asia 0 South America 0 Oceania	105 North America 59 Europe 29 Asia 0 South America 2 Oceania	67 North America 25 Europe 17 Asia 0 South America 1 Oceania

*Sites researching more than one mechanism of action are counted in each area of active study.

Technical Research Sites

	Sites*				Total
	North America	Europe	Asia	Oceania	
Drug Delivery Technology	16	8	2	1	27
FUS Physics	30	21	14	–	65
FUS Simulation and Treatment Planning	12	10	5	–	27
FUS Transducer Technology	14	17	7	–	38
FUS Treatment Monitoring	24	24	13	–	61
MR Imaging for FUS Guidance	27	26	17	–	70
Standards & Quality Assurance	4	4	2	–	10
Ultrasound Imaging for FUS Guidance	20	14	6	–	40
	147	124	66	1	338

Technical Research Sites by Region

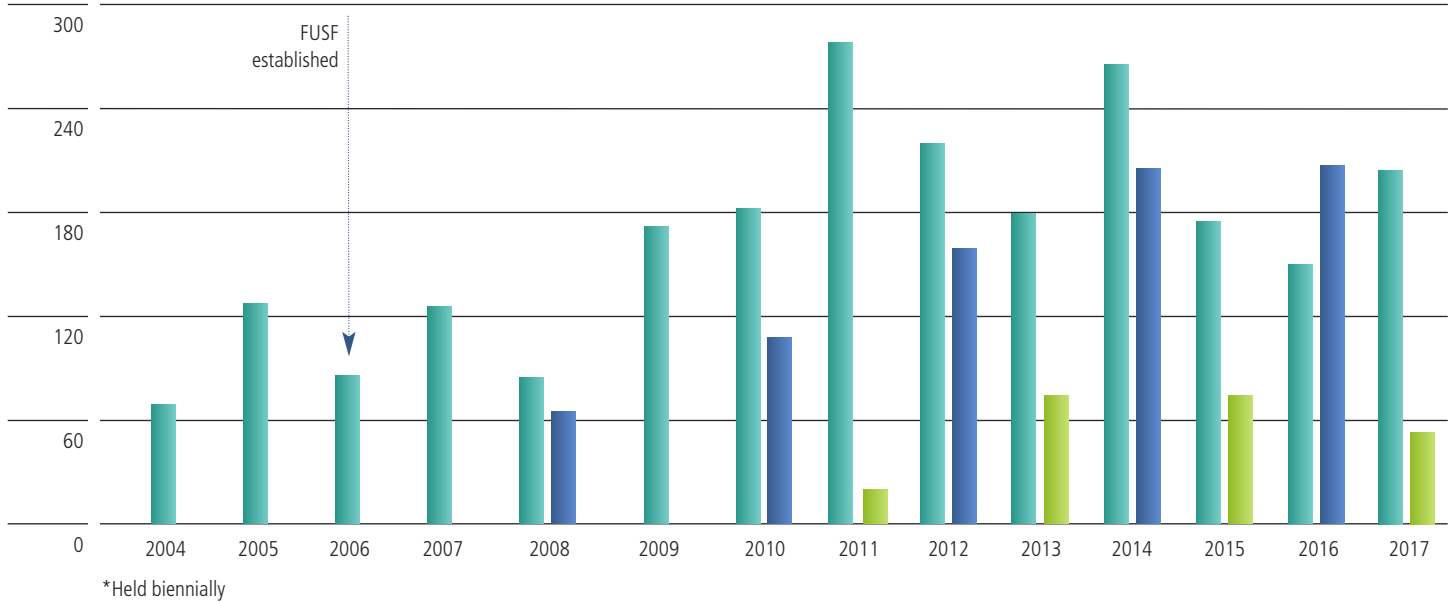


Technical research programs are designed to address high priority scientific and engineering problems. Solutions developed by technical sites help to make clinical treatments faster, safer, less expensive, and available to the widest patient population possible. Technical research projects supported by the Foundation include those in areas of image guidance, treatment monitoring, transducer design, procedure planning, and physics simulation.

*Technical research sites may be working in more than one technical research area. These sites conduct focused ultrasound research aimed at overcoming fundamental FUS scientific and engineering challenges. Technical research enables and accelerates preclinical and clinical research. No technical sites in South America or Africa.

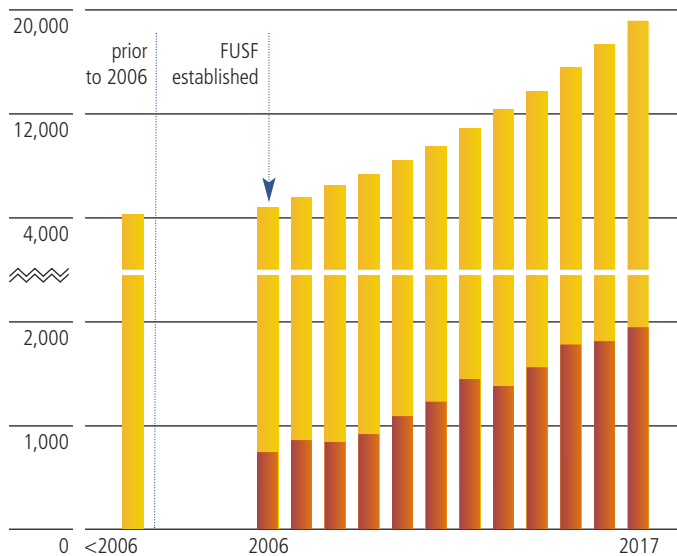
Abstracts Presented at FUS Symposia

■ Focused Ultrasound Foundation Symposium (FUSF)* ■ European Symposium on Focused Ultrasound Therapy (EUFUS)* ■ International Symposium on Therapeutic Ultrasound (ISTU)



FUS Publications

■ Per year ■ Cumulative total



Source: Data from Web of Knowledge as of February 23, 2018

FUS Citations

Cumulative

19,166
FUS publications

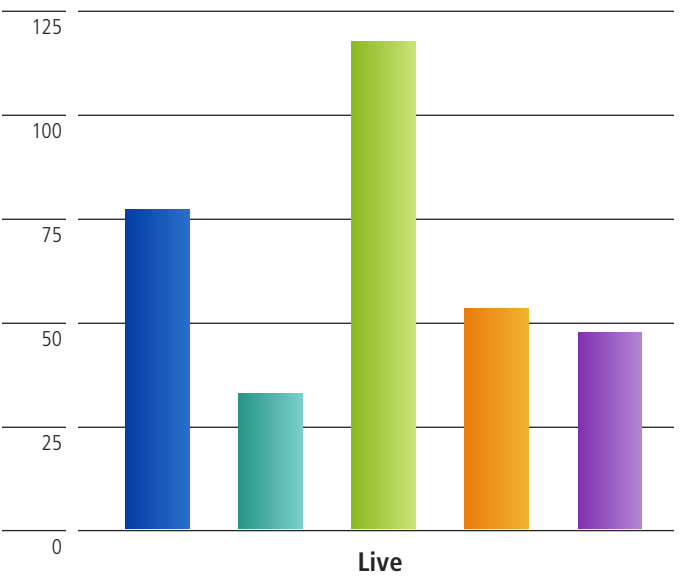
309,000
Citations of FUS publications

Focused Ultrasound Foundation Activities

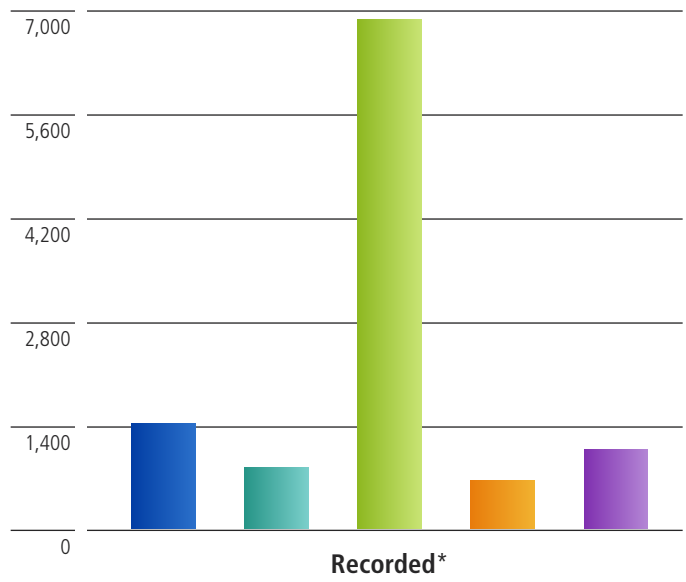
<p>CREATE KNOWLEDGE</p> <p>234 patients treated in</p> <p>28 Foundation funded clinical trials cumulative</p>	<p>FOSTER COLLABORATION</p> <p>5 symposia cumulative</p> <p>24 workshops cumulative</p> <p>5 webinars 2017</p> <p>6,972 webinar attendees 2017 to March 19, 2018</p> <p>to engage stakeholders and build communities</p>	<p>INCREASE AWARENESS</p> <p>1,004 media placements cumulative</p> <p>AGGREGATE & SHARE KNOWLEDGE</p> <p>31,400 newsletter subscribers current</p> <p>248,000 website visits 2017</p>	<p>OVERCOME BARRIERS</p> <p>3 reimbursement workshops cumulative</p> <p>CULTIVATE THE NEXT GENERATION</p> <p>120 interns cumulative</p> <p>17 fellows cumulative</p>
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Webinar Attendance

■ BBB opening ■ FUS combination ■ Immunotherapy*
■ Machine Learning and AI ■ Pancreatic cancer



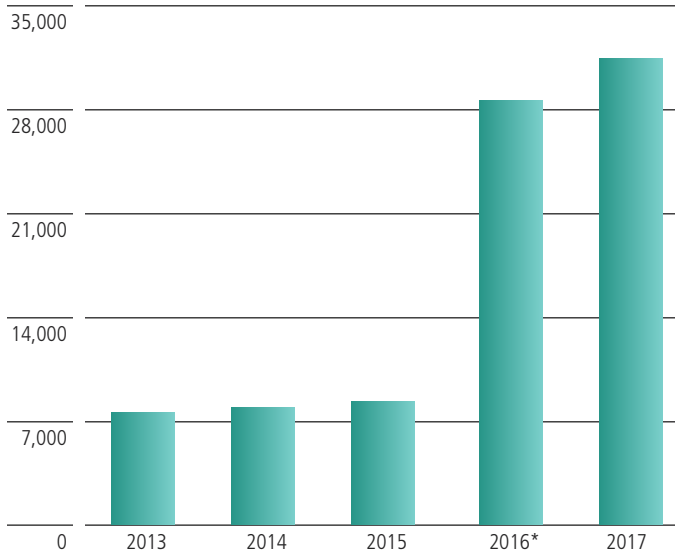
*Joint webinar with the Cancer Research Institute, a Foundation partner



*As of May 21st, 2018

Focused Ultrasound Foundation Newsletter Distribution

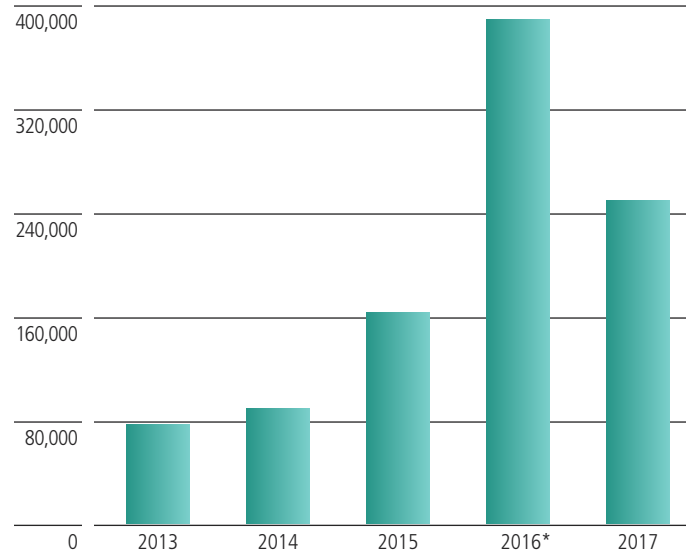
Per year



*Includes subscribers to our stay-in-touch list.

Focused Ultrasound Foundation Website Visits

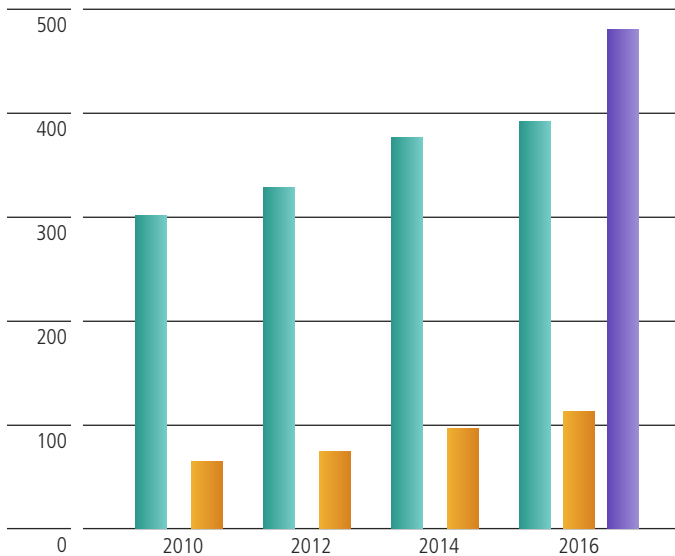
Per year



*2016 spike due to *The Tumor* by John Grisham.

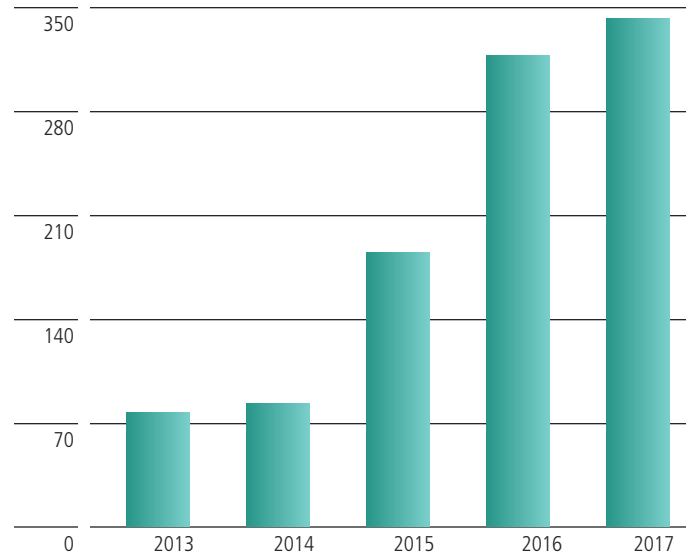
Focused Ultrasound Foundation Symposium Attendance and Presentations

■ Attendance ■ Presentations ■ Virtual attendance



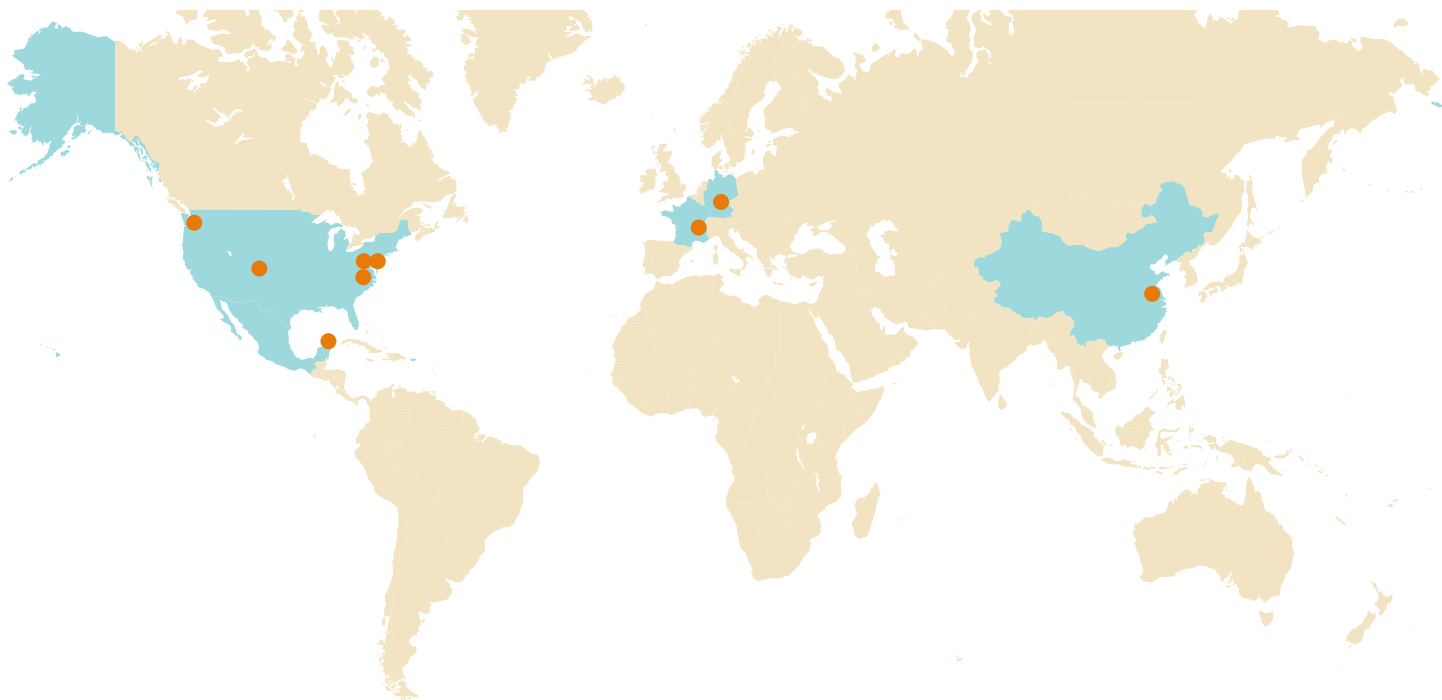
FUS Media Placements in the US

Per year



Sponsorships

2017



Sponsorships

Events by chronological order

Location

Events by chronological order	Location
Winter School on Therapeutic Ultrasound	Les Houches, France
8th Annual Brain Anatomy Fellows Course, Seattle Science Foundation	Seattle, WA
Tom Tom Founders Festival	Charlottesville, VA
Society of Thermal Medicine (STM)	Cancún, Mexico
International Society for Therapeutic Ultrasound (ISTU)	Nanjing, China
International Gamma Knife Research Foundation Meeting	Philadelphia, PA
American Association of Physicists in Medicine (AAPM)	Denver, CO
University of Virginia Darden School of Business, Healthcare Conference	Charlottesville, VA
Hope for Hypothalamic Hamartomas Family Forum	Washington, DC
4th European Symposium on Focused Ultrasound Therapy (EUFUS)	Leipzig, Germany
IEEE International Ultrasonics Symposium (IUS)	Washington, DC

Sponsorships

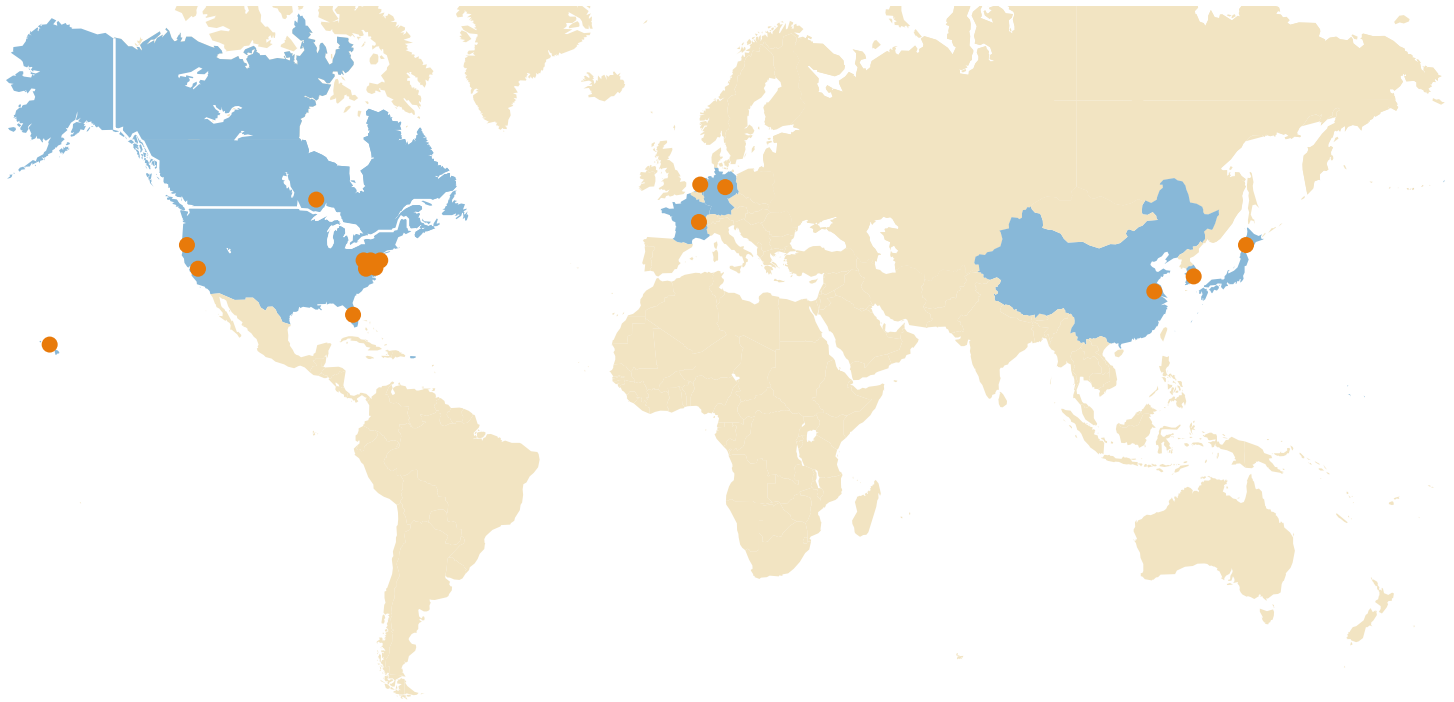
The Foundation’s sponsorship initiative allow us to increase awareness in the field of focused ultrasound and connect current researchers we are supporting, manufacturers in the fields, and other potential collaborators to further our mission.

Invited Talks

Invited talks are given around the globe by various members of our in-house scientific team.

Invited Talks

2017

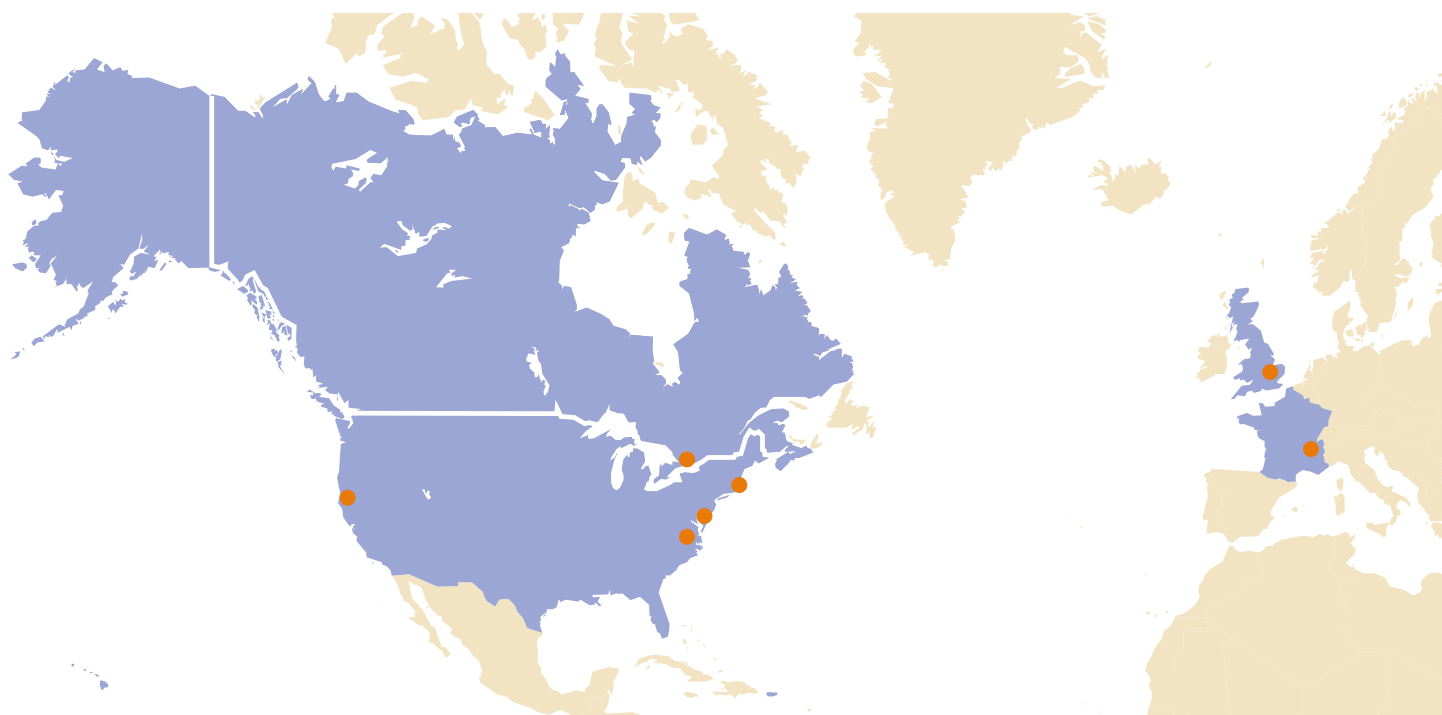


Invited Talks

Institution or event by chronological order	Location
22nd European Symposium on Ultrasound Contrast Imaging	Rotterdam, Netherlands
Society of the Four Arts	Palm Beach, FL
Richmond Joint Engineers' Council (RJEC)	Richmond, VA
George Washington University Biomedical Engineering	Washington, DC
9th National Image-Guided Therapy Workshop	Bethesda, MD
Thunder Bay Regional Health Research Institute	Thunder Bay, ON, Canada
Winter School on Therapeutic Ultrasound	Les Houches, France
Bohemian Grove	Washington, DC
University of Virginia School of Medicine Women in Medicine and Science (WIMS)	Charlottesville, VA
University of Virginia Frank Batten School of Leadership and Public Policy	Charlottesville, VA
BioHealth Capital Region Forum	Gaithersburg, MD
International Society for Magnetic Resonance in Medicine (ISMRM)	Honolulu, HI
Milken Institute Global Conference	Los Angeles, CA
International Society for Therapeutic Ultrasound (ISTU)	Nanjing, China
World Society for Stereotactic and Functional Neurosurgery (WSSFN)	Berlin, Germany
Virginia House Appropriations Committee Visit	Charlottesville, VA
Rotary Club of Charlottesville	Charlottesville, VA
Korean Society for Therapeutic Ultrasound (KSTU)	Seoul, Korea
IEEE International Ultrasonics Symposium (IUS)	Washington, DC
CvilleBioHub	Charlottesville, VA
Japanese Society for Therapeutic Ultrasound (JSTU)	Sapporo, Japan
Partnering for Cures	San Francisco, CA

Centers of Excellence

2017



Centers of Excellence

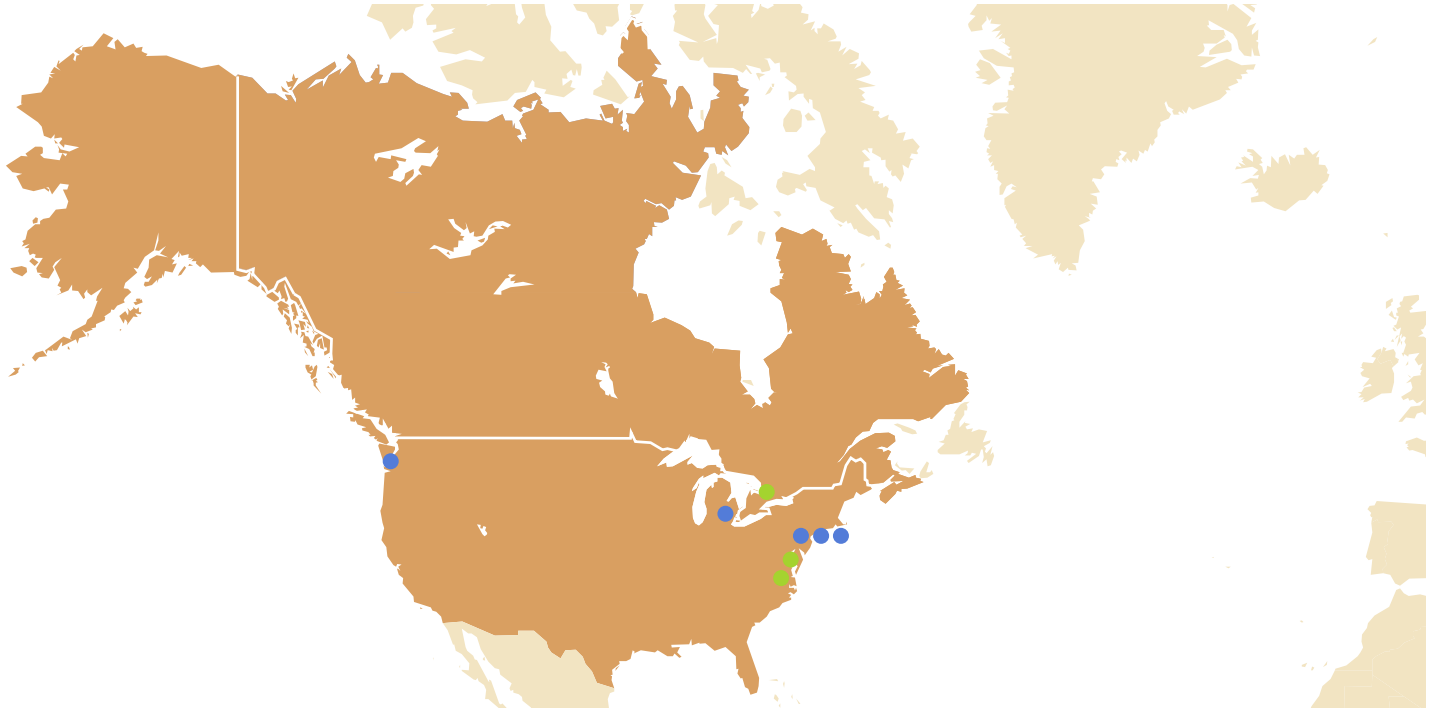
Institution	Location
Brigham and Women's Hospital	Boston, MA
French National Institute of Health and Medical Research (INSERM) LabTau	Lyon, France
The institute of Cancer Research and the Royal Marsden	London, England
Stanford University School of Medicine	Stanford, CA
Sunnybrook Health Sciences Centre	Toronto, ON, Canada
The University of Maryland School of Medicine	Baltimore, MD
University of Virginia Health System	Charlottesville, VA

Centers of Excellence

The Centers of Excellence program brings together the best people and technical resources at luminary research sites around the globe. In order to earn this designation, an institution must have active technical, preclinical, and clinical research projects underway as well as a focused ultrasound education component to cultivate the next generation of researchers.

Workshops and Webinars

2017



● Workshops

By topic	Location
Blood-brain barrier	Washington, DC
Psychiatric disorders	Toronto, ON, Canada
Volumetric thermometry	Charlottesville, VA

Workshops

For more information on the participants and results of the FUSF workshops, please visit www.fusfoundation.org/for-researchers/resources/white-papers.

To view webinars, please visit www.fusfoundation.org/the-foundation/programs/webinars.

● Webinars

By topic	Speaker and affiliation
Blood-brain barrier opening	Elisa Konofagou Columbia University New York, NY
FUS combination approaches for treating cancer	Chandan Guha Albert Einstein College of Medicine Bronx, NY
Immunotherapy, revolutionizing cancer treatment	Jill O'Donnell-Tormey Cancer Research Institute New York, NY
Machine learning and artificial intelligence	Rick Hamilton Optum Detroit, MI
Pancreatic cancer	Joo Ha Hwang University of Washington Seattle, WA

Veterinary Program Sites



Locations

- ★ Virginia-Maryland College of Veterinary Medicine
- ★ Oklahoma State University
- ★ Stanford University
In collaboration with University of California, Davis, School of Veterinary Medicine

Veterinary Program

In 2017, the Foundation launched a veterinary program to study focused ultrasound therapies for the treatment of companion animals. The initiative will enable veterinary researchers to offer state-of-the-field therapies to their patients, while also collecting data necessary to accelerate the adoption of the technology for human applications.

The first study in the program is taking place at the Virginia-Maryland College of Veterinary Medicine at Virginia Tech in Blacksburg, Virginia. This project will use focused ultrasound to treat naturally occurring soft tissue tumors, such as sarcomas and mast cell tumors, in dogs.

Oklahoma State University is evaluating the potential benefit of focused ultrasound combined with antimicrobial therapy on the healing of chronic wounds associated with soft tissues in dogs.

Promising Areas of Research

Oncology

Soft tissue tumors . Brain tumors . Bone tumors

Pain management

Hip dysplasia and Arthritis

Nonhealing wounds

Hygromas and Abscesses

Noninvasive spay/neuter

Finally, Stanford University, in conjunction with the University of California, Davis, School of Veterinary Medicine, will modify and evaluate a novel design of a real-time feedback system for focused ultrasound drug delivery in naturally occurring hepatocellular carcinoma (liver cancer) in client-owned dogs.

Promising projects are also currently undergoing peer review in other areas of oncology, as well as in pain management, arthritis, and noninvasive spay/neuter.

Research Projects Funded by FUSF

Cumulative

	External Awards	Internal Awards	Total Awards
Number of projects	63	72	135
Dollars committed	\$6,338,035	\$10,071,700	\$16,409,735
Number of completed projects	44	38	82
Dollars awarded to completed projects	\$4,404,656	\$5,397,846	\$9,802,502
Projects with outside follow-on funding	22	7	29
Dollars awarded through outside follow-on funding	\$34,594,261	\$11,840,876	\$46,435,137

Total Awards for All FUS NIH Research Grants

Dollars in millions



Source: NIH

FUS Industry by Region

Clinical Device Manufacturers

■ MR (magnetic resonance) guidance ■ US (ultrasound) guidance ■ MR (magnetic resonance) & US (ultrasound) guidance ■ Image fusion ■ Other

North America

12

- MR GUIDANCE
 - BrainSonix | Sherman Oaks, California, www.brainsonix.com
 - Profound Medical Inc. | Mississauga, Canada, www.profoundmedical.com
- US GUIDANCE
 - HistoSonics, Inc. | Ann Arbor, Michigan, www.histosonics.com
 - International Cardio Corporation, LLC | Minnetonka, Minnesota, www.hifu-rx.com
 - Kona Medical | Bellevue, Washington, www.konamedical.com
 - Mirabilis Medical | Bothell, Washington, www.mirabilismedical.com
 - SonaCare Medical, LLC | Charlotte, North Carolina, www.sonacaremedical.com
 - Soundstim Therapeutics, Inc. | Encino, California, www.ssthera.com
 - VeinSound, Inc. | Sunnyvale, California
- MR & US GUIDANCE
 - Harmonic Medical | Canada, www.harmonicmedical.com
- IMAGE FUSION
 - TheraWave | New York, New York
- OTHER
 - FUS Mobile | Alpharetta, Georgia, www.fusmobile.com

Europe

10

- MR GUIDANCE
 - CarThera | Paris, France, www.carthera.eu
 - Image Guided Therapy (IGT) | Pessac, France, www.imageguidedtherapy.com
 - INSIGHTEC LTD | Tirat Carmel, Israel, www.insightec.com
- US GUIDANCE
 - Acublate | London, England
 - Cardiawave | Paris, France, www.cardiawave.com
 - Theraclion | Malakoff, France, www.theraclion.com
 - Vensica | Misgav, Israel, www.vensica.com
- IMAGE FUSION
 - EDAP TMS S.A. | Vaulx-en-Velin, France, www.edap-tms.com

FUS Industry by Region continued

Clinical Device Manufacturers

■ MR (magnetic resonance) guidance ■ US (ultrasound) guidance ■ MR (magnetic resonance) & US (ultrasound) guidance ■ Image fusion ■ Other

Europe continued

■ OTHER

EyeTechCare | Rillieux-la-Pape, France, www.eyetechcare.com

TOOsonix | Hoersholm, Denmark, www.toosonix.com

Asia

12

■ MR GUIDANCE

EpiSonica | Hsichu City, Taiwan, www.episonica.com

■ US GUIDANCE

Alpinion Medical Systems | Seoul, Korea, www.alpinion.com

Beijing Yuande Bio-Medical Engineering | Beijing, China, www.yuande.com

Chongqing Haifu (HIFU) Medical Technology Co., LTD | Chongqing, China, www.haifu.com.cn/en_index.asp

Mianyang Sonic (SUONIKE) Electronic | Mianyang, China, www.ultrasound.cn/en/

Shanghai A&S Co., LTD | Shanghai, China, www.aishen.com.cn/english/

Shenzhen PRO-HIFU Medical Tech. Co., LTD | Shenzhen, China, en.pro-hifu.com/index.html

Shenzhen Wikkon | Shenzhen, China, www.eswl.cn/en/

Shanghai Suntec Industries Co., LTD | Zhabei District, Shanghai, China

Wuxi Haiying Medical | Wuxi, China, www.haiyingmedical.com.cn

■ MR & US GUIDANCE

Changjiangyuan Technology Development Co., LTD | Shenyang, China, www.cjyjk.com/en/

■ IMAGE FUSION

NaviFUS | New Taipei City, Taiwan, www.navi-fus.com

FUS Industry by Region continued

Other FUS Companies

■ Distributor ■ Microbubble ■ OEM

North America

12

■ DISTRIBUTOR

Focus Surgery, Inc. | Indianapolis, Indiana
 HIFU Prostate Services LLC | Charlotte, North Carolina, www.sumo.com.hk

■ MICROBUBBLE

Artenga Inc. | Ottawa, Ontario, www.artenga.com
 Dynaflow, Inc. | Jessup, Maryland, www.dynaflow-inc.com
 SonoGene LLC | Glen Ellyn, Illinois
 Vesselon | Norwalk, Connecticut, www.vesselon.com

■ OEM

Electronics and Innovation, LTD | Rochester, New York, www.eandiltd.com/index.html32/33
 FUS Instruments Inc. | Ontario, Canada, www.fusinstruments.com
 Onda Inc. | Sunnyvale, California, www.ondacorp.com
 Piezo Technologies | Indianapolis, Indiana, www.piezotechnologies.com
 Sonic Concepts | Bothell, Washington, www.sonicconcepts.com
 Verasonics | Kirkland, Washington, www.verasonics.com

Europe

6

■ DISTRIBUTOR

Promedica Bioelectronics S.r.l. | Rome, Italy, www.promedicasrl.eu

■ MICROBUBBLE

Bracco Imaging S.p.A. | Italy, www.braccoimaging.com
 OxSonics | Oxford, England, www.oxsonics.com
 Phoenix Solutions AS | Oslo, Norway, www.phoenixsolutions.no

■ OEM

Imasonic | Voray-sur-l'Ognon, France, www.imasonic.com
 Medsonic LTD | Limassol, Cyprus, www.medsonic.com.cy

FUS Industry by Region continued

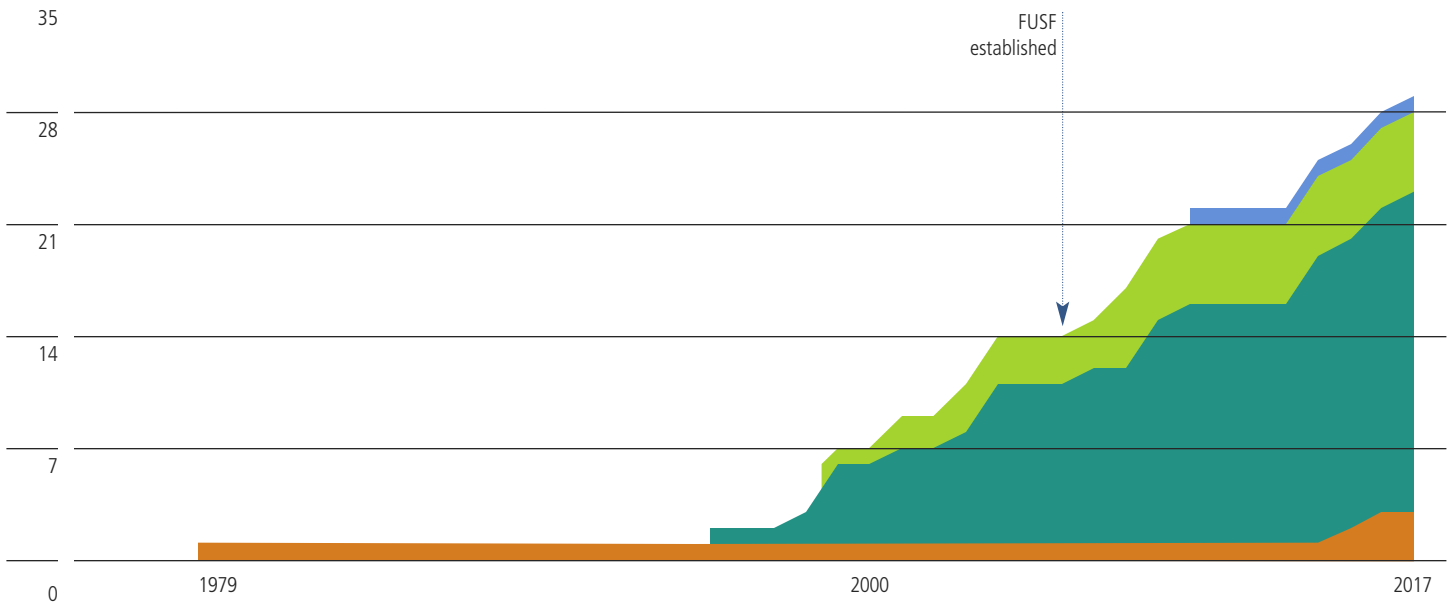
Other FUS Companies

■ Distrubutor ■ Microbubble ■ OEM



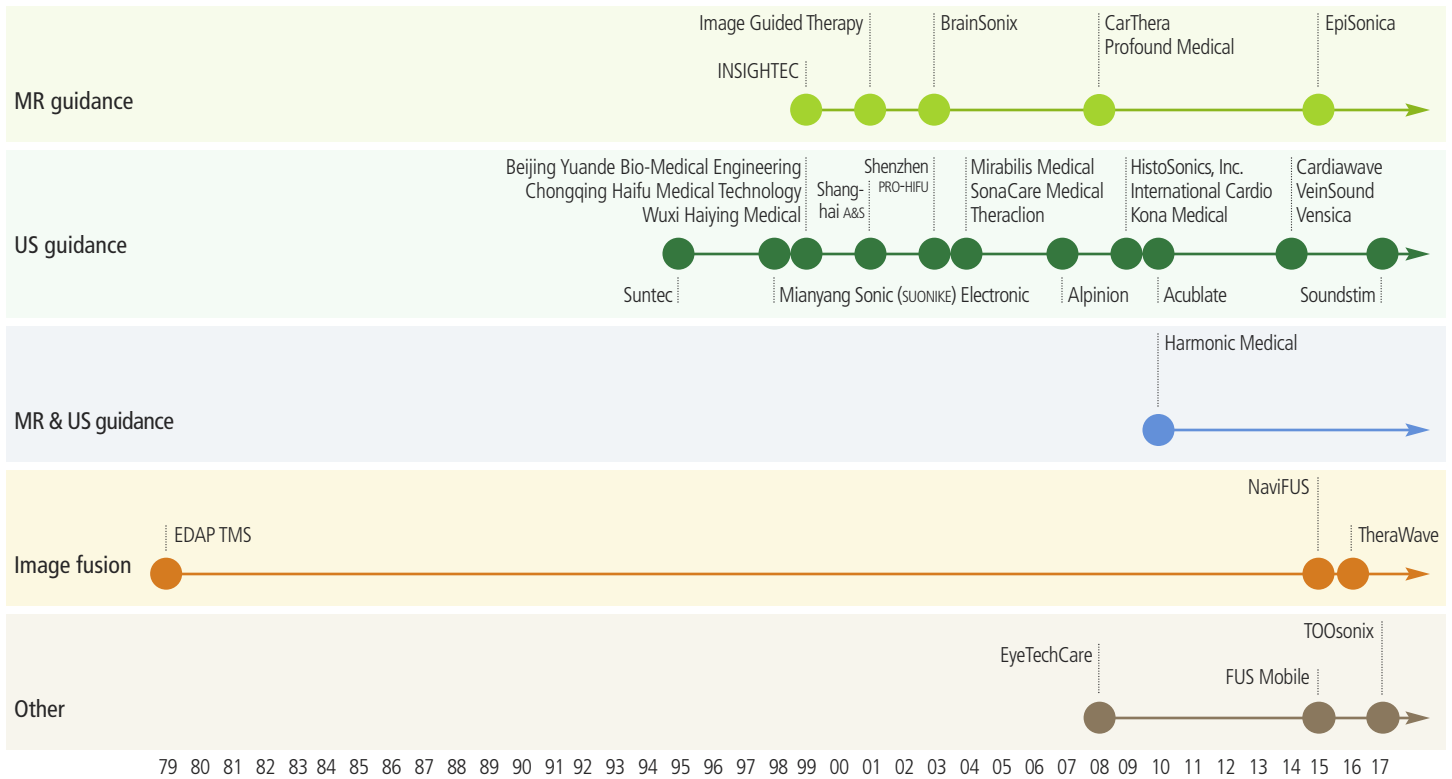
Clinical Device Manufacturers

MR guidance US guidance MR & US guidance Transducers Other
 Number of manufacturers



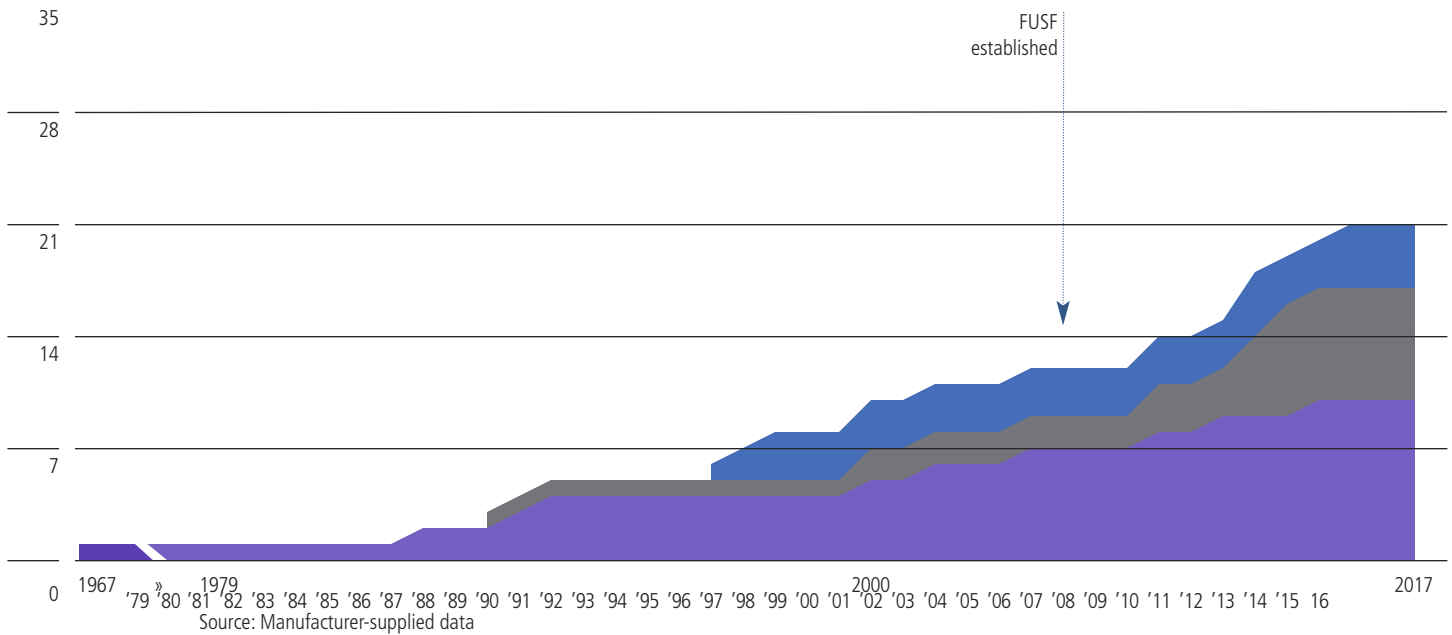
Source: Manufacturer-supplied data

Timeline of Clinical Device Manufacturers

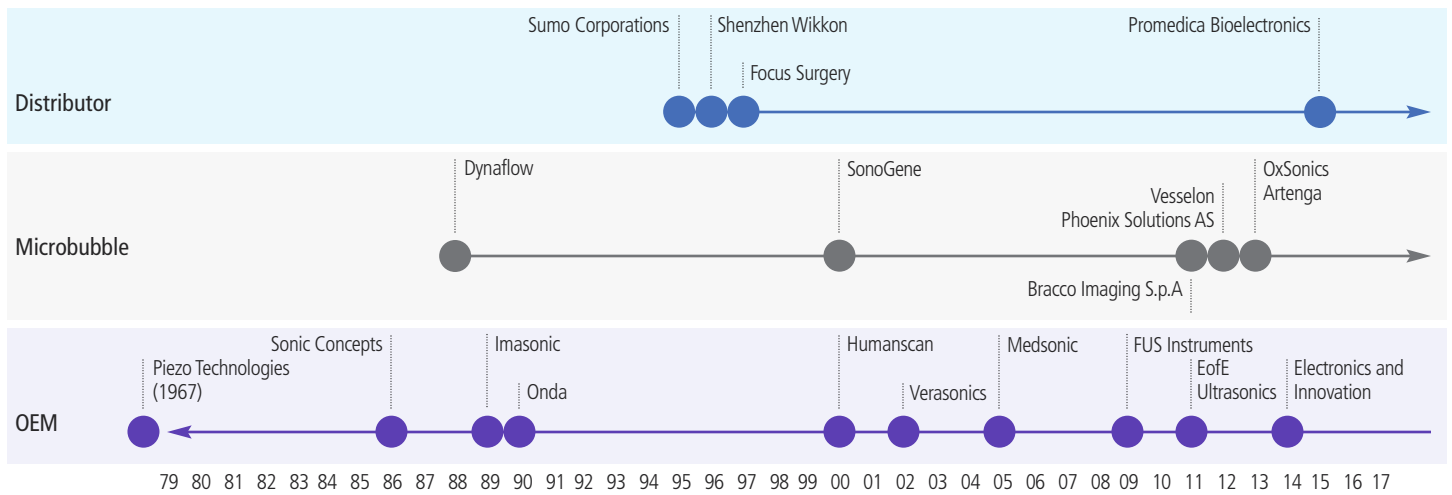


Other Manufacturers

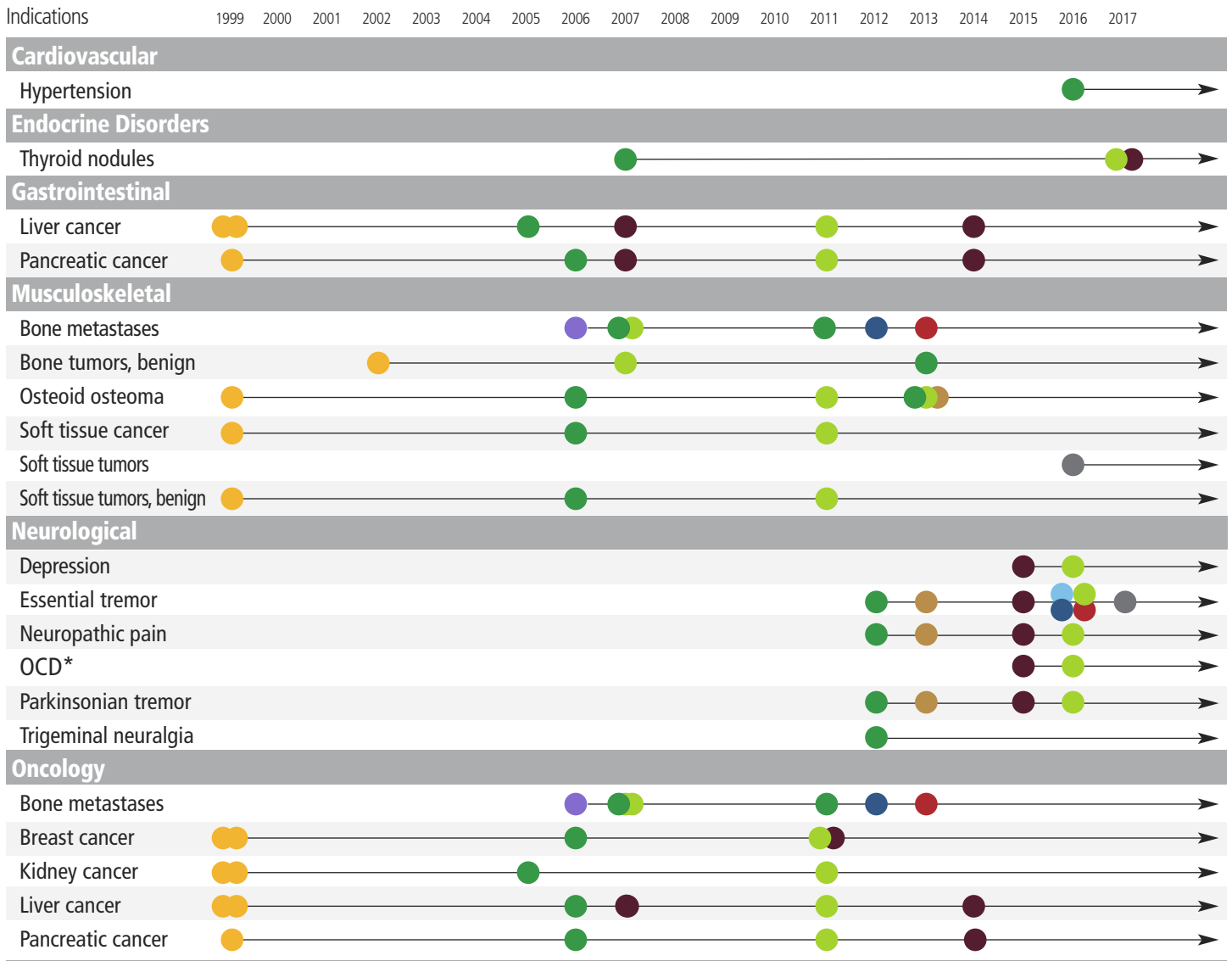
■ Distributor ■ Microbubble ■ OEM
 Number of manufacturers



Timeline of Other FUS Manufacturers



FUS Regulatory Approval by Indication and Region



Regions

North America

- United States, FDA
- Canada, Health Canada

South America

*Obsessive-compulsive disorder

Europe

- Europe, CE Mark
- Russia, Roszdravnadzor

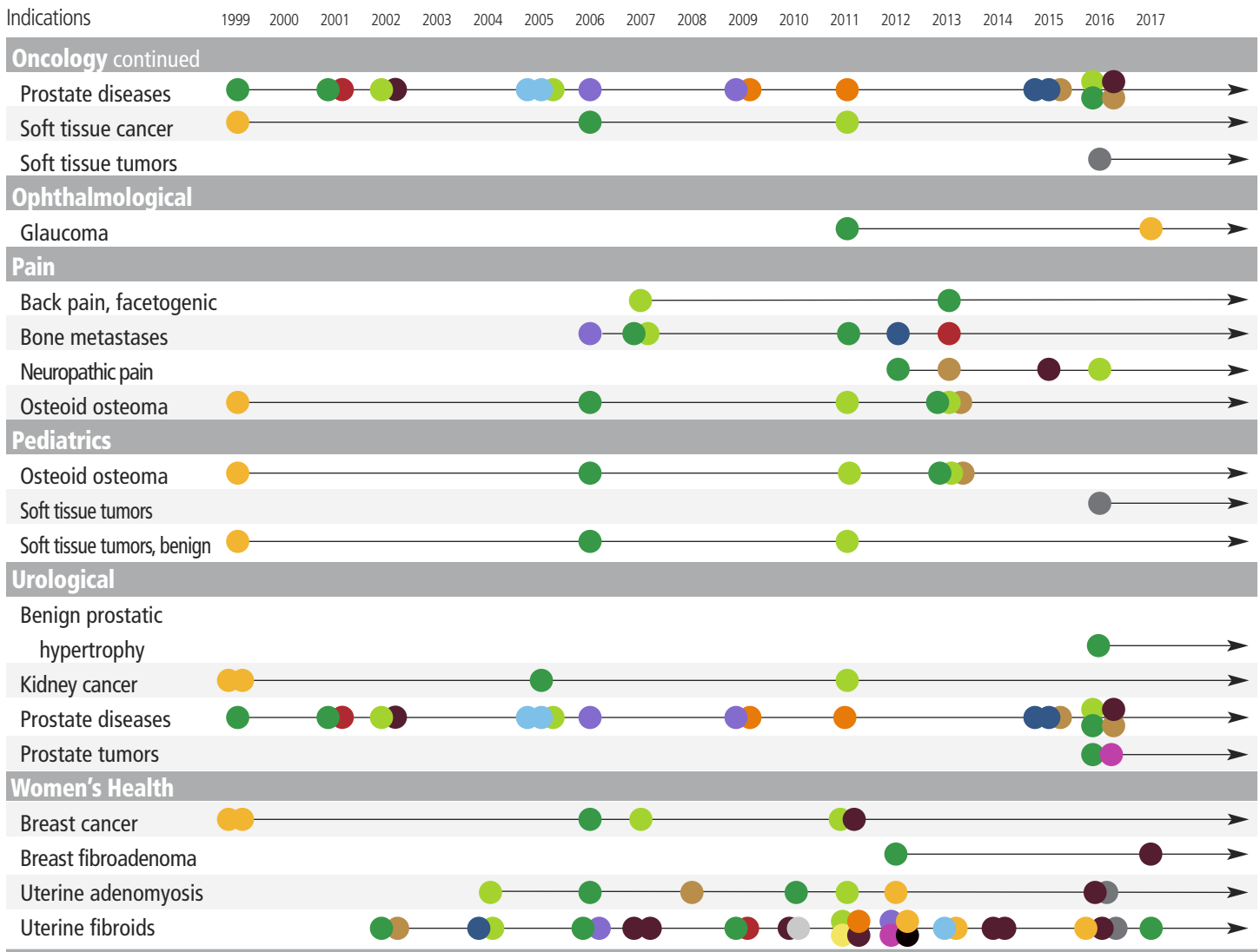
Oceania

Asia

- China, CFDA
- India, CDSCO
- Indonesia
- Japan, MHLW
- Korea, MFDS
- Middle East

- Malaysia
- Taiwan, Taiwan FDA
- Vietnam

FUS Regulatory Approval by Indication and Region continued



Regions



MANUFACTURERS

FUS Regulatory Approval by Region and FUS Manufacturer

Indications	North America		Europe		Asia					S. America	Oceania	
	US FDA	Canada Health Canada	Europe CE Mark	Russia Roszdravnadzor	China CFDA	India CDSCO	Japan MHLW	Korea MFDS	Mid East	Taiwan Taiwan FDA		
Cardiovascular												
Hypertension			■									
Endocrine												
Thyroid nodules			■	■				■				
Gastrointestinal												
Liver cancer			■	■	■	■		■	■			
Pancreatic cancer			■	■	■			■	■			
Musculoskeletal												
Bone metastases	■		■	■				■				■
Bone tumors, benign			■	■								
Bone tumors					■							
Osteoid osteoma			■	■	■				■			
Soft tissue cancer			■	■	■							
Soft tissue tumors										■		
Soft tissue tumors, benign			■	■	■							
Neurological												
Depression				■				■				
Essential tremor	■	■	■	■			■	■	■	■		
Neuropathic pain			■	■				■	■			
OCD*				■				■				
Parkinsonian tremor			■	■				■	■			
Trigeminal neuralgia			■									
Oncology												
Bone metastases	■		■	■				■				■
Breast cancer			■	■	■			■				
Kidney cancer			■	■	■	■						
Liver cancer			■	■	■	■		■	■			

Manufacturers

- Alpinion Medical Systems, Korea
- Beijing Yuande Bio-Medical Engineering, China
- Chongqing Haifu Medical Technology Co., Ltd, China
- EDAP TMS S.A., France
- EpiSonica, Taiwan
- EyeTechCare, France
- INSIGHTEC LTD, Israel
- Kona Medical, US
- Mirabilis Medical, US
- Profound Medical, Canada
- Shanghai A&S, China
- Shenzhen PRO-HIFU Medical Tech Co., China
- SonaCare Medical, LLC, US
- Theraclion, France
- Wuxi Haiying Medical, China

* Obsessive-compulsive disorder

FUS Regulatory Approval by Region and FUS Manufacturer continued

Indications	North America		Europe		Asia						S. America	Oceania
	US FDA	Canada Health Canada	Europe CE Mark	Russia Roszdravnadzor	China CFDA	India CDSCO	Japan MHLW	Korea MFDS	Mid East	Taiwan Taiwan FDA		
Oncology continued												
Pancreatic cancer			■	■	■			■ ■				
Prostate diseases	■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■		■ ■	■	■ ■	■ ■		■ ■	
Soft tissue cancer			■	■	■							
Soft tissue tumors										■		
Ophthalmological												
Glaucoma			■		■						■	
Pain												
Back pain, facetogenic			■	■								
Bone metastases	■		■ ■	■			■				■	
Neuropathic pain			■	■				■	■			
Osteoid osteoma			■ ■	■ ■	■				■			
Pediatrics												
Osteoid osteoma			■ ■	■ ■	■				■			
Soft tissue tumors										■		
Soft tissue tumors, benign			■	■	■							
Urological												
Benign prostatic hypertrophy			■									
Kidney cancer			■	■	■ ■							
Prostate diseases	■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■		■ ■	■	■ ■	■ ■		■ ■	
Prostate tumors			■									■
Women's Health												
Breast cancer			■	■ ■	■ ■			■				
Breast fibroadenoma			■	■				■				
Uterine adenomyosis			■ ■	■ ■	■			■		■	■	
Uterine fibroids	■	■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■

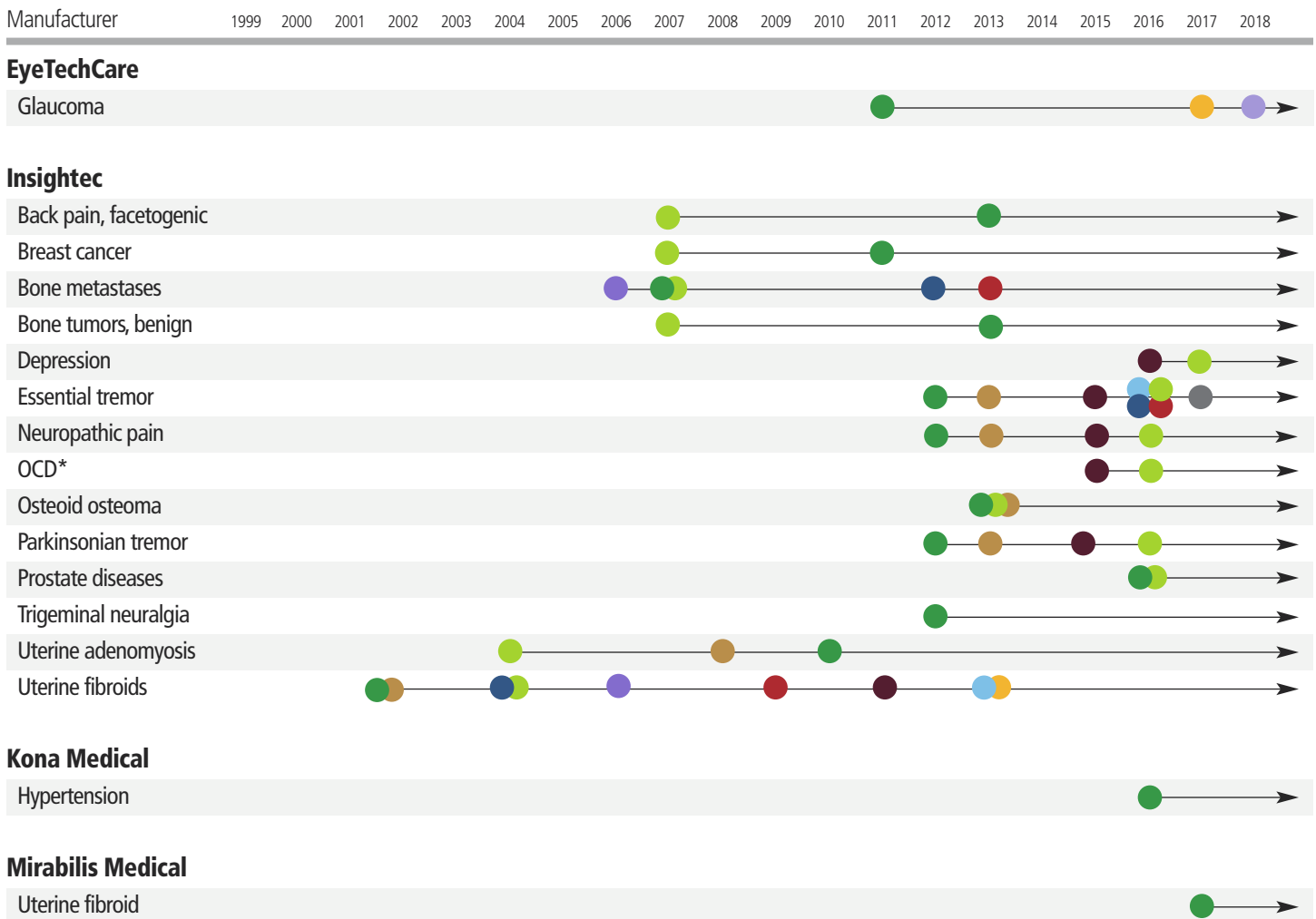
Manufacturers

- Alpinion Medical Systems, Korea
- Beijing Yuande Bio-Medical Engineering, China
- Chongqing Haifu Medical Technology Co., Ltd, China
- EDAP TMS S.A., France
- EpiSonica, Taiwan
- EyeTechCare, France
- INSIGHTEC LTD, Israel
- Kona Medical, US
- Mirabilis Medical, US
- Profound Medical, Canada
- Shanghai A&S, China
- Shenzhen PRO-HIFU Medical Tech Co., China
- SonaCare Medical, LLC, US
- Theraclion, France
- Wuxi Haiying Medical, China

First Global Regulatory Approval for Companies by Indication



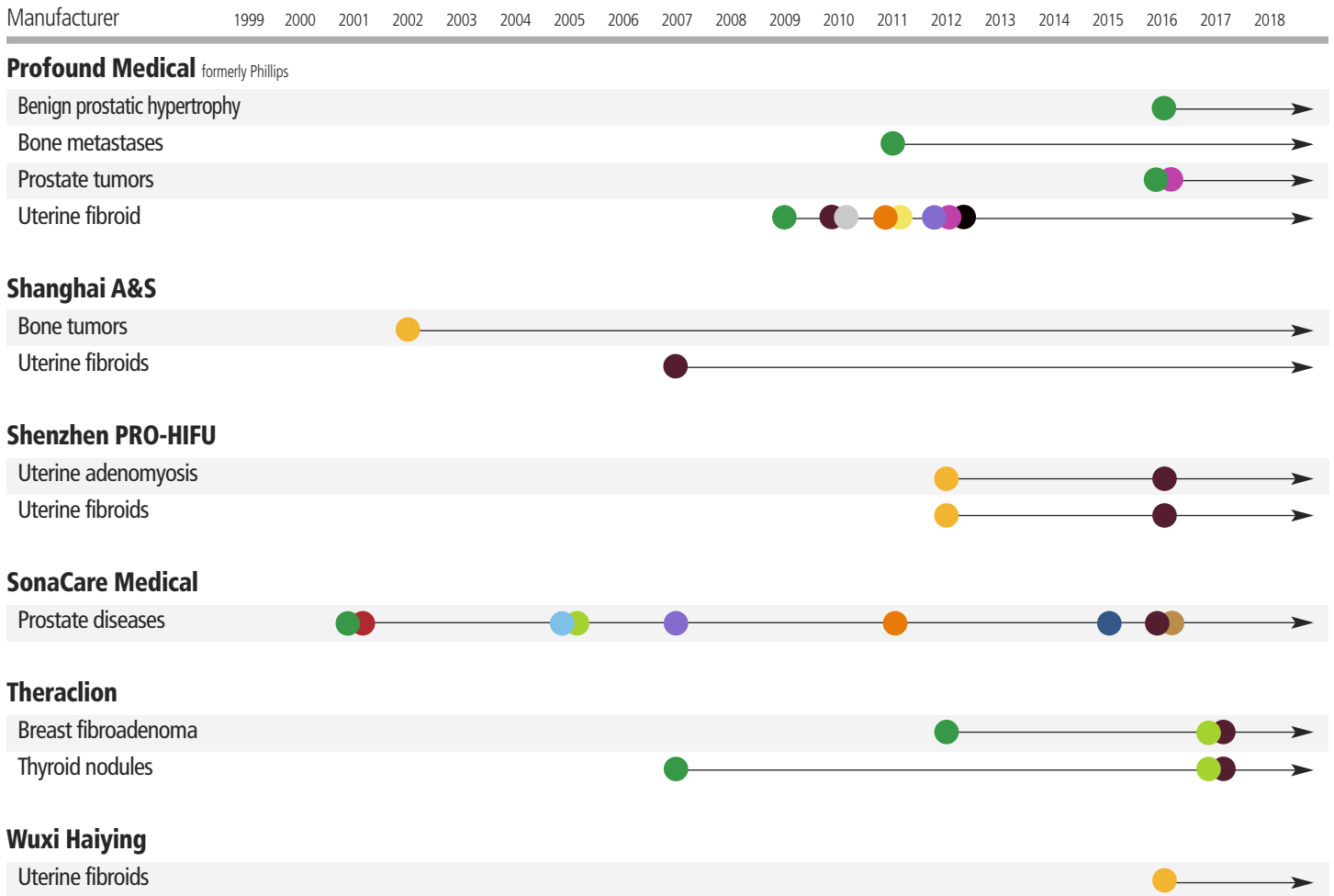
First Global Regulatory Approval for Companies by Indication continued



Regions

- | | | | |
|-------------------------|--------------------------|----------------|----------------|
| North America | Europe | Asia | |
| ● United States, FDA | ● Europe, CE Mark | ● China, CFDA | ● Malaysia |
| ● Canada, Health Canada | ● Russia, Roszdravnadzor | ● India, CDSCO | ● Taiwan, MFDS |
| | | ● Indonesia | ● Vietnam |
| ● South America | ● Oceania | ● Japan, MHLW | |
| | | ● Korea, MFDS | |
| | | ● Middle East | |
- *Obsessive-compulsive disorder

First Global Regulatory Approval for Companies by Indication continued



Regions

- | | | | |
|-------------------------|--------------------------|----------------|---------------|
| North America | Europe | Asia | |
| ● United States, FDA | ● Europe, CE Mark | ● China, CFDA | ● Malaysia |
| ● Canada, Health Canada | ● Russia, Roszdravnadzor | ● India, CDSCO | ● Taiwan MFDS |
| ● South America | ● Oceania | ● Indonesia | ● Vietnam |
| | | ● Japan, MHLW | |
| | | ● Korea, MFDS | |
| | | ● Middle East | |

Contact Information for Commercially Approved Manufacturers

Alpinion Medical Systems

Seoul, Korea
www.alpinion.com

Beijing Yuande Bio-Medical Engineering

Beijing, China
www.yuande.com

Chongqing Haifu 海富 Medical Technology Co., LTD

Chongqing, China
www.haifu.com.cn/en_index.asp

EDAP TMS S.A

Vaulx-en-Velin, France
www.edap-tms.com

EpiSonica

Hsichu City, Taiwan
www.episonica.com

EyeTechCare

Rillieux-la-Pape, France
www.eyetechcare.com/en/

INSIGHTEC LTD

Tirat Carmel, Israel
www.insightec.com

Kona Medical

Bellevue, Washington
www.konamedical.com

Mirabilis Medical

Bothell, Washington
www.mirabilismedical.com

Profound Medical Inc.

Mississauga, Canada
www.profoundmedical.com

Shanghai A&S Co., LTD

Shanghai, China
www.aishen.com.cn/english/

Shenzhen PRO-HIFU Medical Tech. Co., LTD

Shenzhen, China
en.pro-hifu.com/index.html

SonaCare Medical, LLC

Charlotte, North Carolina
www.sonacaremedical.com

Theraclion

Malakoff, France
www.theraclion.com

Wuxi Haiying Medical

Wuxi, China
www.haiyingmedical.com.cn

FUS Partners

FUS Partners is a new program created by the Foundation to foster relationships among manufacturers seeking financing, partnerships, and technology transfer from academic research institutions.

The program aims to systematize and formalize activities in which the Foundation has been engaging on an increasingly frequent ad hoc basis.

FUS Partners will provide the following services:

- Seek to understand the financing and partnership goals of FUS manufacturers and investors
- Connect manufacturers with both investors and other manufacturers
- Assist with due diligence to facilitate investments, mergers, acquisitions, partnerships and technology transfer.

So that we can:

- Produce quantum change in the rate of FUS adoption as a mainstream standard of care
- Grow and rationalize the device manufacturers segment of the FUS community by providing capital and expertise
- Facilitate the consolidation of the industry when appropriate.

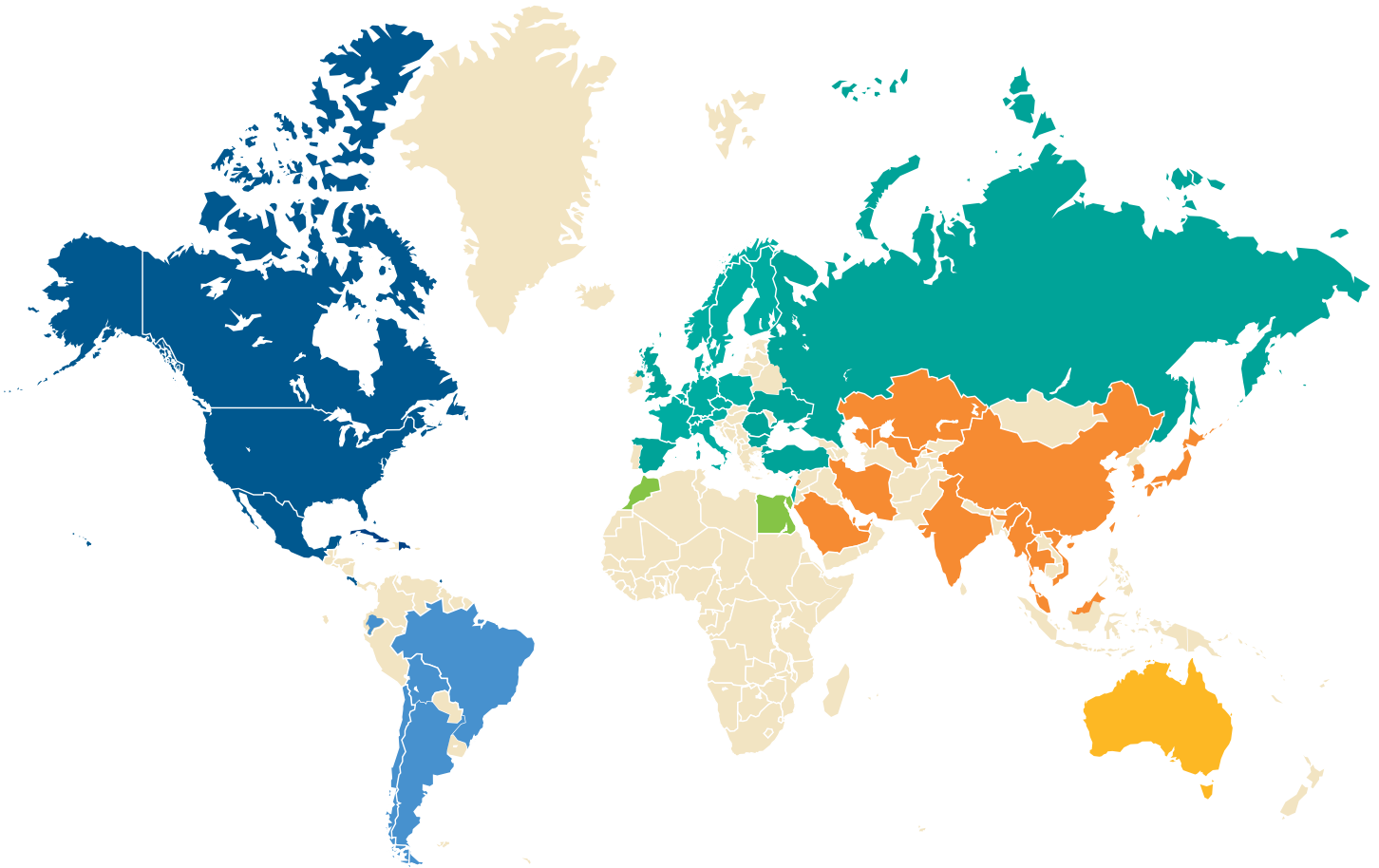
FUS Partners does not make investments or provide investment advice and does not serve as a broker or otherwise receive any compensation for services. FUS Partners will, however, encourage donations to the Foundation to grow the field and de-risk the investment and/or partnerships.

Commercial Treatment Sites by Region



Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

32 indications are being treated commercially at sites worldwide.



Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

North America

- 1 Bahamas
- 8 Canada
- 1 Costa Rica
- 1 Cuba
- 2 Dominican Republic
- 1 Grand Cayman
- 4 Mexico
- 1 Trinidad and Tobago
- 46 United States

South America

- 1 Argentina
- 1 Bolivia
- 4 Brazil
- 1 Chile
- 3 Ecuador

Europe

- 5 Austria
- 2 Belgium
- 1 Bulgaria
- 1 Denmark
- 1 Finland
- 71 France
- 55 Germany
- 5 Israel
- 41 Italy
- 1 Monaco
- 1 The Netherlands
- 2 Norway
- 4 Poland
- 2 Romania

- 29 Russia
- 8 Spain
- 2 Sweden
- 14 Switzerland
- 1 Turkey
- 1 Ukraine
- 13 United Kingdom

Asia

- 134 China
- 8 India
- 1 Iran
- 40 Japan
- 1 Kazakhstan
- 1 Lebanon
- 1 Malaysia
- 1 Myanmar
- 2 Qatar
- 21 Republic of Korea
- 2 Saudi Arabia
- 1 Singapore
- 19 Taiwan
- 2 Thailand
- 1 United Arab Emirates
- 1 Uzbekistan
- 2 Vietnam

Oceania

- 2 Australia

Africa

- 2 Egypt
- 1 Morocco

Indication Master Key

32 indications are being treated commercially at sites worldwide.

<p>Cardiovascular</p> <ul style="list-style-type: none"> + Arteriovenous malformations <p>Endocrine Disorders</p> <ul style="list-style-type: none"> ▲ Thyroid nodules <p>Gastrointestinal</p> <ul style="list-style-type: none"> ✦ Biliary tract cancer ✦ Liver tumors ✦ Pancreatic tumors <p>Miscellaneous</p> <ul style="list-style-type: none"> ✘ Multiple tumors 	<p>Musculoskeletal</p> <ul style="list-style-type: none"> ✦ Arthritis ✦ Arthritis - facetogenic ✦ Bone metastases ✦ Bone tumors ✦ Osteoid osteoma ✦ Soft tissue tumors <p>Neurological</p> <ul style="list-style-type: none"> ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Holmes tremor ■ Multiple sclerosis ■ Neuropathic pain ■ Parkinson's disease ■ Trigeminal neuralgia 	<p>Oncological</p> <ul style="list-style-type: none"> ● Biliary tract cancer ● Bladder tumors ● Bone metastases ● Bone metastases ● Breast cancer ● Endometrial tumors ● Kidney tumors ● Liver metastases ● Liver tumors ● Multiple tumors ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors 	<p>Ophthalmological</p> <ul style="list-style-type: none"> ✦ Glaucoma <p>Pain</p> <ul style="list-style-type: none"> ▼ Arthritis ▼ Arthritis - facetogenic ▼ Bone metastases ▼ Neuropathic pain ▼ Osteoid osteoma <p>Pediatrics</p> <ul style="list-style-type: none"> ✦ Bone metastases ✦ Epilepsy ✦ Multiple tumors ✦ Osteoid osteoma ✦ Soft tissue tumors 	<p>Urological</p> <ul style="list-style-type: none"> ◆ Benign prostatic hyperplasia ◆ Bladder tumors ◆ Kidney stone fragmentation ◆ Kidney tumors ◆ Prostate cancer <p>Women's Health</p> <ul style="list-style-type: none"> ✦ Breast cancer ✦ Breast fibroadenoma ✦ Endometrial tumors ✦ Uterine adenomyosis ✦ Uterine fibroids
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Clinical research sites are any site treating patients as part of a clinical study.

Commercial Treatment Sites by Indication and Region

Indications	Region						Totals
	N. America	Europe	Asia	S. America	Africa	Oceania	
✚ Arteriovenous malformations	1	–	–	–	–	–	1
☆▼ Arthritis	1	1	1	–	–	1	4
☆▼ Arthritis - facetogenic	1	1	1	–	–	1	4
◆ Benign prostatic hyperplasia	33	10	26	1	–	–	70
✿● Biliary tract tumor	–	1	–	–	–	–	1
◆● Bladder tumors	1	–	–	–	–	–	1
☆●▼* Bone metastases	5	14	5	1	–	1	26
☆ Bone tumors	2	2	1	–	–	1	6
✿● Breast cancer	1	11	89	–	–	–	101
✿ Breast fibroadenoma	–	14	2	–	1	–	17
■ Dystonia	–	1	–	–	–	–	1
✿● Endometrial tumors	–	–	1	–	–	–	1
■* Epilepsy	–	1	–	–	–	–	1
■ Essential tremor	11	10	5	–	–	–	26
✿ Glaucoma	–	17	–	–	–	–	17
■ Holmes tremor	–	1	–	–	–	–	1
◆ Kidney stone fragmentation	–	1	–	–	–	–	1
●◆ Kidney tumors	1	9	88	–	–	–	98
● Liver metastases	–	1	1	–	–	–	2
✿● Liver tumors	1	10	89	–	–	–	100
■ Multiple sclerosis	–	1	–	–	–	–	1
✗●* Multiple tumors	–	2	–	–	–	–	2
■▼ Neuropathic pain	–	3	–	–	–	–	3
☆●▼* Osteoid osteoma	2	9	88	–	–	1	100
✿● Pancreatic tumors	–	3	2	–	–	–	5

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

Commercial Treatment Sites by Indication and Region *continued*

Indications	Region						Totals
	N. America	Europe	Asia	S. America	Africa	Oceania	
 Parkinson's disease	–	8	–	–	–	–	8
  Prostate cancer	47	183	31	9	2	–	272
   Soft tissue tumors	2	9	89	–	–	1	101
 Thyroid nodules	–	9	2	–	1	–	12
 Trigeminal neuralgia	–	1	–	–	–	–	1
 Uterine adenomyosis	2	4	58	–	–	1	65
 Uterine fibroids	13	45	178	1	–	2	239

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

65 North America

Sites by Region

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Canada												
Can-Am HIFU							●				◆◆	
Cleveland Clinic Canada							●				◆◆	
Don Mills Surgical Unit							●				◆	
Jewish General Hospital							●				◆	
Les Cours Medical Centre							●				◆	
London Health Sciences Centre							●				◆	
Sunnybrook Health Sciences Centre†						■						
University of Western Ontario							●				◆	
United States												
Alamance Urological							●				◆◆	
Associated Urology of North Carolina							●				◆◆	
Brigham and Women's Hospital†						■						✿
California HIFU							●				◆◆	
Carolina Urology Partners							●				◆◆	
Comprehensive Urology							●				◆◆	
Duke Health Center at Southpoint												✿
Encino HIFU							●				◆◆	
Fairfax Urology Center							●				◆◆	
First Urology							●				◆◆	
Fox Chase Cancer Center					★		●		▼	*		

Region

North America*
South America*

Cardiovascular

✦ Arteriovenous malformations

Gastrointestinal

✦ Liver tumors

Musculoskeletal

- ★ Arthritis
- ★ Arthritis - facetogenic
- ★ Bone metastases
- ★ Bone tumors
- ★ Osteoid osteoma
- ★ Soft tissue tumors

Neurological

■ Essential tremor

Oncological

- Bladder tumors
- Bone metastases
- Breast cancer
- Kidney tumors
- Liver tumors
- Osteoid osteoma
- Prostate cancer
- Soft tissue tumors

Pain

- ▼ Arthritis
- ▼ Arthritis - facetogenic
- ▼ Bone metastases
- ▼ Osteoid osteoma

Pediatrics

- * Bone metastases
- * Osteoid osteoma
- * Soft tissue tumors

Urological

- ◆ Benign prostatic hyperplasia
- ◆ Bladder tumors
- ◆ Kidney tumors
- ◆ Prostate cancer

Women's Health

- ✿ Breast cancer
- ✿ Uterine adenomyosis
- ✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

†Center of Excellence

Commercial Treatment Sites, North America continued

United States continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Georgia Urology							●				◆◆	
Health Orlando							●				◆◆	
Houston Premier Urology							●				◆◆	
Kar Urology							●				◆◆	
Mayo Clinic - Minnesota					☆	■						✿✿
Medical College of Wisconsin Froedtert Hospital					☆		●		▼	*		
New York Methodist Hospital							●				◆◆	
New York University - Langone Medical Center							●				◆◆	
Northern Litho							●				◆◆	
Ohio State University						■						
Penn Medicine						■						
Piedmont Healthcare Urology							●				◆◆	
Prostate Cancer Institute							●				◆◆	
Riverside Urology							●				◆◆	
San Fernando Valley Urology Associates							●				◆◆	
Sarasota Prostate Care							●				◆◆	
Scionti Prostate Center							●				◆◆	
Skyline Urology							●				◆◆	
Sperling Medical Group					☆☆☆	■	●●		▼▼▼	*	◆	

Region

North America*
South America*

Cardiovascular

✦ Arteriovenous malformations

Gastrointestinal

✦ Liver tumors

Musculoskeletal

☆ Arthritis
☆☆ Arthritis - facetogenic
☆☆ Bone metastases
☆☆ Bone tumors
☆☆ Osteoid osteoma
☆☆ Soft tissue tumors

Neurological

■ Essential tremor

Oncological

● Bladder tumors
● Bone metastases
● Breast cancer
● Kidney tumors
● Liver tumors
● Osteoid osteoma
● Prostate cancer
● Soft tissue tumors

Pain

▼ Arthritis
▼ Arthritis - facetogenic
▼ Bone metastases
▼ Osteoid osteoma

Pediatrics

* Bone metastases
* Osteoid osteoma
* Soft tissue tumors

Urological

◆ Benign prostatic hyperplasia
◆ Bladder tumors
◆ Kidney tumors
◆ Prostate cancer

Women's Health

✿ Breast cancer
✿ Uterine adenomyosis
✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, North America continued

United States continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Stanford University School of Medicine†	+				☆ ☆ ☆ ★	■	● ● ● ●		▼ ▼	* * *	◆	✿
Swedish Neuroscience Institute												
Texas HIFU Partners							●				◆ ◆	
University MRI & Diagnostic Imaging Centers - South												✿ ✿
University of California Los Angeles												✿
University of California San Diego Thornton Hospital						■						✿
University of California San Francisco					☆		●		▼	*		✿
University of Miami Hospital							●				◆ ◆	
University of Southern California Keck Hospital							●				◆ ◆	
University of Virginia Health System†												✿
Urology Center of Winter Park							●				◆ ◆	
Urology of Mount Dora							●				◆ ◆	
Urology Specialists of the Carolinas							●				◆	
Virginia HIFU							●				◆ ◆	
Weill Cornell Medical Center						■						✿
Western States HIFU							●				◆ ◆	
Bahamas												
Doctors Hospital							●				◆	
Costa Rica												
Hospital CIMA San Jose							●				◆	
Cuba												
Hospital Medical Surgical Research Center (CIMEQ)		✿			☆ ★		● ● ● ● ●		▼	* *	◆	✿ ✿

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.
†Center of Excellence

Commercial Treatment Sites, North America continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Dominican Republic												
CEDIMAT							●				◆	
Clinica Union Medica							●				◆	
Grand Cayman												
Hospital CIMA San Jose							●				◆	
Mexico												
Centro Médico Puerta de Hierro							●				◆	
Hospital Galenia							●				◆	
Medica Sur Tlalpan												✿
San Javier Hospital Marina							●				◆	✿
Trinidad and Tobago												
Trinidad Urology Center							●				◆◆	

Region

North America*
South America*

Cardiovascular

✦ Arteriovenous malformations

Gastrointestinal

✿ Liver tumors

Musculoskeletal

✦ Arthritis
✦ Arthritis - facetogenic
✦ Bone metastases
✦ Bone tumors
✦ Osteoid osteoma
✦ Soft tissue tumors

Neurological

■ Essential tremor

Oncological

● Bladder tumors
● Bone metastases
● Breast cancer
● Kidney tumors
● Liver tumors
● Osteoid osteoma
● Prostate cancer
● Soft tissue tumors

Pain

▼ Arthritis
▼ Arthritis - facetogenic
▼ Bone metastases
▼ Osteoid osteoma

Pediatrics

✦ Bone metastases
✦ Osteoid osteoma
✦ Soft tissue tumors

Urological

◆ Benign prostatic hyperplasia
◆ Bladder tumors
◆ Kidney tumors
◆ Prostate cancer

Women's Health

✿ Breast cancer
✿ Uterine adenomyosis
✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

10 South America

Sites by Region

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Argentina												
Centro de Urologia							●				◆	
Boliva												
Centro de urología avanzada de la Clínica Incor							●				◆	
Brazil												
Centro de Prostata San Paulo							●				◆	
Hospital AC Camargo de São Paulo							●				◆	
Hospital Nossa Senhora das Gracias							●				◆◆	
Instituto do Cancer do Estado de Sao Paulo												✿
Chile												
Clinica Santa Maria							●				◆	
Ecuador												
Hospital Carlos Andrade Marin							●				◆	
Hospital IESS							●				◆	
Hospital Policia Nacional Guayaquil							●				◆	

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

262 Europe

Sites by Region

Region	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Austria												
Allgemeines Krankenhaus der Stadt Wien							●				◆	
Barmherzige Brüder												✿
Krankenhaus der Barmherzigen Brüder Wien												✿
TILAK Landeskrankenhaus Hall							●				◆	
University of Vienna					★		●		▼	*		✿
Belgium												
Algemeen Ziekenhuis Middelheim							●				◆	
Institut Jules Bordet							●				◆	
Bulgaria												
Saint Marina Hospital			✿✿		★		●●●●		▼	*✿	◆	✿✿✿
Denmark												
Aarhus University Hospital					★		●		▼	*		✿
Finland												
Turku University Hospital							●				◆	✿

Region
Europe*

Endocrine Disorders

▲ Thyroid nodules

Gastrointestinal

✿ Biliary tract cancer

✿ Liver tumors

✿ Pancreatic tumors

Miscellaneous

✗ Multiple tumors

Musculoskeletal

★ Arthritis

★ Arthritis - facetogenic

★ Bone metastases

★ Bone tumors

★ Osteoid osteoma

★ Soft tissue tumors

Neurological

■ Dystonia

■ Epilepsy

■ Essential tremor

■ Holmes tremor

■ Multiple sclerosis

■ Neuropathic pain

■ Parkinson's disease

■ Trigeminal neuralgia

Oncological

● Biliary tract cancer

● Bone metastases

● Breast cancer

● Kidney tumors

● Liver metastases

● Liver tumors

● Multiple tumors

● Osteoid osteoma

● Pancreatic tumors

● Prostate cancer

● Soft tissue tumors

Ophthalmological

* Glaucoma

Pain

▼ Arthritis

▼ Arthritis - facetogenic

▼ Bone metastases

▼ Neuropathic pain

▼ Osteoid osteoma

Pediatrics

* Bone metastases

* Epilepsy

* Multiple tumors

* Osteoid osteoma

* Soft tissue tumors

Urological

◆ Benign prostatic hyperplasia

◆ Kidney stone fragmentation

◆ Kidney tumors

◆ Prostate cancer

Women's Health

✿ Breast cancer

✿ Breast fibroadenoma

✿ Uterine adenomyosis

✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, Europe continued

France	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
American Hospital of Paris												✿
Centre Hospitalier de Chambéry							●				◆	
Centre Hospitalier de Saintonge							●				◆	
Centre Hospitalier du Pays d'Aix							●				◆	
Centre Hospitalier Nord de Marseille - CHU							●				◆	
Centre Hospitalier Universitaire de Caen							●				◆	
CH Pontoise - Hôpital Rene Dubos							●				◆	
CHU de Bordeaux - Hôpital du Tondu							●				◆	
CHU de Guadeloupe - Hôpital les Abymes							●				◆	
CHU de Lille - Hôpital Huriez							●				◆	✿
CHU de Limoges - Hôpital Dupuytren							●				◆	
CHU de Nice - Hôpital Pasteur							●				◆	
CHU de Reims - Hôpital Robert Debré							●				◆	
CHU de Rouen - Hôpital Charles Nicolle							●				◆	
CHU de Strasbourg - Hôpital Civil							●				◆	
CHU de Toulouse - Hôpital Rangueil							●				◆	
CHU de Tours - Hôpital Bretonneau												✿
CHU Lapeyronie								*				
Clinique Adassa							●				◆	
Clinique Aguilera								*				
Clinique Beau Soleil							●				◆	
Clinique Belledonne							●				◆	
Clinique Chirurgicale du Pre							●				◆	
Clinique Clément Devron							●				◆	
Clinique de l'Union							●				◆	
Clinique du Palais							●				◆	
Clinique du Val d'Ouest							●				◆	
Clinique François Chénieux								*				
Clinique Juge								*				
Clinique Mathilde								*				
Clinique Pasteur								*				
Clinique Saint Augustin							●				◆	

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

Commercial Treatment Sites, Europe continued

France continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Clinique Saint Etienne - Bayonne							●				◆	
Clinique Saint Jean - Montpellier							●				◆	
Clinique Saint Jean de Dieu							●				◆	
Clinique Saint Jean du Languedoc							●				◆	
Clinique Saint Nicolas								*				
Clinique Saint Vincent							●				◆	
Clinique Saint-Michel							●				◆	
Clinique Sainte Clotilde - La Réunion							●				◆	
Clinique Sourdille								*				
Clinique Urologique Nantes Atlantis							●				◆	
Clinique Villette							●				◆	
Fondation Hôpital Saint-Joseph - Marseille							●	*			◆	
Groupe Hospitalier Diaconesses Croix Saint-Simon												✿
Groupe Hospitalier Privé Saint Joseph - Paris							●				◆	
Hôpital A. Michallon								*				
Hôpital Bégin								*				

Region Europe*

Endocrine Disorders

▲ Thyroid nodules

Gastrointestinal

✦ Biliary tract cancer

✦ Liver tumors

✦ Pancreatic tumors

Miscellaneous

✦ Multiple tumors

Musculoskeletal

✦ Arthritis

✦ Arthritis - facetogenic

✦ Bone metastases

✦ Bone tumors

✦ Osteoid osteoma

✦ Soft tissue tumors

Neurological

■ Dystonia

■ Epilepsy

■ Essential tremor

■ Holmes tremor

■ Multiple sclerosis

■ Neuropathic pain

■ Parkinson's disease

■ Trigeminal neuralgia

Oncological

● Biliary tract cancer

● Bone metastases

● Breast cancer

● Kidney tumors

● Liver metastases

● Liver tumors

● Multiple tumors

● Osteoid osteoma

● Pancreatic tumors

● Prostate cancer

● Soft tissue tumors

Ophthalmological

* Glaucoma

Pain

▼ Arthritis

▼ Arthritis - facetogenic

▼ Bone metastases

▼ Neuropathic pain

▼ Osteoid osteoma

Pediatrics

* Bone metastases

* Epilepsy

* Multiple tumors

* Osteoid osteoma

* Soft tissue tumors

Urological

◆ Benign prostatic hyperplasia

◆ Kidney stone fragmentation

◆ Kidney tumors

◆ Prostate cancer

Women's Health

✿ Breast cancer

✿ Breast fibroadenoma

✿ Uterine adenomyosis

✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, Europe continued

France continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Hôpital Claude Huriez								*				
Hôpital Clinique Claude Bernard - Metz							●				◆	
Hôpital de la Croix-Rousse								*				
Hôpital des Quinze-Vingts								*				
Hôpital Edouard Herriot							●				◆	
Hôpital Foch							●				◆	
Hôpital privé La Louvière							●				◆	
Hôpital Privé Oceane							●				◆	
Hôpitaux Civils de Colmar Hôpital Pasteur							●				◆	
Inserm Lyon†							●	*			◆◆	
Institut de Radiologie de Paris		▲										✿
Institut Mutualiste Montsouris							●				◆	
Pôle Santé Léonard de Vinci							●				◆	
Pôle Santé République							●				◆	
Polyclinique Bordeaux Nord Aquitaine							●				◆	
Polyclinique Côte Basque Sud								*				
Polyclinique du Parc Rambot							●				◆	
Polyclinique Jean Villar												✿
Polyclinique Kenval							●				◆	
Polyclinique Medipole Saint Roch							●				◆	
Polyclinique Montréal							●				◆	
Polyclinique Ormeaux République							●				◆	
Polyclinique Vauban							●				◆	
Germany												
Agaplesion Diakoniekrankenhaus Rotenburg							●				◆	
Amper Klinik												✿
Asklepios Klinik Barmbek							●				◆	
Asklepios Kliniken Weissenfels-Hohenmöelsen GmbH							●				◆	
Asklepios Paulinen Klinik							●				◆	
Borad Zentrale Bottrop		▲										✿

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.
 †Center of Excellence

Commercial Treatment Sites, Europe continued

Germany continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Bremen Zentrum für Nuklearmedizin und PET/CT		▲										✿
Brustzentrum Marienhospital Bottrop												✿ ✿
Bürgerhospital Frankfurt		▲										✿
Charité Universitätsmedizin Berlin							●				◆	✿
Diagnoseklinik Stephansplatz												✿
Diakonie-Klinikum Stuttgart							●				◆	
Ev. Krankenhaus Göttingen-Weende e.V.							●				◆	
Franziskus-Krankenhaus							●				◆	
Gemeinschaftspraxis für Urologie Mannheim							●				◆	
GPR Gesundheits-und Pflegezentrum Russelsheim gGmbH-Klinikum							●				◆	
Heilig-Geist Hospital							●				◆	
HELIOS Klinik Schkeuditz		▲										✿
Isarklinikum							●				◆	
Klinik und Poliklinik für Urologie der Universitaet Regensburg am Caritaskrankenhaus St. Josef							●				◆	

Region Europe*

Endocrine Disorders

▲ Thyroid nodules

Gastrointestinal

✿ Biliary tract cancer

✿ Liver tumors

✿ Pancreatic tumors

Miscellaneous

✗ Multiple tumors

Musculoskeletal

✿ Arthritis

✿ Arthritis - facetogenic

✿ Bone metastases

✿ Bone tumors

✿ Osteoid osteoma

✿ Soft tissue tumors

Neurological

■ Dystonia

■ Epilepsy

■ Essential tremor

■ Holmes tremor

■ Multiple sclerosis

■ Neuropathic pain

■ Parkinson's disease

■ Trigeminal neuralgia

Oncological

● Biliary tract cancer

● Bone metastases

● Breast cancer

● Kidney tumors

● Liver metastases

● Liver tumors

● Multiple tumors

● Osteoid osteoma

● Pancreatic tumors

● Prostate cancer

● Soft tissue tumors

Ophthalmological

* Glaucoma

Pain

▼ Arthritis

▼ Arthritis - facetogenic

▼ Bone metastases

▼ Neuropathic pain

▼ Osteoid osteoma

Pediatrics

✿ Bone metastases

✿ Epilepsy

✿ Multiple tumors

✿ Osteoid osteoma

✿ Soft tissue tumors

Urological

◆ Benign prostatic hyperplasia

◆ Kidney stone fragmentation

◆ Kidney tumors

◆ Prostate cancer

Women's Health

✿ Breast cancer

✿ Breast fibroadenoma

✿ Uterine adenomyosis

✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, Europe continued

Germany continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Klinikum Fürth							●				◆	
Klinikum Itzehoe							●				◆	
Klinikum Landshut gGmbH							●				◆	
Klinikum Nürnberg							●				◆	
Klinikum Region Hannover - Gehrden							●				◆	
Klink fuer Prostata-Therapie GmbH							●				◆	
Krankenhaus Dresden-Friedrichstadt							●				◆	
Krankenhaus Nordwest				✘	★ ★		●		▼ ▼	*		
KRH Klinikum Grossburgwedel							●				◆	
Marienhospital Stuttgart												✿
Missionsärztliche Klinik gGmbH							●				◆	
Paracelsus Klinik Reichenbach GmbH							●				◆	
Praxis für Urologie Mannheim							●				◆	
Praxis für Nuklearmedizin Paderborn		▲										
Radiologische Gemeinschaftspraxis												✿
Sankt Katharinen Krankenhaus							●				◆	
St. Antonius-Hospital							●				◆	
St. Barbara Hospital							●				◆	
St. Elisabeth-Krankenhaus Koeln-Hohenlind							●				◆	
St. Elisabeth-Krankenhaus Leipzig							●				◆	
St.-Josefs-Hospital GmbH							●				◆	
Staedtisches Klinikum München							●				◆	
Therisienkrankenhaus Mannheim							●				◆	
Universitäres Herzzentrum Hamburg GmbH							●				◆	
Universitätsklinikum Aachen							●				◆	
Universitätsmedizin Mannheim							●				◆	
University Hospital of Cologne					★ ★		● ●		▼ ▼	*	◆	✿ ✿
University Hospital of Leipzig							●				◆	✿
University Medical Center Lubeck												✿
University of Munich												✿
Urologie Oberkassel							●				◆	
Urologische Universitätsklinik Heidelberg							●				◆	

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

Commercial Treatment Sites, Europe continued

Germany continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Urologische Universitätsklinik Magdeburg							●				◆	
Urologisches Zentrum Neustadt							●				◆	
Zentralklinik Bad Berka					★		●		▼	*		✿

Israel	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Chaim Sheba Medical Center					★	■	●		▼	*		✿
Israel HIFU Ltd.							●				◆◆	
Normed							●				◆◆	
Ramat Aviv Medical Center							●				◆◆	
Rambam Medical Center						■□						

Italy	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Alliance Medical, Italy							●				◆	
Arco dell'Angelo							●				◆◆	
Azienda Ospedaliera 'Di Venere - Giovanni XXIII'							●				◆	
Azienda Ospedaliera A. Cardarelli							●				◆	
Azienda Ospedaliera S.Maria degli Angeli							●				◆	

Region Europe*

Endocrine Disorders

▲ Thyroid nodules

Gastrointestinal

✿ Biliary tract cancer

✿ Liver tumors

✿ Pancreatic tumors

Miscellaneous

✗ Multiple tumors

Musculoskeletal

★ Arthritis

★ Arthritis - facetogenic

★ Bone metastases

★ Bone tumors

★ Osteoid osteoma

★ Soft tissue tumors

Neurological

■ Dystonia

■ Epilepsy

■ Essential tremor

■ Holmes tremor

■ Multiple sclerosis

■ Neuropathic pain

■ Parkinson's disease

■ Trigeminal neuralgia

Oncological

● Biliary tract cancer

● Bone metastases

● Breast cancer

● Kidney tumors

● Liver metastases

● Liver tumors

● Multiple tumors

● Osteoid osteoma

● Pancreatic tumors

● Prostate cancer

● Soft tissue tumors

Ophthalmological

* Glaucoma

Pain

▼ Arthritis

▼ Arthritis - facetogenic

▼ Bone metastases

▼ Neuropathic pain

▼ Osteoid osteoma

Pediatrics

* Bone metastases

* Epilepsy

* Multiple tumors

* Osteoid osteoma

* Soft tissue tumors

Urological

◆ Benign prostatic hyperplasia

◆ Kidney stone fragmentation

◆ Kidney tumors

◆ Prostate cancer

Women's Health

✿ Breast cancer

✿ Breast fibroadenoma

✿ Uterine adenomyosis

✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, Europe continued

United Kingdom continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthal-mological	Pain	Peds	Urological	Women's Health
Nuada Urology London							●				◆	
Princess Grace Hospital							●				◆	
Spire Parkway Hospital							●				◆	
St. Mary's Hospital						■ ■						✿
The Cromwell Hospital							●				◆	
The Priory Hospital							●				◆	
The Winterbourne Hospital							●				◆	
University College London Hospitals							●				◆	

3 Africa
Sites by Region

Egypt	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthal-mological	Pain	Peds	Urological	Women's Health
EgyHiFu		▲										✿
Teachers Hospital - Cairo							●				◆	
Morocco							●				◆	
Hopital Militaire Med V.							●				◆	

2 Oceania
Sites by Region

Australia	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthal-mological	Pain	Peds	Urological	Women's Health
Future Medical Imaging Group					★ ★ ★ ★ ★ ★ ★ ★ ★ ★		● ● ● ● ● ● ● ● ● ●		▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼ ▼	✱ ✱ ✱ ✱ ✱ ✱ ✱ ✱ ✱ ✱		✿ ✿
Royal Women's Hospital Melbourne												✿

Region Africa* Oceania*	Musculoskeletal ★ Arthritis ★ Arthritis - facetogenic ★ Bone metastases ★ Bone tumors ★ Osteoid osteoma ★ Soft tissue tumors	Oncological ● Bone metastases ● Osteoid osteoma ● Prostate cancer ● Soft tissue tumors Pain ▼ Arthritis	Arthritis - facetogenic ▼ Bone metastases ▼ Osteoid osteoma Pediatrics ✱ Bone metastases ✱ Osteoid osteoma ✱ Soft tissue tumors	Urological ◆ Prostate cancer Women's Health ✿ Uterine adenomyosis ✿ Uterine fibroids
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Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication. *Indications not being treated in a region have been removed from the key.

104 Asia**

Sites by Region

India	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Bharat Scans												🌸
Concept Medicare Pvt Ltd.												🌸
Jaslok Hospital and Research Centre					🌟🌟🌟 🌟		●●		▼▼▼	*	◆	🌸
Muljibhai Patel Urological Hospital							●				◆	
Rajiv Gandhi Cancer Research Hospital							●				◆	
SRL Diagnostics - Jankharia Imaging												🌸
Sunrise Hospital												🌸
Women's Center India												🌸

Iran	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Pirooz One Day Surgery Clinic							●				◆◆	

Japan	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Affiliated Hospital of Yokohama University			✿		🌟🌟		●●● ●●		▼	**	◆	🌸🌸
Aino Hospital											◆	
Aizu Chuo Hospital												🌸
Breastopia Namba Hospital							●					🌸🌸
Clinical E.T.			✿		🌟🌟		●●● ●●		▼	**	◆	🌸🌸
Fuji Kosei Hospital							●				◆◆	

Region
Asia*

Endocrine Disorders

- ▲ Thyroid nodules

Gastrointestinal

- ✿ Liver tumors
- ✿ Pancreatic tumors

Musculoskeletal

- 🌟 Arthritis
- 🌟 Arthritis - facetogenic
- 🌟 Bone metastases
- 🌟 Bone tumors
- 🌟 Osteoid osteoma
- 🌟 Soft tissue tumors

Neurological

- Essential tremor

Oncological

- Bone metastases
- Breast cancer
- Endometrial tumors
- Kidney tumors
- Liver metastases
- Liver tumors
- Osteoid osteoma
- Pancreatic tumors
- Prostate cancer
- Soft tissue tumors

Pain

- ▼ Arthritis
- ▼ Arthritis - facetogenic
- ▼ Bone metastases
- ▼ Osteoid osteoma

Pediatrics

- * Bone metastases
- * Osteoid osteoma
- * Soft tissue tumors

Urological

- ◆ Benign prostatic hyperplasia
- ◆ Kidney tumors
- ◆ Prostate cancer

Women's Health

- 🌸 Breast cancer
- 🌸 Breast fibroadenoma
- 🌸 Endometrial tumors
- 🌸 Uterine adenomyosis
- 🌸 Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

**China listed separately, see page 74.

Commercial Treatment Sites, Asia** continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Republic of Korea												
CHA Bundang Medical Center												✿
Chaum Hospital												✿
Dongtan Jeil Women's Hospital												✿
Echo Healthcare		▲					●				◆◆	✿
Gangnam St. Peter's Hospital												✿✿
Heryoojae Women's Hospital												✿
Hwamyong Ilsin Christian Hospital												✿
Hyosung Daegu Hospital												✿✿
I Jeil OBGY Clinic												✿
Incheon Christian Hospital			✿		✿✿		●●●●		▼	✿✿	◆	✿✿
Incheon St. Mary's Hospital of the Catholic University			✿		✿✿		●●●●		▼	✿✿	◆	✿✿
Jamsil Joeun Woman's Hospital												✿✿
Kohwoon Women's Hospital												✿
Kwons Women Clinic												✿✿
Medisum OBGY Clinic												✿
MINT Intervention Hospital												✿✿
Mizmoa Women's Clinic												✿
Samsung Medical Center												✿✿
Uijeongbu St. Peter's Hospital												✿✿
Yonsei University Health System												✿
YUMC Severance Hospital						■						
Saudi Arabia												
King Fahad Medical City			✿		✿✿		●●●●		▼	✿✿	◆	✿✿
King Khalid University Hospital			✿		✿✿		●●●●		▼	✿✿	◆	✿✿
Singapore												
KK Women and Children's Hospital												✿

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

**China listed separately, see page 74.

Commercial Treatment Sites, Asia** continued

Taiwan	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthal-mological	Pain	Peds	Urological	Women's Health
Cardinal Tien Hospital					☆		●		▼	*		✿
Cathay General Hospital							●				◆	
Chang Gung Memorial Hospital (Chiayi)							●				◆	
Chang Gung Memorial Hospital (Kaohsiung)							●				◆	
Chang Gung Memorial Hospital (Linkou)							●				◆	
Chang Gung Memorial Hospital (Taipei)							●				◆	
Changhua Christian Hospital							●				◆	
China Medical University Beigang Hospital							●				◆	
China Medical University Hospital							●				◆	
Dermacare		▲										✿
E-Da Hospital							●				◆	
Kaoshiung Veterans General Hospital							●				◆	
Mackay Memorial Hospital							●				◆	
National Defense Medical Center							●				◆	
New Taipei City Hospital Banciao Branch							●				◆	
New Taipei City Hospital Sanchong Branch							●				◆	
Show Chwan Memorial Hospital							●				◆	
Taichung Veterans General Hospital							●				◆	
Taipei Medical University Hospital					☆		●		▼	*		

Region Asia*

Endocrine Disorders

- ▲ Thyroid nodules

Gastrointestinal

- ✿ Liver tumors
- ✿ Pancreatic tumors

Musculoskeletal

- ☆ Arthritis
- ☆ Arthritis - facetogenic
- ☆ Bone metastases
- ☆ Bone tumors
- ☆ Osteoid osteoma
- ☆ Soft tissue tumors

Neurological

- Essential tremor

Oncological

- Bone metastases
- Breast cancer
- Endometrial tumors
- Kidney tumors
- Liver metastases
- Liver tumors
- Osteoid osteoma
- Pancreatic tumors
- Prostate cancer
- Soft tissue tumors

Pain

- ▼ Arthritis
- ▼ Arthritis - facetogenic
- ▼ Bone metastases
- ▼ Osteoid osteoma

Pediatrics

- * Bone metastases
- * Osteoid osteoma
- * Soft tissue tumors

Urological

- ◆ Benign prostatic hyperplasia
- ◆ Kidney tumors
- ◆ Prostate cancer

Women's Health

















- ✿ Breast cancer
- ✿ Breast fibroadenoma
- ✿ Endometrial tumors
- ✿ Uterine adenomyosis
- ✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

**China listed separately, see page 74.

Commercial Treatment Sites, Asia** continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Thailand												
Chularat 9 Airport Hospital							  					  
Samitivej Sukhumvit Hospital												
United Arab Emirates												
Al Zahra Hospital												
Uzbekistan												
Samarkand Urology Center											 	
Vietnam												
Bao Son Hospital												
Phuc An Khang Hospital												

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

**China listed separately, see page 74.

COMMERCIAL TREATMENT

134 China Sites by Province

Anhui	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Huaipei Peach Hospital												🌸
Huainan Eastern Hospital			🌸		🌟🌟		🟪🟩🟨 🟢🟡		▼	🌟🌟	◆	🌸🌸
Lu'an Civily Hospital												🌸🌸
The First Affiliated Hospital of Wannan Medical College			🌸		🌟🌟		🟪🟩🟨 🟢🟡		▼	🌟🌟	◆	🌸🌸

Beijing

Treatment centers for 6 indications	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
307 Hospital of PLA Beijing Cancer Hospital Beijing Hospital PLA 301 Hospital (General Hospital of the People's Liberation Army) The Second Artillery General Hospital of Chinese PLA			🌸		🌟🌟		🟪🟩🟨 🟢🟡		▼	🌟🌟	◆	🌸🌸

Treatment centers for other indications

Peking Union Medical Center												🌸
Peking University People's Hospital												🌸🌸

Binzhou

City Hospital of Bincheng District in Binzhou City			🌸		🌟🌟		🟪🟩🟨 🟢🟡		▼	🌟🌟	◆	🌸🌸
--	--	--	---	--	----	--	-----------	--	---	----	---	----

Region China*

Gastrointestinal

🌸 Liver tumors

Musculoskeletal

🌟 Osteoid osteoma

🌟 Soft tissue tumors

Oncological

🟪 Breast cancer

🟩 Kidney tumors

🟨 Liver tumors

🟢 Osteoid osteoma

🟡 Prostate cancer

🟠 Soft tissue tumors

Pain

▼ Osteoid osteoma

Pediatrics

🌟 Osteoid osteoma

🌟 Soft tissue tumors

Urological

◆ Kidney tumors

◆ Prostate cancer

Women's Health

🌸 Breast cancer

🌸 Uterine adenomyosis

🌸 Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, China continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Chongqing												
Treatment centers for 6 indications							 					
Children's Hospital of Chongqing Medical University Chongqing Three Gorges Central Hospital Fuling Center Hospital of Chongqing Haifu Hospital Institute of Ultrasonic Engineering in Medicine and Clinical Center for Tumor Therapy Kaixian People's Hospital Maternal and Child Health Hospital of Yubei District People's Hospital of Nanchuan District Yongchuan Maternal and Child Health Hospital												
Treatment centers for 2 indications												
Chongqing Jiangbei Hospital of Traditional Chinese Medicine Chongqing Kai County Maternal and Child Health Hospital Chongqing Tongliang County People's Hospital												
Daqing												
The Daqing Oil Field General Hospital Group							 					
Fujian												
Fuzhou Maternal and Child Health Hospital												
Fujian Provincial Hospital							 					
Gansu												
Jiugang Hospital							 					
Guangdong												
Treatment centers for 6 indications							 					
Jiangmen Wuyi Traditional Chinese Medicine Hospital Nong Ken Hospital Shenzhen Maternal and Child Health Center Hospital Sun Yat-Sen University Cancer Center												

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

COMMERCIAL TREATMENT

Commercial Treatment Sites, China continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Guangdong continued												
Treatment centers for 2 indications												🌸🌸
Dongguan Taiping People's Hospital First Affiliated Hospital of Jinan University Foshan Chancheng District Central Hospital Guangdong Maternal and Child Health Hospital Guangdong Provincial Hospital of Traditional Chinese Medicine No. 2 People's Hospital of Guangzhou Qingyuan Maternal and Child Health Hospital Southern Medical University												
Treatment centers for other indications												
Foshan Hospital							●				◆	
Guangxi												
First Affiliated Hospital of Guangxi Medical University			✿		☆★		●●●●		▼	**	◆	🌸🌸
Guangzhou												
Guangzhou First Municipal People's Hospital University			✿		☆★		●●●●		▼	**	◆	🌸🌸
Guiyang												
First People's Hospital of Guiyang												🌸🌸
Guizhou												
First Affiliated Hospital of Zunyi Medical College			✿		☆★		●●●●		▼	**	◆	🌸🌸🌸
Guizhou Province Hospital of Traditional Chinese Medicine												🌸🌸

Region
China*

Gastrointestinal

✿ Liver tumors

Musculoskeletal

☆ Osteoid osteoma
★ Soft tissue tumors

Oncological

● Breast cancer
● Kidney tumors
● Liver tumors
● Osteoid osteoma
● Prostate cancer
● Soft tissue tumors

Pain

▼ Osteoid osteoma

Pediatrics

* Osteoid osteoma
★ Soft tissue tumors

Urological

◆ Kidney tumors
◆ Prostate cancer

Women's Health

🌸 Breast cancer
🌸 Uterine adenomyosis
🌸 Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.
*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, China continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Hainan												
Haikou Municipal Hospital			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Hangzhou												
Xiaoshan Birth Control Station			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Hebei												
Treatment centers for 6 indications												
Guantao People's Hospital of Hebei Haifu Hospital of Tangshan Transportation Group Co. Ltd Huabei Oil Field General Hospital Group People's Hospital of Xingtai The First People's Hospital of Shijiazhuang The Second Affiliated Hospital Of Hebei Medical University												
Heilongjiang												
Jixi People's Hospital			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Henan												
Treatment centers for 6 indications												
Affiliated Hospital Of Xinxiang Medical College Dengfeng People's Hospital Luoyang Center Hospital No. 91 Central Hospital of the People's Liberation Army												
Treatment centers for 2 indications												
Henan Linying County Hospital of Traditional Chinese Medicine Kaifeng Tongxu County People's Hospital Ruzhou People's Hospital Zhengzhou Hospital of Traditional Chinese Medicine												

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

COMMERCIAL TREATMENT

Commercial Treatment Sites, China continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Huangyan												
Taizhou Huangyan District Hospital of Traditional Chinese Medicine												🌸🌸
Hubei												
Treatment centers for 6 indications			🌸		🌟🌟		🟠🟡🟢		▼	🌟🌟	◆	🌸🌸
Huanggang Center Hospital Hubei Maternal and Child Health Hospital												
Treatment centers for 2 indications												🌸🌸
Wuhan Puren Hospital Yichang No. 1 People's Hospital												
Hunan												
Treatment centers for 6 indications			🌸		🌟🌟		🟠🟡🟢		▼	🌟🌟	◆	🌸🌸
People's Hospital of Hunan Province The Third Xiangya Hospital of Central South University												
Treatment centers for 2 indications												🌸🌸
Yiyang Medical College Affiliated Hospital												

Region
China*

Gastrointestinal

🌸 Liver tumors

Musculoskeletal

🌟 Osteoid osteoma

🌟 Soft tissue tumors

Oncological

🟠 Breast cancer

🟡 Kidney tumors

🟢 Liver tumors

🟣 Osteoid osteoma

🟤 Prostate cancer

🟡 Soft tissue tumors

Pain

▼ Osteoid osteoma

Pediatrics

🌟 Osteoid osteoma

🌟 Soft tissue tumors

Urological

◆ Kidney tumors

◆ Prostate cancer

Women's Health

🌸 Breast cancer

🌸 Uterine adenomyosis

🌸 Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, China continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Jiangsu												
Treatment centers for 6 indications			✿		★ ☆		● ● ● ●		▼	★ ★	◆	✿ ✿
Jiangsu Armed Police Corps Hospital Jiangsu Cancer Hospital Lianyungang Orient Hospital												
Treatment centers for 2 indications												✿ ✿
First Affiliated Hospital of Nanjing Medical University Jiangsu Guanyun County People's Hospital												
Treatment centers for other indications												✿
Nanjing Medical University												
Jilin												
Treatment centers for 6 indications			✿		★ ☆		● ● ● ●		▼	★ ★	◆	✿ ✿
Jilin Center Hospital Obstetric Hospital of Changchun Yanbian Tianquan Hospital												
Treatment centers for 2 indications												✿ ✿
Baicheng Central Hospital Jilin Ganan County People's Hospital												
Qinghai												
Affiliated Hospital of Qinghai Medical College			✿		★ ☆		● ● ● ●		▼	★ ★	◆	✿ ✿
Qinghai Red Cross Hospital												✿ ✿
Shaanxi												
Treatment centers for 6 indications			✿		★ ☆		● ● ● ●		▼	★ ★	◆	✿ ✿
Baoji Maternal and Child Health Hospital Shaanxi Maternal and Child Health Hospital Xijing Hospital of The Fourth Military Medical University												

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

COMMERCIAL TREATMENT

Commercial Treatment Sites, China continued

Shaanxi continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Treatment centers for other indications												
First Affiliated Hospital of Medical College of Xi'an Jiaotong University												🌸
Xi'an Chang'an Hospital												🌸🌸

Shandong

Treatment centers for 6 indications	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Shandong Cancer Hospital Shandong Guangrao Traditional Chinese Medicine Hospital Shandong Qianfoshan Hospital Zibo Municipal Maternal & Children Health Hospital			🌸		🌟🌟		🟡🟢🟠 🟢🟠		▼	🌟🌟	◆	🌸🌸

Treatment centers for 2 indications	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Hezhe No. 2 People's Hospital Jinan Maternal and Child Health Hospital Tai'an Maternal and Child Health Hospital Weihai Central Hospital Zhangqiu Maternal and Child Health Hospital												🌸🌸

Region China*

Gastrointestinal

🌸 Liver tumors

Musculoskeletal

🌟 Osteoid osteoma

🌟 Soft tissue tumors

Oncological

🟡 Breast cancer

🟢 Kidney tumors

🟠 Liver tumors

🟢 Osteoid osteoma

🟢 Prostate cancer

🟠 Soft tissue tumors

Pain

▼ Osteoid osteoma

Pediatrics

🌟 Osteoid osteoma

🌟 Soft tissue tumors

Urological

◆ Kidney tumors

◆ Prostate cancer

Women's Health

🌸 Breast cancer

🌸 Uterine adenomyosis

🌸 Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

*Indications not being treated in a region have been removed from the key.

Commercial Treatment Sites, China continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Shanghai												
Treatment centers for 6 indications			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
First Maternal and Child Health Hospital of Shanghai Fudan University Shanghai Cancer Center The Tenth People's Hospital of Shanghai												
Treatment centers for 2 indications												✿ ✿
Fudan University Huashan Hospital Renji Hospital Shanghai Shuguang Hospital Zhongshan Guangji Hospital												
Treatment centers for other indications												✿
Shanghai Sixth People's Hospital												
Shanxi												
Shanxi Traditional Chinese Medicine Hospital			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Shanxi Zhouzhi County People's Hospital												✿ ✿
Shenzhen												
The Fourth People's Hospital of Shenzhen			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Sichuan												
Treatment centers for 6 indications			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Affiliated Hospital of Chuanbei Medical College Chengdu Shuangnan Hospital Daxian People's Hospital Fifth People's Hospital of Nanchong City Suining Central Hospital Suining Hospital of Traditional Chinese Medicine The 452nd PLA Hospital The Sixth People's Hospital of Neijiang West China Hospital, Sichuan University												

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

Commercial Treatment Sites, China continued

Region	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Tianjin												
Affiliated Hospital of Armed Police's Medical College			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Xinjiang												
Xinjiang Korla Hospital												✿ ✿
Yuanjiagang, Yuzhong												
The First Affiliated Hospital of Chongqin Medical University			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿
Yunnan												
First Affiliated Hospital of Kunming Medical University			✿		★ ☆		● ● ● ● ● ●		▼	★ ★	◆	✿ ✿ ✿
Qujing Qilin District People's Hospital												✿ ✿
Zhangjiang												
The Second Affiliated Hospital of Zhejiang University												✿ ✿
Zhejiang												
Jiaxing Maternal and Child Health Hospital												✿ ✿
Zhejiang Quhan Hospital												✿ ✿
Wenzhou Medical University												✿

Region
China*

Gastrointestinal

✿ Liver tumors

Musculoskeletal

★ Osteoid osteoma

☆ Soft tissue tumors

Oncological

● Breast cancer

● Kidney tumors

● Liver tumors

● Osteoid osteoma

● Prostate cancer

● Soft tissue tumors

Pain

▼ Osteoid osteoma

Pediatrics

★ Osteoid osteoma

☆ Soft tissue tumors

Urological

◆ Kidney tumors

◆ Prostate cancer

Women's Health

✿ Breast cancer

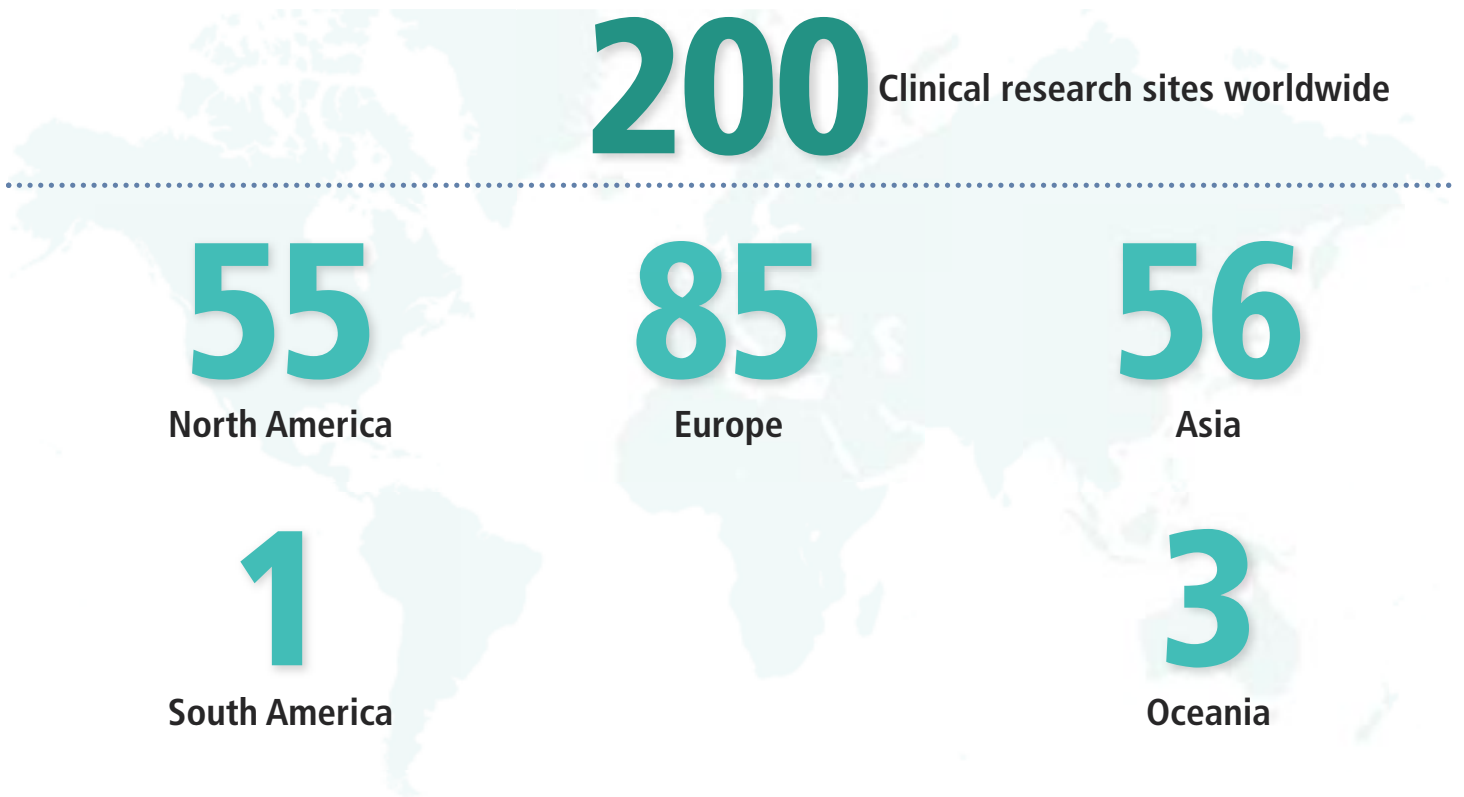
✿ Uterine adenomyosis

✿ Uterine fibroids

Commercial treatment sites provide treatment with a focused ultrasound system for a regulatory-approved indication.

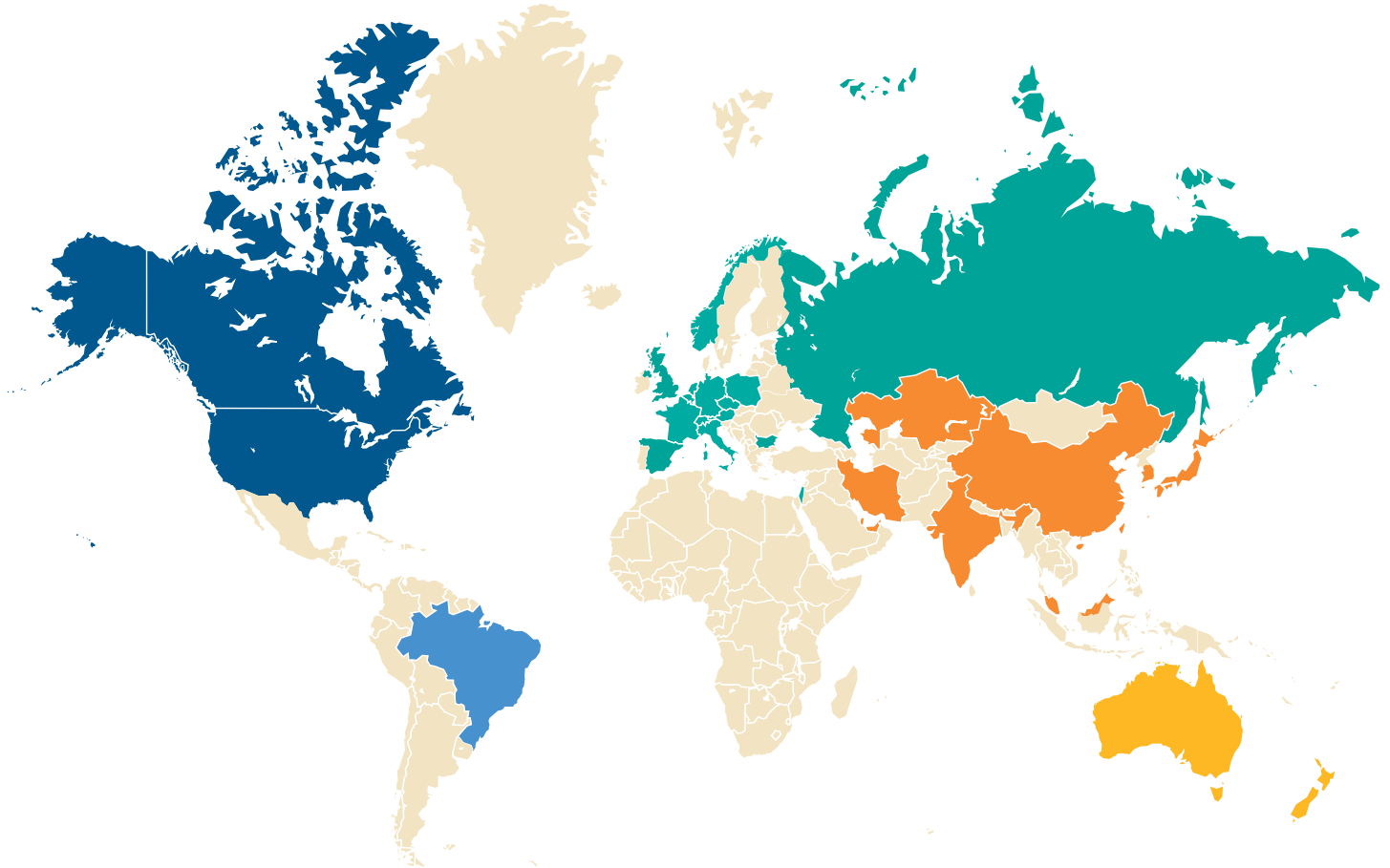
*Indications not being treated in a region have been removed from the key.

Clinical Research Sites by Region



Clinical research sites are any site treating patients as part of a clinical study. No clinical sites in Africa.

53 indications are being researched at clinical sites worldwide.



Clinical research sites are any site treating patients as part of a clinical study. No clinical research sites in Africa.

■ North America	■ Europe	■ Asia	■ Oceania
8 Canada	2 Austria	28 China	2 Australia
47 United States	1 Belgium	2 India	1 New Zealand
■ South America	1 Bulgaria	1 Iran	
1 Brazil	5 Czech Republic	11 Japan	
	12 France	1 Kazakhstan	
	20 Germany	1 Malaysia	
	2 Israel	8 Republic of Korea	
	12 Italy	4 Taiwan	
	2 The Netherlands		
	2 Norway		
	1 Poland		
	5 Russia		
	5 Spain		
	4 Switzerland		
	11 United Kingdom		

Indication Master Key

<p>Cardiovascular</p> <ul style="list-style-type: none"> + Arteriovenous malformations + Hypertension + Peripheral artery disease + Varicose veins <p>Endocrine Disorders</p> <ul style="list-style-type: none"> ▲ Graves' disease ▲ Hyperparathyroidism ▲ Thyroid nodules <p>Gastrointestinal</p> <ul style="list-style-type: none"> ✿ Biliary tract cancer ✿ Colorectal tumors ✿ Liver tumors ✿ Malignant obstructive jaundice ✿ Pancreatic tumors <p>Miscellaneous</p> <ul style="list-style-type: none"> ✕ Head & neck tumors ✕ Melanoma ✕ Multiple tumors 	<p>Musculoskeletal</p> <ul style="list-style-type: none"> ☆ Arthritis ☆ Arthritis - facetogenic ☆ Arthritis - sacroiliac ☆ Bone metastases ☆ Bone tumors, benign ☆ Multiple myeloma ☆ Osteoid osteoma ☆ Sacral chordoma ☆ Soft tissue tumors <p>Neurological</p> <ul style="list-style-type: none"> ■ Alzheimer's disease ■ Amyotrophic lateral sclerosis ■ Astrocytoma (SEGA) ■ Cancer pain ■ Depression ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Neuropathic pain ■ Painful amputation neuromas ■ Parkinson's disease 	<p>Oncological</p> <ul style="list-style-type: none"> ● Biliary tract cancer ● Bone metastases ● Breast cancer ● Cancer pain ● Colorectal tumors ● Endometrial tumors ● Glioblastoma ● Head & neck tumors ● Kidney tumors ● Liver metastases ● Liver tumors ● Malignant obstructive jaundice ● Melanoma ● Multiple tumors ● Multiple myeloma ● Neuroblastoma, pediatric ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors 	<p>Ophthalmological</p> <ul style="list-style-type: none"> ★ Glaucoma <p>Pain</p> <ul style="list-style-type: none"> ▼ Arthritis ▼ Arthritis - facetogenic ▼ Arthritis - sacroiliac ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma ▼ Painful amputation neuromas <p>Pediatrics</p> <ul style="list-style-type: none"> ✿ Astrocytoma (SEGA) ✿ Bone metastases ✿ Epilepsy ✿ Multiple tumors ✿ Neuroblastoma, pediatric ✿ Osteoid osteoma ✿ Sacral chordoma ✿ Soft tissue tumors 	<p>Urological</p> <ul style="list-style-type: none"> ◆ Acute kidney injury ◆ Benign prostatic hyperplasia ◆ Kidney tumors ◆ Prostate cancer <p>Women's Health</p> <ul style="list-style-type: none"> ✿ Breast cancer ✿ Breast fibroadenoma ✿ Endometrial tumors ✿ Endometriosis ✿ Endometriosis, colorectal ✿ Retained placenta ✿ Tubal pregnancy ✿ Uterine adenomyosis ✿ Uterine fibroids
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Clinical research sites are any site treating patients as part of a clinical study. No clinical research sites in Africa.

Clinical Research Sites by Indication and Region

Indications	Region					Totals
	N. America	Europe	Asia	S. America	Oceania	
◆ Acute kidney injury	–	–	1	–	–	1
■ Alzheimer’s disease	1	1	1	–	–	3
■ Amyotrophic lateral sclerosis	1	–	–	–	–	1
+ Arteriovenous malformations	1	–	–	–	–	1
☆ ▼ Arthritis	–	2	1	–	–	3
☆ ▼ Arthritis - facetogenic	–	4	1	1	–	6
☆ ▼ Arthritis - sacroiliac	–	1	–	–	–	1
■ * Astrocytoma (SEGA)	4	2	–	–	–	6
◆ Benign prostatic hyperplasia	1	1	–	–	–	2
✿ ● Biliary tract	–	1	–	–	–	1
☆ ● ▼ * Bone metastases	1	10	5	1	1	18
☆ Bone tumors, benign	3	6	–	–	–	9
✿ ● Breast cancer	1	5	15	–	–	21
✿ Breast fibroadenoma	4	3	1	–	–	8
■ ▼ Cancer pain	–	1	–	–	–	1
✿ ● Colorectal tumors	1	–	–	–	–	1
■ Depression	1	–	–	–	–	1
■ Dystonia	1	1	1	–	–	3
✿ ● Endometrial tumors	–	1	–	–	–	1
✿ Endometriosis	–	1	1	–	–	2
✿ Endometriosis, colorectal	–	1	–	–	–	1
■ * Epilepsy	3	1	–	–	–	4
■ Essential tremor	8	2	3	–	–	13
✿ Glaucoma	1	8	–	–	–	9
■ ● Glioblastoma	5	4	1	–	–	10
▲ Graves’ disease	–	–	1	–	–	1
✗ ● Head & neck tumors	2	–	–	–	–	2

Clinical research sites are any site treating patients as part of a clinical study. No clinical sites in Africa.

Clinical Research Sites by Indication and Region *continued*

Indications	Region					Totals
	N. America	Europe	Asia	S. America	Oceania	
■ Holmes tremor	1	–	–	–	–	1
▲ Hyperparathyroidism	–	1	–	–	–	1
+ Hypertension	1	17	2	–	1	21
● ◆ Kidney tumors	2	5	13	–	–	20
● Liver metastases	–	4	–	–	–	4
✿ ● Liver tumors	1	7	13	–	–	21
✿ ● Malignant obstructive jaundice	–	–	1	–	–	1
✕ ● Melanoma	2	1	–	–	–	3
☆ ● Multiple myeloma	–	1	–	–	–	1
✕ ● * Multiple tumors	–	–	1	–	–	1
● * Neuroblastoma, pediatric	1	–	–	–	–	1
■ ▼ Neuropathic pain	1	2	–	–	–	3
☆ ● ▼ * Osteoid osteoma	5	6	13	1	–	25
■ ▼ Painful amputation neuromas	–	2	–	–	–	2
✿ ● Pancreatic tumors	–	7	6	–	–	13
■ Parkinson's disease	10	3	3	–	–	16
+ Peripheral artery disease	1	1	–	–	–	2
◆ ● Prostate cancer	30	19	6	–	–	55
✿ Retained placenta	–	–	1	–	–	1
⊗ * Sacral chordoma	–	1	–	–	–	1
☆ ● * Soft tissue tumors	7	11	14	–	1	33
▲ Thyroid nodules	–	3	1	–	–	4
✿ Tubal pregnancy	–	–	1	–	–	1
✿ Uterine adenomyosis	–	4	9	–	2	15
+ Varicose veins	–	1	–	–	–	1
✿ Uterine fibroids	10	24	34	1	2	71

Clinical research sites are any site treating patients as part of a clinical study. No clinical sites in Africa.

Clinical Research Sites, North America continued

United States continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Columbia University												🌸
Duke University												🌸
Grand Strand Urology							●				◆	
Henry Ford Hospital							●				◆	
Indiana University Health, University Hospital							●				◆	
Johns Hopkins University School of Medicine							●				◆	
Long Beach Eye Care Associates								*				
Mayo Clinic - Minnesota						■	● ●				◆ ◆	
Memorial Sloan-Kettering Cancer Center							●				◆	
Metropolitan Urology							●				◆	
Montefiore Medical Center							●				◆	🌸 🌸
National Institutes of Health					★		●		▼	*		
New York University - Langone Medical Center							●					
New York-Presbyterian Hospital												🌸
Nicklaus Children's Hospital			✕			■ ■	● ●			*		
Ohio State University						■ ■ ■				*		
ProMedica Toledo Hospital											◆	
Southeast Urology Network							●				◆	
Sperling Medical Group							●				◆	
Stanford University School of Medicine† +					★ ★ ★	■ ■	● ● ● ●		▼	* *	◆	
Swedish Neuroscience Institute						■ ■ ■	●			*		
University Hospitals of Cleveland Case Medical Center							●				◆	
University of California Los Angeles							●				◆	🌸
University of California San Diego Thornton Hospital	+			✕			●					
University of California San Francisco					★ ★		● ●		▼	* *		
University of Chicago							●				◆	
University of Maryland School of Medicine†						■ ■ ■	●		▼	*		
University of Pennsylvania						■						
University of Southern California Keck Hosp.							● ●				◆ ◆	

Clinical research sites are any site treating patients as part of a clinical study.
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87 Europe

Sites by Region

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculoskeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Austria												
Medical University of Vienna	+											
Karl Landsteiner Institut für funktionelle Phlebochirurgie	+											
Belgium												
Institut Jules Bordet							●				◆	
Bulgaria												
University Hospital of Endocrinology		▲ ▲										✿
Czech Republic												
Mestska Nomocnice Ostrava	+											
Na Homolce Hospital	+											
St. Anne's Hospital	+											
Thomayer University Hospital												✿
University Hospital - Brno	+											
France												
Centre Léon Bérard							●					
CHU de Bordeaux - Hôpital du Tondu							●				◆	

<p>Regions Europe*</p> <p>Cardiovascular</p> <ul style="list-style-type: none"> + Hypertension ⊕ Peripheral artery disease ⊕ Varicose veins <p>Endocrine Disorders</p> <ul style="list-style-type: none"> ▲ Hyperparathyroidism ▲ Thyroid nodules <p>Gastrointestinal</p> <ul style="list-style-type: none"> ✿ Biliary tract cancer ✿ Liver tumors ✿ Pancreatic tumors <p>Miscellaneous</p> <ul style="list-style-type: none"> ✗ Melanoma 	<p>Musculoskeletal</p> <ul style="list-style-type: none"> ✿ Arthritis ✿ Arthritis - facetogenic ✗ Arthritis - sacroiliac ✿ Bone metastases ✿ Multiple myeloma ✿ Bone tumors, benign ✿ Osteoid osteoma ✗ Sacral chordoma ✿ Soft tissue tumors <p>Neurological</p> <ul style="list-style-type: none"> ■ Alzheimer's disease ■ Astrocytoma (SEGA) ■ Cancer pain ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Neuropathic pain 	<ul style="list-style-type: none"> ■ Painful amputation neuromas ■ Parkinson's disease <p>Oncological</p> <ul style="list-style-type: none"> ● Biliary tract cancer ● Bone metastases ● Breast cancer ● Endometrial tumors ● Glioblastoma ● Kidney tumors ● Liver metastases ● Liver tumors ● Melanoma ● Multiple myeloma ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors 	<p>Ophthalmological</p> <ul style="list-style-type: none"> ✿ Glaucoma <p>Pain</p> <ul style="list-style-type: none"> ▼ Arthritis ▼ Arthritis - facetogenic ▼ Arthritis - sacroiliac ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma ▼ Painful amputation neuromas <p>Pediatrics</p> <ul style="list-style-type: none"> ✿ Astrocytoma (SEGA) ✿ Bone metastases ✗ Epilepsy ✿ Osteoid osteoma ✗ Sacral chordoma ✿ Soft tissue tumors 	<p>Urological</p> <ul style="list-style-type: none"> ◆ Benign prostatic hyperplasia ◆ Kidney tumors ◆ Prostate cancer <p>Women's Health</p> <ul style="list-style-type: none"> ✿ Breast cancer ✿ Breast fibroadenoma ✿ Endometrial tumors ✿ Endometriosis ✗ Endometriosis, colorectal ✿ Uterine adenomyosis ✿ Uterine fibroids
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Clinical research sites are any site treating patients as part of a clinical study.
*Indications not being researched in a region have been removed from the key.

Clinical Research Sites, Europe continued

France continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
CHU de Lille - Hôpital Huriez							●				◆	
CHU de Toulouse - Hôpital Rangueil							●				◆	
CHU de Tours - Hôpital Bretonneau			✿				●					
Groupe Hospitalier Privé Saint Joseph - Paris								*				
Hôpital Pitié-Salpêtrière				✕		■ ■ ■	● ●			*		
Hospices Civils de Lyon							●				◆	
Inserm Lyon†						■	● ● ● ● *	*			◆	✿ ✿
Institut Gustave Roussy					☆		●		▼	*		
Institut Mutualiste Montsouris							●				◆	
University of Nice Sophia Antipolis							●				◆	

Germany

Amper Klinik					☆ ☆ ☆ ☆ ☆		● ● ●		▼ ▼ ▼	* * *		✿ ✿
Brustzentrum Marienhospital Bottrop					☆ ☆				▼			✿ ✿
Charite Universitaetsmedizin Berlin					☆		● ●		▼	*	◆	✿
Clemenshospital GmbH	+											

<p>Regions Europe*</p> <p>Cardiovascular + Hypertension + Peripheral artery disease + Varicose veins</p> <p>Endocrine Disorders ▲ Hyperparathyroidism ▲ Thyroid nodules</p> <p>Gastrointestinal ✿ Biliary tract cancer ✿ Liver tumors ✿ Pancreatic tumors</p> <p>Miscellaneous ✕ Melanoma</p>	<p>Musculoskeletal ☆ Arthritis ☆ Arthritis - facetogenic ☆ Arthritis - sacroiliac ☆ Bone metastases ☆ Multiple myeloma ☆ Bone tumors ☆ Osteoid osteoma ☆ Sacral chordoma ☆ Soft tissue tumors</p> <p>Neurological ■ Alzheimer's disease ■ Astrocytoma (SEGA) ■ Cancer pain ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Neuropathic pain</p>	<p>■ Painful amputation neuromas ■ Parkinson's disease</p> <p>Oncological ● Biliary tract cancer ● Bone metastases ● Breast cancer ● Endometrial tumors ● Glioblastoma ● Kidney tumors ● Liver metastases ● Liver tumors ● Melanoma ● Multiple myeloma ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors</p>	<p>Ophthalmological * Glaucoma</p> <p>Pain ▼ Arthritis ▼ Arthritis - facetogenic ▼ Arthritis - sacroiliac ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma ▼ Painful amputation neuromas</p> <p>Pediatrics * Astrocytoma (SEGA) * Bone metastases * Epilepsy * Osteoid osteoma * Sacral chordoma * Soft tissue tumors</p>	<p>Urological ◆ Benign prostatic hyperplasia ◆ Kidney tumors ◆ Prostate cancer</p> <p>Women's Health ✿ Breast cancer ✿ Breast fibroadenoma ✿ Endometrial tumors ✿ Endometriosis ✿ Endometriosis, colorectal ✿ Uterine adenomyosis ✿ Uterine fibroids</p>
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†Center of Excellence

Clinical Research Sites, Europe continued

Germany continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
German Cancer Research Center Heidelberg							●				◆	
German Heart Centre - Munich	+											
Klinikum Fürth							●				◆	
Sana CardioMed Nord	+											
Universitäres Herzzentrum Hamburg GmbH	+											
Universitätsklinikum Aachen												✿
Universitätsklinikum Erlangen	+											
Universitätsklinikum Tübingen												✿
University Hospital Bonn	+		✿✿				●●					
University Hospital Frankfurt		▲										
University Hospital of Cologne			✿		✿✿✿		●●		▼▼		◆◆	✿✿
University Hospital of Leipzig	++											
University Hospital Schleswig-Holstein												✿
University of Heidelberg							●				◆	
University of Munich					✿		●		▼	*		✿
Urologische Universitätsklinik Magdeburg							●				◆	
Israel												
Chaim Sheba Medical Center					✿		●		▼	*		✿
Rambam Medical Center						■			▼			
Italy												
Azienda Ospedaliera San Paolo								*				
Cisanello Hospital of University of Pisa			✿		✿✿		●●●		▼	✿✿	◆	✿✿
Istituto Ortopedico Rizzoli					✿✿✿	■	●●●		▼▼▼	✿✿		
Laboratorio di Tecnologie Oncologiche (LATO) HSR Giglio, Fondazione Istituto San Raffaele G. Giglio di Cefalu					✿		●		▼	*		✿
Policlinico S. Orsola-Malpighi								*				

Clinical research sites are any site treating patients as part of a clinical study.

Clinical Research Sites, Europe continued

Italy continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Regina Apostolorum Albano		▲										
St. Orsola-Malpighi Teaching Hospital								*				
Università degli Studi di Parma								*				
University Eye Clinic of Genoa								*				
University of L'Aquila					☆							
University of Perugia							●				◆	
University of Rome - La Sapienza			✿		☆ ☆ ☆		● ● ●		▼ ▼ ▼	✱ ✱		✿ ✿

Netherlands	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Isala Hospital												✿
Radboud University Nijmegen Medical Centre Medical Centre								●				◆

Norway	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Haukeland University Hospital			✿				●					
The Intervention Centre, Oslo University Hospital Rikshospitalet												✿

Regions
Europe*

Cardiovascular

- ⊕ Hypertension
- ⊕ Peripheral artery disease
- ⊕ Varicose veins

Endocrine Disorders

- ▲ Hyperparathyroidism
- ▲ Thyroid nodules

Gastrointestinal

- ✿ Biliary tract cancer
- ✿ Liver tumors
- ✿ Pancreatic tumors

Miscellaneous

- ✗ Melanoma

Musculoskeletal

- ☆ Arthritis
- ☆ Arthritis - facetogenic
- ★ Arthritis - sacroiliac
- ☆ Bone metastases
- ★ Multiple myeloma
- ☆ Bone tumors
- ☆ Osteoid osteoma
- ★ Sacral chordoma
- ★ Soft tissue tumors

Neurological

- Alzheimer's disease
- Astrocytoma (SEGA)
- Cancer pain
- Dystonia
- Epilepsy
- Essential tremor
- Glioblastoma
- Neuropathic pain

- Painful amputation neuromas
- Parkinson's disease

Oncological

- Biliary tract cancer
- Bone metastases
- Breast cancer
- Endometrial tumors
- Glioblastoma
- Kidney tumors
- Liver metastases
- Liver tumors
- Melanoma
- Multiple myeloma
- Osteoid osteoma
- Pancreatic tumors
- Prostate cancer
- Soft tissue tumors

Ophthalmological

- * Glaucoma

Pain

- ▼ Arthritis
- ▼ Arthritis - facetogenic
- ▼ Arthritis - sacroiliac
- ▼ Bone metastases
- ▼ Cancer pain
- ▼ Neuropathic pain
- ▼ Osteoid osteoma
- ▼ Painful amputation neuromas

Pediatrics

- * Astrocytoma (SEGA)
- * Bone metastases
- * Epilepsy
- * Osteoid osteoma
- * Sacral chordoma
- * Soft tissue tumors

Urological

- ◆ Benign prostatic hyperplasia
- ◆ Kidney tumors
- ◆ Prostate cancer

Women's Health

- ✿ Breast cancer
- ✿ Breast fibroadenoma
- ✿ Endometrial tumors
- ✿ Endometriosis
- ✿ Endometriosis, colorectal
- ✿ Uterine adenomyosis
- ✿ Uterine fibroids

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Clinical Research Sites, Europe continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Poland												
Szpital Pro-Familia												✿
Russia												
Medical Center of Central Bank of Russian Federation			✿		★ ★		● ● ● ●		▼	★ ★	◆	✿ ✿
N. N. Petrov Research Institute of Oncology					★		●		▼	*		✿
National Medical Surgery Center			✿		★ ★		● ● ● ●		▼	★ ★	◆	✿ ✿
Research Center for Obstetrics, Gynecology and Perinatology of Russian Ministry of Health and Social Development												✿
Rostov Scientific Research Institute of Oncology					★		●		▼	*		
Spain												
CINAC AM Puerta del Sur						■						
Hospital Clínico San Carlos								*				
Hospital Universitari Mutua Terrassa			✿ ✿ ✿		★		● ● ● ●			*	◆	✿
Instituto Cartuja de Tecnicas Avanzadas en Medicina												✿
ResoFus - Centre Medic Alomar							●				◆	
Switzerland												
Center for Ultrasound Functional Neurosurgery						■ ■				*		
FUS-Center, University of Zurich, Children's Hospital						■ ■ ■			▼			
Kantonsspital Aarau						■ ■	●			*		
Kantonsspital Winterthur							●					✿ ✿
United Kingdom												
Birmingham Heartlands Hospital	+											
Churchill Hospital			✿		★		●					
Imperial College London							● ●				◆	✿
Southampton University Hospital	+											

Clinical research sites are any site treating patients as part of a clinical study.

Clinical Research Sites, Europe continued

United Kingdom continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
St. Bartholomew's Hospital	+											
St. Mary's Hospital						■ ■ ■ ■ ■	●					✿
The Institute of Cancer Research†					★ ★	■	●		▼	*		
University Hospital of Wales	+											
University of Glasgow	+											
University of Hull					★		● ●		▼	*		✿
University of Oxford			✿ ✿ ✿		★ ★ ★		● ● ● ● ●			* *	◆ ◆	✿ ✿

3 Oceania Sites by Region

Australia	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Future Medical Imaging Group					★		●			*		✿ ✿
Royal Women's Hospital Melbourne					★		●		▼	*		✿ ✿

New Zealand

Mercy Angiography	+											
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<p>Regions Europe* Oceania*</p> <p>Cardiovascular + Hypertension + Peripheral artery disease + Varicose veins</p> <p>Endocrine Disorders ▲ Hyperparathyroidism ▲ Thyroid nodules</p> <p>Gastrointestinal ✿ Biliary tract cancer ✿ Liver tumors ✿ Pancreatic tumors</p> <p>Miscellaneous ✗ Melanoma</p>	<p>Musculoskeletal ★ Arthritis ★ Arthritis - facetogenic ★ Arthritis - sacroiliac ★ Bone metastases ★ Multiple myeloma ★ Bone tumors ★ Osteoid osteoma ★ Sacral chordoma ★ Soft tissue tumors</p> <p>Neurological ■ Alzheimer's disease ■ Astrocytoma (SEGA) ■ Cancer pain ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Neuropathic pain</p>	<p>■ Painful amputation neuromas ■ Parkinson's disease</p> <p>Oncological ● Biliary tract cancer ● Bone metastases ● Breast cancer ● Endometrial tumors ● Glioblastoma ● Kidney tumors ● Liver metastases ● Liver tumors ● Melanoma ● Multiple myeloma ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors</p>	<p>Ophthalmological ★ Glaucoma</p> <p>Pain ▼ Arthritis ▼ Arthritis - facetogenic ▼ Arthritis - sacroiliac ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma ▼ Painful amputation neuromas</p> <p>Pediatrics ★ Astrocytoma (SEGA) ★ Bone metastases ★ Epilepsy ★ Osteoid osteoma ★ Sacral chordoma ★ Soft tissue tumors</p>	<p>Urological ◆ Benign prostatic hyperplasia ◆ Kidney tumors ◆ Prostate cancer</p> <p>Women's Health ✿ Breast cancer ✿ Breast fibroadenoma ✿ Endometrial tumors ✿ Endometriosis ✿ Endometriosis, colorectal ✿ Uterine adenomyosis ✿ Uterine fibroids</p>
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*Indications not being researched in a region have been removed from the key.
†Center of Excellence

56 Asia

Sites by Region

China	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
307 Hospital of PLA			✿		★ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
Affiliated Hospital of Xinxiang Medical College												✿
Central Hospital of Shanghai Xuhui District												✿
Children's Hospital of Chongqing Medical University			✿		★ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
Chinese University of Hong Kong												✿
Chongqing Medical University	+											✿ ✿ ✿
First Affiliated Hospital of Medical College of Xi'an Jiaotong University					★		●		▼	*		✿
First Affiliated Hospital of Shihezi University			✿				●					
First Affiliated Hospital of Zunyi Medical College			✿		★ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
First Maternal and Child Health Hospital of Shanghai			✿		★ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
Fudan University Shanghai Cancer Center												✿
Haifu Hospital			✿		★ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
Henan University Huaihe Hospital												✿

<p>Regions</p> <p>Asia*</p>	<p>Miscellaneous</p> <p>✗ Multiple tumors</p>	<p>Oncological</p> <ul style="list-style-type: none"> ● Bone metastases ● Breast cancer ● Glioblastoma ● Kidney tumors ● Liver tumors ● Malignant obstructive jaundice ● Multiple tumors ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors 	<p>Pain</p> <ul style="list-style-type: none"> ▼ Arthritis ▼ Arthritis - facetogenic ▼ Bone metastases ▼ Osteoid osteoma <p>Pediatrics</p> <ul style="list-style-type: none"> * Bone metastases * Multiple tumors * Osteoid osteoma * Soft tissue tumors 	<p>Urological</p> <ul style="list-style-type: none"> ◆ Acute kidney injury ◆ Kidney tumors ◆ Prostate cancer <p>Women's Health</p> <ul style="list-style-type: none"> ✿ Breast cancer ✿ Breast fibroadenoma ✿ Endometriosis ✿ Retained placenta ✿ Tubal pregnancy ✿ Uterine adenomyosis ✿ Uterine fibroids
<p>Cardiovascular</p> <p>+</p> <ul style="list-style-type: none"> △ Hypertension <p>Endocrine Disorders</p> <ul style="list-style-type: none"> ▲ Graves' disease ▲ Thyroid nodules <p>Gastrointestinal</p> <ul style="list-style-type: none"> ✿ Liver tumors ✿ Malignant obstructive jaundice ✿ Pancreatic tumors 	<p>Musculoskeletal</p> <ul style="list-style-type: none"> ★ Arthritis ★ Arthritis - facetogenic ★ Bone metastases ★ Osteoid osteoma ★ Soft tissue tumors <p>Neurological</p> <ul style="list-style-type: none"> ■ Alzheimer's disease ■ Dystonia ■ Essential tremor ■ Glioblastoma ■ Parkinson's disease 			

Clinical research sites are any site treating patients as part of a clinical study.
*Indications not being researched in a region have been removed from the key.

Clinical Research Sites, Asia continued

China continued	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculoskeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Institute of Ultrasonic Engineering in Medicine and Clinical Center for Tumor Therapy	+		✿		☆ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
Peking Union Hospital, Chinese Academy of Medical Sciences												✿
Peking University First Hospital												✿
PLA 301 Hospital (General Hospital of the People's Liberation Army)	+		✿		☆ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
Queen Mary Hospital of the University of Hong Kong		▲ ▲										
Suining Central Hospital			✿		☆ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
The First Affiliated Hospital of Chongqing Medical University			✿		☆ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
The First People's Hospital of Shijiazhuang												✿
The Second Affiliated Hospital of Zhejiang University			✿		★		● ●			*		
The Second Artillery General Hospital of Chinese PLA			✿ ✿		☆ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿
The Third Xiangya Hospital of Central South University			✿		☆ ★		● ● ● ● ● ●		▼	* *	◆	✿ ✿ ✿
West China Hospital, Sichuan University												✿

<p>Regions Asia*</p> <p>Cardiovascular + Hypertension</p> <p>Endocrine Disorders ▲ Graves' disease ▲ Thyroid nodules</p> <p>Gastrointestinal ✿ Liver tumors ✿ Malignant obstructive jaundice ✿ Pancreatic tumors</p>	<p>Miscellaneous ✘ Multiple tumors</p> <p>Musculoskeletal ★ Arthritis ★ Arthritis - facetogenic ★ Bone metastases ★ Osteoid osteoma ★ Soft tissue tumors</p> <p>Neurological ■ Alzheimer's disease ■ Dystonia ■ Essential tremor ■ Glioblastoma ■ Parkinson's disease</p>	<p>Oncological ● Bone metastases ● Breast cancer ● Glioblastoma ● Kidney tumors ● Liver tumors ● Malignant obstructive jaundice ● Multiple tumors ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors</p>	<p>Pain ▼ Arthritis ▼ Arthritis - facetogenic ▼ Bone metastases ▼ Osteoid osteoma</p> <p>Pediatrics * Bone metastases * Multiple tumors * Osteoid osteoma * Soft tissue tumors</p>	<p>Urological ◆ Acute kidney injury ◆ Kidney tumors ◆ Prostate cancer</p> <p>Women's Health ✿ Breast cancer ✿ Breast fibroadenoma ✿ Endometriosis ✿ Retained placenta ✿ Tubal pregnancy ✿ Uterine adenomyosis ✿ Uterine fibroids</p>
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Clinical research sites are any site treating patients as part of a clinical study.
*Indications not being researched in a region have been removed from the key.

Clinical Research Sites, Asia continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
China continued												
Xijing Hospital of The Fourth Military Medical University												🌸
Xuzhou Central Hospital			✿				●					
Zhabei District Central Hospital							●					🌸
India												
Apollo Specialty Hospital, Chennai												🌸
GSL Medical College												🌸
Iran												
Iran University of Medical Sciences											◆	
Japan												
Breastopia Namba Hospital							●					🌸
Hokuto Hospital						■	●					🌸🌸🌸
Kochi University Hospital					★ ★				▼ ▼			
Osaka University						■						
Shinsuma General Hospital												🌸🌸
Takanobashi Central Hospital							●				◆	
Teikyo University							●				◆	
Tokai University							●				◆	
Tokyo Medical University			✿				●					
Tokyo Women's Medical Hospital						■						
Washokai Sadamoto Hospital						■						
Kazakhstan												
National Medical Research Center			✿		★ ★		● ● ● ●		▼	★ ★	◆	🌸🌸
Malaysia												
University of Malaya	+		✿ ✿		★ ★ ★		● ● ● ● ● ● ● ●		▼ ▼	★ ★ ★	◆	🌸🌸🌸

Clinical research sites are any site treating patients as part of a clinical study.

Clinical Research Sites, Asia continued

	Cardiovascular	Endocrine Disorders	Gastro-intestinal	Misc.	Musculo-skeletal	Neurological	Oncological	Ophthalmological	Pain	Peds	Urological	Women's Health
Republic of Korea												
CHA Bundang Medical Center												🌸
Chaum Hospital												🌸🌸
MINT Intervention Hospital												🌸🌸
Samsung Medical Center					🌸		●		▼	*		🌸🌸
Seoul National University Hospital												🌸🌸
The Catholic University of Korea				✕		■ ■	●			*		
YUMC Gangnam Severance Hospital					🌸		● ●		▼	*	◆	🌸
YUMC Severance Hospital						■						
Taiwan												
Chang Gung University						■	●					
National Defense Medical Center							●				◆	
National Taiwan University Hospital			✿				●					
Taipei Medical University Hospital					🌸		● ●		▼	*	◆	🌸

<p>Regions Asia*</p> <p>Cardiovascular + Hypertension</p> <p>Endocrine Disorders ▲ Graves' disease ▲ Thyroid nodules</p> <p>Gastrointestinal ✿ Liver tumors ✿ Malignant obstructive jaundice ✿ Pancreatic tumors</p>	<p>Miscellaneous ✕ Multiple tumors</p> <p>Musculoskeletal ✿ Arthritis ✿ Arthritis - facetogenic 🌸 Bone metastases ✿ Osteoid osteoma ✿ Soft tissue tumors</p> <p>Neurological ■ Alzheimer's disease ■ Dystonia ■ Essential tremor ■ Glioblastoma ■ Parkinson's disease</p>	<p>Oncological ● Bone metastases ● Breast cancer ● Glioblastoma ● Kidney tumors ● Liver tumors ● Malignant obstructive jaundice ● Multiple tumors ● Osteoid osteoma ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors</p>	<p>Pain ▼ Arthritis ▼ Arthritis - facetogenic ▼ Bone metastases ▼ Osteoid osteoma</p> <p>Pediatrics * Bone metastases * Multiple tumors * Osteoid osteoma * Soft tissue tumors</p>	<p>Urological ◆ Acute kidney injury ◆ Kidney tumors ◆ Prostate cancer</p> <p>Women's Health 🌸 Breast cancer 🌸 Breast fibroadenoma 🌸 Endometriosis 🌸 Retained placenta 🌸 Tubal pregnancy 🌸 Uterine adenomyosis 🌸 Uterine fibroids</p>
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Clinical research sites are any site treating patients as part of a clinical study.
*Indications not being researched in a region have been removed from the key.

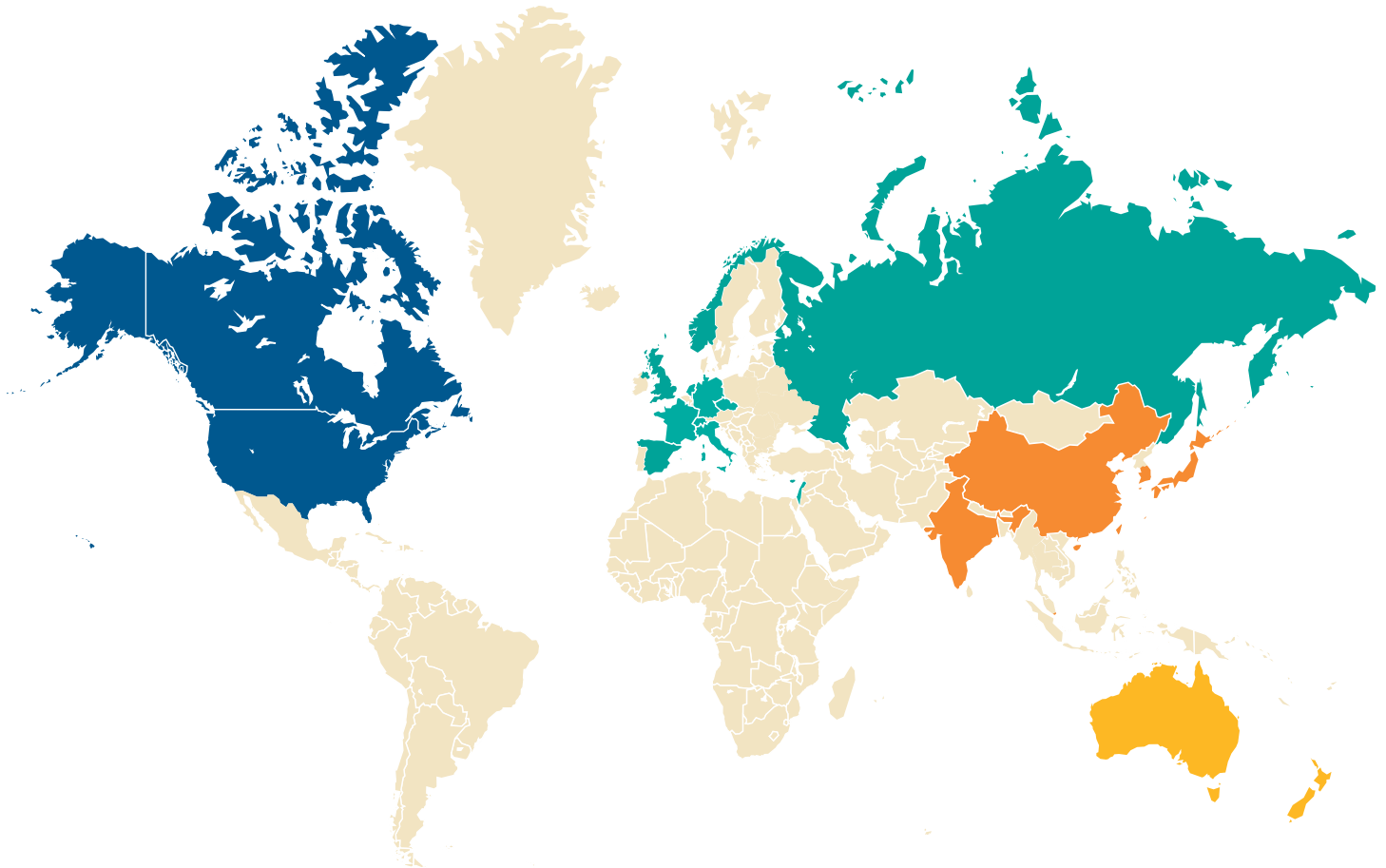
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Preclinical Research Sites by Region



Preclinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications. No preclinical research sites in South America and Africa.

Preclinical Research Sites by Country



Preclinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications. No preclinical research sites in South America and Africa.

■ North America

- 5 Canada
- 48 United States

■ Europe

- 1 Cyprus
- 1 Czech Republic
- 8 France
- 8 Germany
- 1 Israel
- 3 Italy
- 2 The Netherlands
- 1 Norway
- 1 Russia
- 3 Spain
- 3 Switzerland
- 4 United Kingdom

■ Asia

- 11 China
- 1 India
- 4 Japan
- 5 Republic of Korea
- 1 Singapore
- 6 Taiwan

■ Oceania

- 2 Australia
- 1 New Zealand

Indication Master Key

70 indications are being researched at preclinical sites worldwide.

<p>Cardiovascular</p> <ul style="list-style-type: none"> + Arteriovenous malformations + Atherosclerosis + Atrial fibrillation + Cardiac pacing + Congestive heart failure + Deep vein thrombosis + Hypertension + Peripheral artery disease + Septal perforation + Varicose veins <p>Endocrine Disorders</p> <ul style="list-style-type: none"> ▲ Diabetes ▲ Graves' disease ▲ Thyroid cancer ▲ Thyroid nodules <p>Gastrointestinal</p> <ul style="list-style-type: none"> ✦ Colorectal tumors ✦ Esophageal tumors ✦ Liver tumors ✦ Pancreatic tumors <p>Miscellaneous</p> <ul style="list-style-type: none"> ✕ Head & neck tumors ✕ Melanoma ✕ Multiple tumors ✕ Obesity 	<p>Musculoskeletal</p> <ul style="list-style-type: none"> ✦ Arthritis ✦ Arthritis - facetogenic ✦ Bone metastases ✦ Bone tumors, benign ✦ Muscle atrophy ✦ Osteoid osteoma ✦ Soft tissue tumors <p>Neurological</p> <ul style="list-style-type: none"> ■ Addiction ■ Alzheimer's disease ■ Amyotrophic lateral sclerosis ■ Astrocytoma (SEGA) ■ Cancer pain ■ Depression ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Hydrocephalus ■ Neuropathic pain ■ Obsessive-compulsive disorder ■ Painful amputation neuromas ■ Parkinson's disease ■ Spinal cord injury ■ Stroke ■ Traumatic brain injury ■ Trigeminal neuralgia 	<p>Oncological</p> <ul style="list-style-type: none"> ● Bladder tumors ● Bone metastases ● Brain metastases ● Breast cancer ● Cancer pain ● Cervical tumors ● Colorectal tumor ● Endometrial tumors ● Esophageal tumors ● Glioblastoma ● Head & neck tumors ● Kidney tumors ● Liver metastases ● Liver tumors ● Lung cancer ● Lung metastases ● Melanoma ● Multiple tumors ● Neuroblastoma, pediatric ● Osteoid osteoma ● Ovarian tumors ● Pancreatic tumors ● Prostate cancer ● Soft tissue tumors ● Thyroid cancer 	<p>Ophthalmological</p> <ul style="list-style-type: none"> ✦ Glaucoma <p>Pain</p> <ul style="list-style-type: none"> ▼ Arthritis ▼ Arthritis - facetogenic ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma ▼ Painful amputation neuromas <p>Pediatrics</p> <ul style="list-style-type: none"> ✦ Astrocytoma (SEGA) ✦ Bone metastases ✦ Epilepsy ✦ Hydrocephalus ✦ Multiple tumors ✦ Neuroblastoma, pediatric ✦ Osteoid osteoma ✦ Soft tissue tumors 	<p>Pulmonary</p> <ul style="list-style-type: none"> ✦ Lung cancer ✦ Lung metastases <p>Urological</p> <ul style="list-style-type: none"> ◆ Acute kidney injury ◆ Acute tubular necrosis ◆ Benign prostatic hyperplasia ◆ Bladder tumors ◆ Kidney stone fragmentation ◆ Kidney tumors ◆ Prostate cancer <p>Women's Health</p> <ul style="list-style-type: none"> ✦ Breast cancer ✦ Breast fibroadenoma ✦ Cervical tumors ✦ Endometrial tumors ✦ Endometriosis ✦ Endometriosis, colorectal ✦ Fetal surgery* ✦ Ovarian tumors ✦ Uterine adenomyosis ✦ Uterine fibroids
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Preclinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications.
*Fetal surgery is twin-twin transfusion syndrome.

Preclinical Research Sites by Indication and Region

Indications	Region				Totals
	N. America	Europe	Asia	Oceania	
◆ Acute kidney injury	1	–	–	–	1
◆ Acute tubular necrosis	–	–	1	–	1
■ Addiction	–	–	1	–	1
■ Alzheimer's disease	4	5	–	1	10
■ Amyotrophic lateral sclerosis	1	1	–	–	2
+ Arteriovenous malformations	1	–	–	–	1
☆ ▼ Arthritis	1	–	2	–	3
☆ ▼ Arthritis - facetogenic	2	2	1	–	5
■ * Astrocytoma (SEGA)	8	6	2	–	16
+ Atherosclerosis	2	3	–	–	5
+ Atrial fibrillation	2	2	–	–	4
◆ Benign prostatic hyperplasia	3	–	–	–	3
◆ ● Bladder tumors	3	1	–	–	4
☆ ● ▼ * Bone metastases	6	7	2	1	16
☆ Bone tumors, benign	2	3	–	–	5
✿ ● Breast cancer	19	5	6	–	30
✿ Breast fibroadenoma	3	–	1	–	4
■ ▼ Cancer pain	4	6	–	–	10
+ Cardiac pacing	–	2	–	–	2
● ✿ Cervical tumors	–	–	1	–	1
✿ ● Colorectal tumors	1	2	–	–	3
+ Congestive heart failure	1	–	1	–	2
+ Deep vein thrombosis	5	1	–	–	6
■ Depression	1	2	–	–	3
▲ Diabetes	3	1	–	–	4

Preclinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications. There are no preclinical research sites in South America and Africa.

Preclinical Research Sites by Indication and Region *continued*

Indications	Region				Totals
	N. America	Europe	Asia	Oceania	
■ Dystonia	–	1	–	–	1
✿ ● Endometrial tumors	–	–	1	–	1
✿ Endometriosis	–	1	–	–	1
✿ Endometriosis, colorectal	–	1	–	–	1
■ * Epilepsy	9	4	–	–	13
✿ ● Esophageal tumor	–	2	–	–	2
■ Essential tremor	5	4	–	–	9
✿ Fetal Surgery, twin-twin transfusion syndrome	1	3	1	–	5
✱ Glaucoma	–	5	1	–	6
■ ● Glioblastoma	20	9	5	–	34
▲ Graves' disease	1	–	–	–	1
✕ ● Head & neck tumors	–	4	1	–	5
■ * Hydrocephalus	1	1	–	–	2
✕ Hypertension	4	2	–	1	7
◆ Kidney stone fragmentation	3	1	–	–	4
● ◆ Kidney tumors	5	2	2	–	9
● Liver metastases	3	3	–	–	6
✿ ● Liver tumors	14	9	5	–	28
✿ ● Lung metastases	–	2	–	–	2
✿ ● Lung cancer	1	2	1	–	4
✕ ● Melanoma	1	1	–	–	2
✕ ● * Multiple tumors	1	1	–	–	2
☆ Muscle atrophy	1	–	–	–	1
● * Neuroblastoma, pediatric	1	1	–	–	2
■ ▼ Neuropathic pain	4	2	1	–	7

Preclinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications. There are no preclinical research sites in South America and Africa.

Preclinical Research Sites by Indication and Region *continued*

Indications	Region				Totals
	N. America	Europe	Asia	Oceania	
✂ Obesity	1	1	–	–	2
■ Obsessive compulsive disorder	–	1	–	–	1
☆ ● ▼ ✱ Osteoid osteoma	1	1	2	–	4
✿ ● Ovarian tumors	–	–	1	1	2
■ ▼ Painful amputation neuromas	–	1	–	–	1
✿ ● Pancreatic tumors	11	10	4	–	25
■ Parkinson's disease	5	4	3	–	12
✚ Peripheral artery disease	4	1	–	–	5
◆ ● Prostate cancer	14	9	2	–	25
✚ Septal perforation	–	1	–	–	1
☆ ● ✱ Soft tissue tumors	7	5	2	–	14
■ Spinal cord injury	2	–	1	–	3
■ Stroke	9	6	1	–	16
▲ Thyroid nodules	2	1	–	–	3
▲ ● Thyroid cancer	3	1	–	–	4
■ Traumatic brain injury	2	1	–	–	3
■ Trigeminal neuralgia	–	2	–	–	2
✿ Uterine adenomyosis	–	3	2	1	6
✿ Uterine fibroids	9	8	8	1	26
✚ Varicose veins	–	1	–	–	1

Preclinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications. There are no preclinical research sites in South America and Africa.

All Body Systems*

53 North America
Sites by Region

Canada	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Lawson Health Research Institute			✿			■ ■			*		◆	
Ryerson University												✿
Sunnybrook Health Sciences Centre†	+++		✿✿			■ ■ ■ ■ ■ ■ ■ ■ ■ ■			**			✿
The Hospital for Sick Children (SickKids)	+					■ ■ ■ ■ ■			**			✿
University of Alberta											◆	
United States												
Brigham and Women's Hospital†						■ ■ ■ ■ ■			**			✿
BURL Concepts Inc.						■ ■ ■						
CHI St. Luke's Health												✿
Children's National Health System	+				★ ★ ★ ★ ★	■ ■ ■ ■ ■		▼ ▼ ▼ ▼ ▼ ▼	* * * * *		◆	
Cincinnati Children's Hosp. Med. Center		▲		✕					*			
Columbia University			✿ ✿			■ ■						✿
Drexel University			✿ ✿		★	■		▼	*			✿ ✿
Duke University												✿
Fox Chase Cancer Center					★			▼	*		◆	✿
George Mason University						■		▼				
Georgia Institute of Technology						■						✿
Indiana University Health, University Hospital											◆	
Johns Hopkins University School of Medicine											◆	✿
Medical University of South Carolina			✿			■ ■			*			

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
North America**	<ul style="list-style-type: none"> Arteriovenous malformations Atherosclerosis Atrial fibrillation Congestive heart failure Deep vein thrombosis Hypertension Peripheral artery disease 	<ul style="list-style-type: none"> Diabetes Graves' disease Thyroid cancer Thyroid nodules 	<ul style="list-style-type: none"> Colorectal tumors Liver metastases Liver tumors Pancreatic tumors 	<ul style="list-style-type: none"> Melanoma Multiple tumors Obesity 	<ul style="list-style-type: none"> Arthritis Bone metastases Bone tumors, benign Muscle atrophy Osteoid osteoma Soft tissue tumors 	<ul style="list-style-type: none"> Alzheimer's disease Amyotrophic lateral sclerosis Astrocytoma (SEGA) Cancer pain Depression Epilepsy Essential tremor Glioblastoma Neuropathic pain Parkinson's disease Spinal cord injury Stroke Traumatic brain injury 		<ul style="list-style-type: none"> Arthritis Bone metastases Cancer pain Neuropathic pain Osteoid osteoma 	<ul style="list-style-type: none"> Astrocytoma (SEGA) Bone metastases Epilepsy Multiple tumors Neuroblastoma, pediatric Osteoid osteoma Soft tissue tumors 	<ul style="list-style-type: none"> Lung cancer 	<ul style="list-style-type: none"> Acute kidney injury Benign prostatic hyperplasia Bladder tumors Kidney stone fragmentation Kidney stone propulsion Kidney tumors Prostate cancer 	<ul style="list-style-type: none"> Breast cancer Fetal surgery Uterine fibroids

Pre-clinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications.

*Oncology listed separately, see page 126.

**Indications not being researched in a region have been removed from the key. † Center of Excellence

‡ System not in this region

All Body Systems* continued

United States continued	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Memorial Sloan-Kettering Cancer Center						■		▼				
Montefiore Medical Center											◆	
National Institutes of Health	+		✿ ✿		★ ☆			▼	*			✿
Northeastern University						■						
Ohio State University						■ ■ ■			*			
Stanford University School of Medicine†		▲	✿ ✿			■ ■			*		◆	
SUNY Upstate Medical University					★	■ ■			*			
Swedish Neuroscience Institute						■ ■			*			
The Methodist Hospital	+		✿			■						✿
Tulane University	+	▲ ▲	✿	✗	★	■ ■		▼			◆ ◆	✿
University of California, Davis			✿									✿
University of California, Los Angeles					★	■ ■		▼	*		◆	✿
University of California San Diego Thornton Hospital	+	▲ ▲										
University of California, San Francisco			✿			■				◆	◆ ◆ ◆	
University of Chicago	+										◆	
University of Cincinnati	+											
University of Illinois at Urbana-Champaign			✿		★				*			✿
University of Kansas	+				★				*			✿
University of Maryland School of Medicine†						■ ■ ■ ■ ■			*			

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
North America**	<ul style="list-style-type: none"> Arteriovenous malformations Atherosclerosis Atrial fibrillation Congestive heart failure Deep vein thrombosis Hypertension Peripheral artery disease 	<ul style="list-style-type: none"> Diabetes Graves' disease Thyroid cancer Thyroid nodules 	<ul style="list-style-type: none"> Colorectal tumors Liver metastases Liver tumors Pancreatic tumors 	<ul style="list-style-type: none"> Melanoma Multiple tumors Obesity 	<ul style="list-style-type: none"> Arthritis Bone metastases Bone tumors, benign Muscle atrophy Osteoid osteoma Soft tissue tumors 	<ul style="list-style-type: none"> Alzheimer's disease Amyotrophic lateral sclerosis Astrocytoma (SEGA) Cancer pain Depression Epilepsy Essential tremor Glioblastoma Neuropathic pain Parkinson's disease Spinal cord injury Stroke Traumatic brain injury 		<ul style="list-style-type: none"> Arthritis Bone metastases Cancer pain Neuropathic pain Osteoid osteoma 	<ul style="list-style-type: none"> Astrocytoma (SEGA) Bone metastases Epilepsy Multiple tumors Neuroblastoma, pediatric Osteoid osteoma Soft tissue tumors 	<ul style="list-style-type: none"> Lung cancer 	<ul style="list-style-type: none"> Acute kidney injury Benign prostatic hyperplasia Bladder tumors Kidney stone fragmentation Kidney stone propulsion Kidney tumors Prostate cancer 	<ul style="list-style-type: none"> Breast cancer Fetal surgery Uterine fibroids

Pre-clinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications.

*Oncology listed separately, see page 126.

**Indications not being researched in a region have been removed from the key. † Center of Excellence

‡ System not in this region

All Body Systems* continued

United States continued	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
University of Michigan	++	▲	✿✿✿			■					◆◆◆◆	
University of Minnesota	++					■			*			
University of Southern California Keck Hospital											◆◆	
University of Texas at Austin												
University of Texas MD Anderson Cancer Center			✿✿			■			*		◆	✿
University of Utah	+				★	■		▼▼				✿✿
University of Virginia Health System†	++	▲▲	✿	✗		■			*			✿✿
University of Washington			✿✿✿								◆◆◆◆◆	
University of Wisconsin			✿									
Urology Centers of Alabama											◆	
Vanderbilt University												✿
Virginia Tech Carilion Research Institute			✿			■		▼				
Wake Forest University Baptist Medical Center					★	■		▼	***			
Weill Cornell Medical Center												✿
Worcester Polytechnic Institute						■		▼			◆	

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
North America**	+ Arteriovenous malformations + Atherosclerosis + Atrial fibrillation + Congestive heart failure + Deep vein thrombosis + Hypertension + Peripheral artery disease	▲ Diabetes ▲ Graves' disease ▲ Thyroid cancer ▲ Thyroid nodules	✿ Colorectal tumors ✿ Liver metastases ✿ Liver tumors ✿ Pancreatic tumors	✗ Melanoma ✗ Multiple tumors ✗ Obesity	★ Arthritis ★ Bone metastases ★ Bone tumors, benign ★ Muscle atrophy ★ Osteoid osteoma ★ Soft tissue tumors	■ Alzheimer's disease ■ Amyotrophic lateral sclerosis ■ Astrocytoma (SEGA) ■ Cancer pain ■ Depression ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Neuropathic pain ■ Parkinson's disease ■ Spinal cord injury ■ Stroke ■ Traumatic brain injury		▼ Arthritis ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma	* Astrocytoma (SEGA) * Bone metastases * Epilepsy * Multiple tumors * Neuroblastoma, pediatric * Osteoid osteoma * Soft tissue tumors	✦ Lung cancer	◆ Acute kidney injury ◆ Benign prostatic hyperplasia ◆ Bladder tumors ◆ Kidney stone fragmentation ◆ Kidney stone propulsion ◆ Kidney tumors ◆ Prostate cancer	✿ Breast cancer ✿ Fetal surgery ✿ Uterine fibroids

Pre-clinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications.
 *Oncology listed separately, see page 126.
 **Indications not being researched in a region have been removed from the key. † Center of Excellence

‡ System not in this region

All Body Systems* continued

36 Europe

Sites by Region

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Cyprus												
Cyprus University of Technology				✘		■ ■			*			✿
Czech Republic												
University Hospital - Brno	+											
France												
Centre Léon Bérard			✿ ✿ ✿									
CHU de Bordeaux - Hôpital Saint-André	++		✿									
Hôpital A. Michallon							*					
Hôpital Cochin			✿									
Hôpital Pitie-Salpetriere				✘ ✘		■ ■ ■ ■ ■ ■ ■ ■			**			✿
Hospices Civils de Lyon							*				◆	
Inserm Lyon†	++		✿ ✿ ✿			■ ■ ■	*	▼			◆ ◆	✿ ✿ ✿ ✿
Institut Langevin - ESPCI						■ ■ ■ ■ ■			*			
Germany												
Amper Klinik					★ ★ ★	■		▼ ▼ ▼	* *			✿ ✿
German Cancer Research Center Heidelberg			✿			■ ■			*		◆	

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Europe**	<ul style="list-style-type: none"> ⊕ Atherosclerosis ⊕ Atrial fibrillation ⊕ Cardiac pacing ⊕ Deep vein thrombosis ⊕ Hypertension ⊕ Peripheral artery disease ⊕ Septal perforation ⊕ Varicose veins 	<ul style="list-style-type: none"> ▲ Diabetes ▲ Thyroid cancer ▲ Thyroid nodules 	<ul style="list-style-type: none"> ✿ Colorectal tumors ✿ Esophageal tumors ✿ Liver metastases ✿ Liver tumors ✿ Pancreatic tumors 	<ul style="list-style-type: none"> ✘ Head & neck tumors ✘ Melanoma ✘ Multiple tumors ✘ Obesity 	<ul style="list-style-type: none"> ★ Arthritis ★ Bone metastases ★ Bone tumors, benign ★ Osteoid osteoma ★ Soft tissue tumors 	<ul style="list-style-type: none"> ■ Alzheimer's disease ■ Amyotrophic lateral sclerosis ■ Astrocytoma (SEGA) ■ Cancer pain ■ Depression ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Hydrocephalus ■ Neuropathic pain ■ Obsessive-compulsive disorder ■ Parkinson's disease ■ Stroke ■ Traumatic brain injury ■ Trigeminal neuralgia 	<ul style="list-style-type: none"> * Glaucoma 	<ul style="list-style-type: none"> ▼ Arthritis ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma 	<ul style="list-style-type: none"> * Astrocytoma (SEGA) * Bone metastases * Epilepsy * Multiple tumors * Neuroblastoma, pediatric * Osteoid osteoma * Soft tissue tumors 	<ul style="list-style-type: none"> ✿ Lung cancer ✿ Lung metastases 	<ul style="list-style-type: none"> ◆ Bladder tumors ◆ Kidney stone fragmentation ◆ Kidney tumors ◆ Prostate cancer 	<ul style="list-style-type: none"> ✿ Breast cancer ✿ Endometriosis ✿ Endometriosis, colorectal ✿ Fetal surgery ✿ Uterine adenomyosis ✿ Uterine fibroids

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 *Oncology listed separately, see page 126.
 **Indications not being researched in a region have been removed from the key. † Center of Excellence

All Body Systems* continued

Germany continued	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Klinikum Fuerth											◆	
SRH Waldklinikum Gera										◆◆		
University Hospital of Cologne			✿✿✿	✕		■		▼			◆	✿✿
University Hospital Schleswig-Holstein			✿									✿
University of Heidelberg						■ ■ ■ ■ ■			*			
University of Munich					★			▼	*			

Israel

Chaim Sheba Medical Center					★	■ ■		▼	**		◆	✿✿
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Italy

Istituto Ortopedico Rizzoli						■ ■		▼ ▼				
Scuola Superiore Sant'Anna											◆	✿
University of Turin												✿

The Netherlands

Eindhoven University of Technology			✿		★ ★ ✿			▼	* ✿			
University Medical Center Utrecht			✿ ✿	✕					*			

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Europe**	<ul style="list-style-type: none"> ⊕ Atherosclerosis ⊕ Atrial fibrillation ⊕ Cardiac pacing ⊕ Deep vein thrombosis ⊕ Hypertension ⊕ Peripheral artery disease ⊕ Septal perforation ⊕ Varicose veins 	<ul style="list-style-type: none"> ▲ Diabetes ▲ Thyroid cancer ▲ Thyroid nodules 	<ul style="list-style-type: none"> ✿ Colorectal tumors ✿ Esophageal tumors ✿ Liver metastases ✿ Liver tumors ✿ Pancreatic tumors 	<ul style="list-style-type: none"> ✕ Head & neck tumors ✕ Melanoma ✕ Multiple tumors ✕ Obesity 	<ul style="list-style-type: none"> ★ Arthritis ★ Bone metastases ★ Bone tumors, benign ★ Osteoid osteoma ★ Soft tissue tumors 	<ul style="list-style-type: none"> ■ Alzheimer's disease ■ Amyotrophic lateral sclerosis ■ Astrocytoma (SEGA) ■ Cancer pain ■ Depression ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Hydrocephalus ■ Neuropathic pain ■ Obsessive-compulsive disorder ■ Parkinson's disease ■ Stroke ■ Traumatic brain injury ■ Trigeminal neuralgia 	<ul style="list-style-type: none"> ★ Glaucoma 	<ul style="list-style-type: none"> ▼ Arthritis ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma 	<ul style="list-style-type: none"> * Astrocytoma (SEGA) * Bone metastases * Epilepsy * Multiple tumors * Neuroblastoma, pediatric * Osteoid osteoma * Soft tissue tumors 	<ul style="list-style-type: none"> ◆ Lung cancer ◆ Lung metastases 	<ul style="list-style-type: none"> ◆ Bladder tumors ◆ Kidney stone fragmentation ◆ Kidney tumors ◆ Prostate cancer 	<ul style="list-style-type: none"> ✿ Breast cancer ✿ Endometriosis ✿ Endometriosis, colorectal ✿ Fetal surgery ✿ Uterine adenomyosis ✿ Uterine fibroids

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*Oncology listed separately, see page 126.

**Indications not being researched in a region have been removed from the key.

All Body Systems* continued

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Norway												
The Intervention Centre, Oslo University Hospital Rikshospitalet			✿								◆	✿
Russia												
Rostov Scientific Research Institute of Oncology	+++++	▲▲▲	✿✿✿✿	✕✕	★☆☆	■●■□■●■		▼▼▼	***	◆	◆◆◆	✿
Spain												
Hospital Clínico San Carlos							*					
Instituto Cartuja de Tecnicas Avanzadas en Medicina					★			▼	*			✿
La Paz University Hospital						■						
Switzerland												
FUS-Center, University of Zurich, Children's Hospital						■						
Geneva University Hospital							*					
University of Geneva			✿									

Region	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Europe**	<ul style="list-style-type: none"> ⊕ Atherosclerosis ⊕ Atrial fibrillation ⊕ Cardiac pacing ⊕ Deep vein thrombosis ⊕ Hypertension ⊕ Peripheral artery disease ⊕ Septal perforation ⊕ Varicose veins 	<ul style="list-style-type: none"> ▲ Diabetes ▲ Thyroid cancer ▲ Thyroid nodules 	<ul style="list-style-type: none"> ✿ Colorectal tumors ✿ Esophageal tumors ✿ Liver metastases ✿ Liver tumors ✿ Pancreatic tumors 	<ul style="list-style-type: none"> ✕ Head & neck tumors ✕ Melanoma ✕ Multiple tumors ✕ Obesity 	<ul style="list-style-type: none"> ★ Arthritis ★ Bone metastases ★ Bone tumors, benign ★ Osteoid osteoma ★ Soft tissue tumors 	<ul style="list-style-type: none"> ■ Alzheimer's disease ■ Amyotrophic lateral sclerosis ■ Astrocytoma (SEGA) ■ Cancer pain ■ Depression ■ Dystonia ■ Epilepsy ■ Essential tremor ■ Glioblastoma ■ Hydrocephalus ■ Neuropathic pain ■ Obsessive-compulsive disorder ■ Parkinson's disease ■ Stroke ■ Traumatic brain injury ■ Trigeminal neuralgia 	<ul style="list-style-type: none"> * Glaucoma 	<ul style="list-style-type: none"> ▼ Arthritis ▼ Bone metastases ▼ Cancer pain ▼ Neuropathic pain ▼ Osteoid osteoma 	<ul style="list-style-type: none"> * Astrocytoma (SEGA) * Bone metastases * Epilepsy * Multiple tumors * Neuroblastoma, pediatric * Osteoid osteoma * Soft tissue tumors 	<ul style="list-style-type: none"> ◆ Lung cancer ◆ Lung metastases 	<ul style="list-style-type: none"> ◆ Bladder tumors ◆ Kidney stone fragmentation ◆ Kidney tumors ◆ Prostate cancer 	<ul style="list-style-type: none"> ✿ Breast cancer ✿ Endometriosis ✿ Endometriosis, colorectal ✿ Fetal surgery ✿ Uterine adenomyosis ✿ Uterine fibroids

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 *Oncology listed separately, see page 126.
 **Indications not being researched in a region have been removed from the key.

All Body Systems* continued

United Kingdom	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Imperial College London												🌸
Institute for Medical Science and Technology	+		🌸		🌟🌟	🟩🟦🟨🟪🟫		🟩🟩	🌟🌟🌟		🔹🔹	🌸
The Institute of Cancer Research†			🌸🌸🌸			🟩🟫		🟩				🌸
University of Dundee					🌟			🟩	🌟			
<h3>3 Oceania</h3> <p>Sites by Region</p>												
Australia	Cardiovascular	Endocrine Disorder‡	Gastrointestinal‡	Miscellaneous‡	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary‡	Urological‡	Women's Health
Royal Women's Hospital Melbourne					🌟			🟩	🌟			🌸🌸🌸
University of Queensland						🟩						
New Zealand												
Mercy Angiography	+											

Regions	Cardiovascular	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Europe**	<ul style="list-style-type: none"> 🟩 Atherosclerosis 🟨 Atrial fibrillation 🟥 Cardiac pacing 🟪 Deep vein thrombosis 🟩 Hypertension 🟩 Peripheral artery disease 🟩 Septal perforation 🟩 Varicose veins 	<ul style="list-style-type: none"> 🟩 Diabetes 🟩 Thyroid cancer 🟩 Thyroid nodules 	<ul style="list-style-type: none"> 🌸 Colorectal tumors 🌸 Esophageal tumors 🌸 Liver metastases 🌸 Liver tumors 🌸 Pancreatic tumors 	<ul style="list-style-type: none"> 🌸 Head & neck tumors 🌸 Melanoma 🌸 Multiple tumors 🌸 Obesity 	<ul style="list-style-type: none"> 🌟 Arthritis 🌟 Bone metastases 🌟 Bone tumors, benign 🌟 Osteoid osteoma 🌟 Soft tissue tumors 	<ul style="list-style-type: none"> 🟩 Alzheimer's disease 🟩 Amyotrophic lateral sclerosis 🟩 Astrocytoma (SEGA) 🟩 Cancer pain 🟩 Depression 🟩 Dystonia 🟩 Epilepsy 🟩 Essential tremor 🟩 Glioblastoma 🟩 Hydrocephalus 🟩 Neuropathic pain 🟩 Obsessive-compulsive disorder 🟩 Parkinson's disease 🟩 Stroke 🟩 Traumatic brain injury 🟩 Trigeminal neuralgia 	<ul style="list-style-type: none"> 🌟 Glaucoma 	<ul style="list-style-type: none"> 🟩 Arthritis 🟩 Bone metastases 🟩 Cancer pain 🟩 Neuropathic pain 🟩 Osteoid osteoma 	<ul style="list-style-type: none"> 🌟 Astrocytoma (SEGA) 🌟 Bone metastases 🌟 Epilepsy 🌟 Multiple tumors 🌟 Neuroblastoma, pediatric 🌟 Osteoid osteoma 🌟 Soft tissue tumors 	<ul style="list-style-type: none"> 🌟 Lung cancer 🌟 Lung metastases 	<ul style="list-style-type: none"> 🔹 Bladder tumors 🟩 Kidney stone fragmentation 🔹 Kidney tumors 🔹 Prostate cancer 	<ul style="list-style-type: none"> 🌸 Breast cancer 🌸 Endometriosis 🌸 Endometriosis, colorectal 🌸 Fetal surgery 🌸 Ovarian tumors 🌸 Uterine adenomyosis 🌸 Uterine fibroids

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*Oncology listed separately, see page 126.

**Indications not being researched in a region have been removed from the key. † Center of Excellence

‡ System not in this region

All Body Systems* continued

28 Asia
Sites by Region

China	Cardiovascular	Endocrine Disorders†	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Chongqing Medical University			✿		★	■		▼				✿✿✿
Fudan University Shanghai Cancer Center					★			▼	*			✿
Haifu Hospital			✿		★✿			▼	✿✿		◆	✿✿
Peking Union Hospital, Chinese Academy of Medical Sciences			✿									✿
PLA 301 Hospital (General Hospital of the People's Liberation Army)			✿		★✿			▼	✿✿		◆	✿✿
Shenzhen Institutes of Advanced Technology - Chinese Academy of Science						■						
Southern Medical University												✿
Sun Yat-Sen University						■						
Tianjin Medical University			✿									
Wenzhou Medical University						■			*			
Zhabei District Central Hospital												✿
India												
GSL Medical College												✿
Japan												
Breastopia Namba Hospital												✿
Kochi University Hospital					★			▼				
Osaka University	+											
Tohoku University												✿
Republic of Korea												
Asan Medical Center			✿									
Chaum Hospital					★				*			✿✿

Region	Cardiovascular	Endocrine Disorders†	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Asia**	✿ Congestive heart failure		✿ Liver tumors ✿ Pancreatic tumors	✿ Head & neck tumors	★ Arthritis ★ Bone metastases ✿ Osteoid osteoma ✿ Soft tissue tumors	■ Addiction ★ Astrocytoma (SEGA) ■ Glioblastoma ■ Neuropathic pain ■ Parkinson's disease ■ Spinal cord injury ■ Stroke	★ Glaucoma	▼ Arthritis ▼ Bone metastases ▼ Neuropathic pain ▼ Osteoid osteoma	✿ Astrocytoma (SEGA) ✿ Bone metastases ✿ Osteoid osteoma ✿ Soft tissue tumors	◆ Lung cancer	◆ Acute tubular necrosis ◆ Kidney tumors ◆ Prostate cancer	✿ Breast cancer ✿ Cervical tumors ✿ Endometrial tumors ✿ Fetal surgery ✿ Ovarian tumors ✿ Uterine adenomyosis ✿ Uterine fibroids

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 *Oncology listed separately, see page 126.
 **Indications not being researched in a region have been removed from the key.

† System not in this region

All Body Systems* continued

Republic of Korea continued	Cardiovascular	Endocrine Disorders†	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Korea Institute of Science and Technology						■ ■						
Samsung Medical Center			✿ ✿									
Seoul National University Hospital			✿									✿
Singapore												
Nanyang Technological University				✕			*				◆	
Taiwan												
Academia Sinica										✦		✿
Chang Gung University						■ ■						
National Health Research Institutes						■		▼				✿
National Tsing Hua University						■ ■ ■			*			
National Yang-Ming University						■					◆	
Taipei Medical University Hospital											◆	

Region	Cardiovascular	Endocrine Disorders†	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Asia**	✚ Congestive heart failure		✿ Liver tumors ✿ Pancreatic tumors	✕ Head & neck tumors	✿ Arthritis ✿ Bone metastases ✿ Osteoid osteoma ✿ Soft tissue tumors	■ Addiction ■ Astrocytoma (SEGA) ■ Glioblastoma ■ Hydrocephalus ■ Neuropathic pain ■ Parkinson's disease ■ Spinal cord injury ■ Stroke	* Glaucoma	▼ Arthritis ▼ Bone metastases ▼ Neuropathic pain ▼ Osteoid osteoma	✿ Astrocytoma (SEGA) ✿ Bone metastases ✿ Osteoid osteoma ✿ Soft tissue tumors	✦ Lung cancer	◆ Acute tubular necrosis ◆ Kidney tumors ◆ Prostate cancer	✿ Breast cancer ✿ Cervical tumors ✿ Endometrial tumors ✿ Fetal surgery ✿ Ovarian tumors ✿ Uterine adenomyosis ✿ Uterine fibroids

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 *Oncology listed separately, see page 126.
 **Indications not being researched in a region have been removed from the key.

† System not in this region

Oncological

42 North America
Sites by Region

Canada	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Lawson Health Research Institute			●			●					●	
Ryerson University												●
Sunnybrook Health Sciences Centre†	●		● ● ●			●						●
The Hospital for Sick Children (SickKids)						● ●			●			
University of Alberta											●	
United States												
Brigham and Women's Hospital†						●						
BURL Concepts Inc.						●						
Children's National Health System					● ● ●	●		● ● ●	● ● ●		●	
Cincinnati Children's Hosp. Med. Center				●					●			
Columbia University			● ●									●
Drexel University			● ●		●			●	●			●
Fox Chase Cancer Center					●			●	●		●	●
Georgia Institute of Technology	●					●						●
Indiana University Health, University Hospital											●	
Johns Hopkins University School of Medicine											●	
Medical University of South Carolina			●			●						
Memorial Sloan-Kettering Cancer Center						●		●				
Montefiore Medical Center											●	
National Institutes of Health			● ●		●			●	●			
Stanford University School of Medicine†			● ●			●						
SUNY Upstate Medical University					●	●						
The Methodist Hospital			●									●
Tulane University		●	●								● ●	●
University of California, Davis			●									●
University of California, Los Angeles					●	●		●	●		●	

Region North America*

- Brain Tumors**: ● Brain metastases
- Endocrine Disorders**: ● Thyroid cancer
- Gastrointestinal**: ● Colorectal tumors, ● Liver metastases, ● Liver tumors, ● Pancreatic tumors
- Miscellaneous**: ● Head & neck tumors, ● Melanoma, ● Multiple tumors
- Musculoskeletal**: ● Bone metastases, ● Bone tumors, ● Osteoid osteoma, ● Soft tissue tumors
- Neurological**: ● Cancer pain, ● Glioblastoma
- Ophthalmological‡**: (No specific legend items)
- Pain**: ● Bone metastases, ● Cancer pain, ● Osteoid osteoma
- Pediatrics**: ● Bone metastases, ● Multiple tumors, ● Neuroblastoma, pediatric, ● Osteoid osteoma, ● Soft tissue tumors
- Pulmonary**: ● Lung cancer
- Urological**: ● Bladder tumors, ● Kidney tumors, ● Prostate cancer
- Women's Health**: ● Breast cancer

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 * Indications not being researched in a region have been removed from the key.
 † Center of Excellence

‡ System not in this region

Oncological continued

United States continued	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
University of California, San Francisco			●			●				●	●●	
University of Chicago											●	
University of Illinois at Urbana-Champaign			●		●				●			●
University of Kansas					●			●	●			●
University of Maryland School of Medicine†						●						
University of Michigan		●	●●●			●					●●	
University of Southern California Keck Hospital											●●	
University of Texas MD Anderson Cancer Center			●●			●					●	●
University of Utah												●
University of Virginia Health System†	●	●	●	●		●						●
University of Washington			●●●								●●	
University of Wisconsin			●									
Urology Centers of Alabama											●	
Vanderbilt University												●
Virginia Tech Carilion Research Institute			●			●						
Wake Forest University Baptist Medical Center					●●	●		●	●●			
Worcester Polytechnic Institute						●		●			●	

1 Oceania
Site by Region

Australia	Cardiovascular‡	Endocrine Disorders‡	Gastrointestinal‡	Miscellaneous‡	Musculoskeletal	Neurological ‡	Ophthalmological‡	Pain	Pediatrics	Pulmonary‡	Urological‡	Women's Health
Royal Women's Hospital Melbourne					●			●	●			●

Region	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
North America*	● Brain metastases	● Thyroid cancer	● Colorectal tumors	● Melanoma	● Bone metastases	● Cancer pain		● Bone metastases	● Bone metastases	● Lung cancer	● Bladder tumors	● Breast cancer
Oceania*			● Liver metastases	● Multiple tumors	● Bone tumors	● Glioblastoma		● Cancer pain	● Multiple tumors		● Kidney tumors	● Ovarian tumors
			● Liver tumors		● Osteoid osteoma			● Osteoid osteoma	● Neuroblastoma, pediatric		● Prostate cancer	
			● Pancreatic tumors		● Soft tissue tumors				● Osteoid osteoma			
									● Soft tissue tumors			

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 * Indications not being researched in a region have been removed from the key.
 † Center of Excellence

‡ System not in this region

Oncological continued

30 Europe
Sites by Region

Cyprus	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Cyprus University of Technology				●					●			
France												
Centre Léon Bérard			● ● ●									
CHU de Bordeaux - Hôpital Saint-André			●									
Hôpital Cochin			●									
Hôpital Pitie-Salpetriere	●			● ●		●						●
Hospices Civils de Lyon											●	
Inserm Lyon†			● ● ●			● ●		●			●	●
Institut Langevin - ESPCI												
Germany												
Amper Klinik					● ●	●		● ●	● ●			
German Cancer Research Center Heidelberg			●			●					●	
Klinikum Fuerth											●	
SRH Waldklinikum Gera										● ●		
University Hospital of Cologne			● ● ●	●		●		●			●	
University Hospital Schleswig-Holstein			●									
University of Heidelberg						●						
University of Munich					●			●	●			
Israel												
Chaim Sheba Medical Center					●	●		●	●		●	
Italy												
Istituto Ortopedico Rizzoli						●		●				
Scuola Superiore Sant'Anna											●	

Region	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Europe*	● Brain metastases	● Thyroid cancer	● Colorectal tumors ● Esophageal tumors ● Liver metastases ● Liver tumors ● Pancreatic tumors	● Head & neck tumors ● Melanoma ● Multiple tumors	● Bone metastases ● Bone tumors ● Osteoid osteoma ● Soft tissue tumors	● Cancer pain ● Glioblastoma		● Bone metastases ● Cancer pain ● Osteoid osteoma	● Bone metastases ● Multiple tumors ● Neuroblastoma, pediatric ● Osteoid osteoma ● Soft tissue tumors	● Lung cancer ● Lung metastases	● Bladder tumors ● Kidney tumors ● Prostate cancer	● Breast cancer

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 * Indications not being researched in a region have been removed from the key.
 † Center of Excellence

‡ System not in this region

Oncological continued

Region	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
The Netherlands												
Eindhoven University of Technology			●		●●●			●	●●			
University Medical Center Utrecht			●●	●					●			
Norway												
The Intervention Centre, Oslo University Hospital Rikshospitalet			●								●	
Russia												
Rostov Scientific Research Institute of Oncology		●	●●●●	●	●●●	●●		●●	●●	●	●●●	●
Spain												
Instituto Cartuja de Tecnicas Avanzadas en Medicina					●			●	●			
Switzerland												
FUS-Center, University of Zurich, Children's Hospital						●						
University of Geneva			●									
United Kingdom												
Imperial College London												
Institute for Medical Science and Technology			●		●	●		●	●		●●	●
The Institute of Cancer Research†			●●●			●●		●				
University of Dundee					●			●	●			

Region	Brain Tumors	Endocrine Disorders	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Europe*	● Brain metastases	● Thyroid cancer	● Colorectal tumors ● Esophageal tumors ● Liver metastases ● Liver tumors ● Pancreatic tumors	● Head & neck tumors ● Melanoma ● Multiple tumors	● Bone metastases ● Bone tumors ● Osteoid osteoma ● Soft tissue tumors	● Cancer pain ● Glioblastoma		● Bone metastases ● Cancer pain ● Osteoid osteoma	● Bone metastases ● Multiple tumors ● Neuroblastoma, pediatric ● Osteoid osteoma ● Soft tissue tumors	● Lung cancer ● Lung metastases	● Bladder tumors ● Kidney tumors ● Prostate cancer	● Breast cancer

Pre-clinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications.
 * Indications not being researched in a region have been removed from the key.
 † Center of Excellence

‡ System not in this region

Oncological continued

22 Asia
Sites by Region

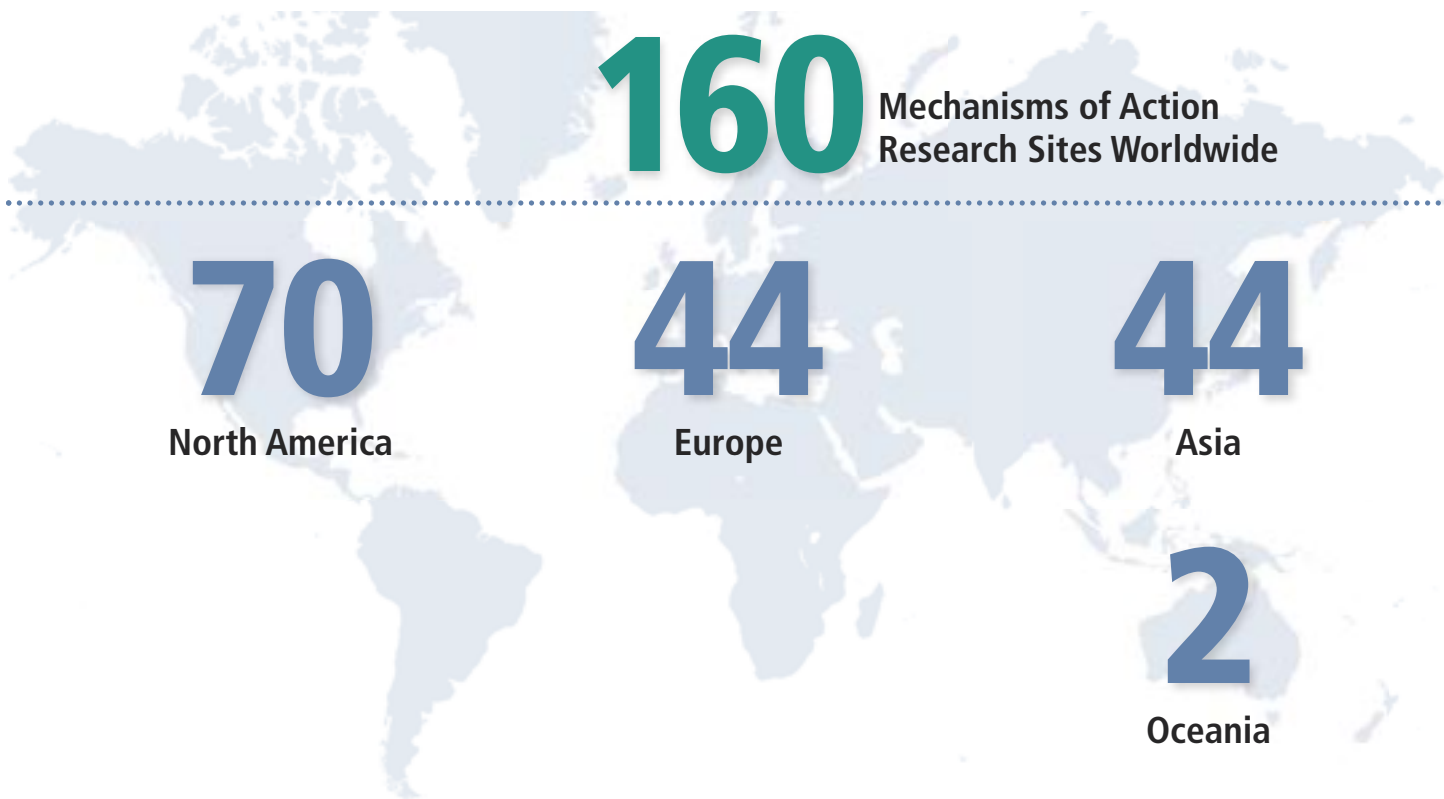
China	Brain Tumors‡	Endocrine Disorders‡	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Chongqing Medical University			●									● ●
Fudan University Shanghai Cancer Center					●			●	●			
Haifu Hospital			●		● ●			●	● ●		●	●
Peking Union Hospital, Chinese Academy of Medical Sciences			●									
PLA 301 Hospital (General Hospital of the People's Liberation Army)			●		● ●				● ●		●	●
Shenzhen Institutes of Advanced Technology - Chinese Academy of Science						●						
Southern Medical University												●
Tianjin Medical University			●									
Wenzhou Medical University						● ●		●	●			
Zhabei District Central Hospital												●
Japan												
Breastopia Namba Hospital												●
Republic of Korea												
Asan Medical Center			●									
Chaum Hospital					●			●	●			
Samsung Medical Center			● ●									
Seoul National University Hospital			●									
Singapore												
Nanyang Technological University				●							●	
Taiwan												
Academia Sinica										●		●
Chang Gung University						●						
National Health Research Institutes												●
National Tsing Hua University						●						
National Yang-Ming University						●						
Taipei Medical University Hospital											●	

Region	Brain Tumors‡	Endocrine Disorders‡	Gastrointestinal	Miscellaneous	Musculoskeletal	Neurological	Ophthalmological‡	Pain	Pediatrics	Pulmonary	Urological	Women's Health
Asia*			● Liver tumors ● Pancreatic tumors	● Head & neck tumors	● Bone metastases ● Osteoid osteoma ● Soft tissue tumors	● Cancer pain ● Glioblastoma		● Bone metastases ● Cancer pain ● Osteoid osteoma	● Bone metastases ● Osteoid osteoma ● Soft tissue tumors	● Lung cancer	● Kidney tumors ● Prostate cancer	● Breast cancer ● Cervical tumors ● Endometrial tumors ● Ovarian tumors

‡ Pre-clinical research sites are any site conducting non-human FUS research to collect data in support of the safety or feasibility of clinical applications.
* Indications not being researched in a region have been removed from the key.

‡ System not in this region

Mechanisms of Action Research Sites by Region

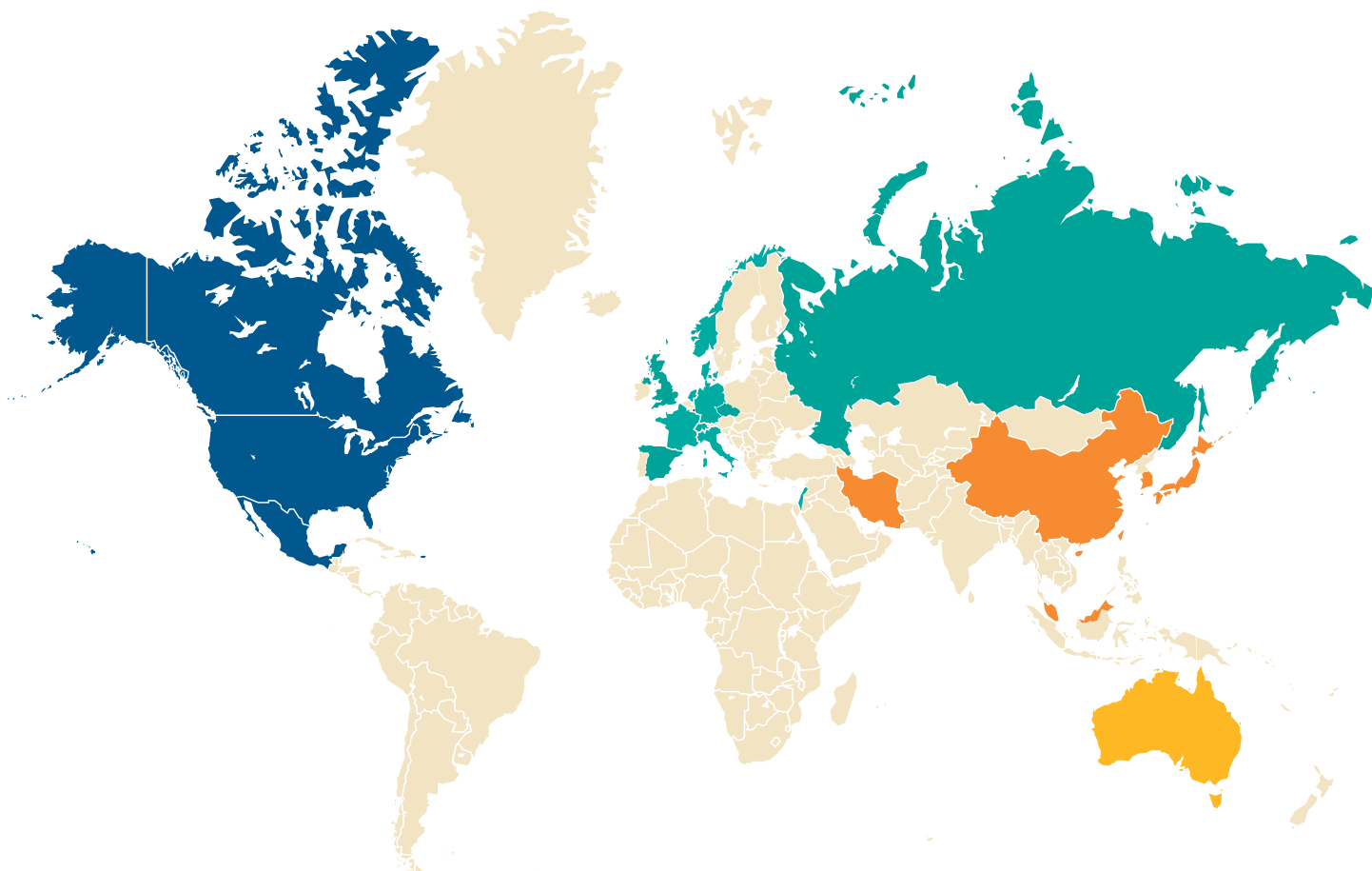


Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body. No mechanisms of action research sites in South America and Africa.

Mechanisms of Action

- | | | | | |
|--|---|---|--|---|
| <p>Drug delivery</p> <ul style="list-style-type: none"> ● Blood-brain barrier opening ● Drug delivery vehicles ● Hyperthermia ● Sonoporation ● Therapeutic delivery (unencapsulated) ● Vasodilation | <p>Immunomodulation</p> <ul style="list-style-type: none"> ▲ Immune cell delivery ▲ Immunomodulation ▲ Immunotherapeutic delivery | <p>Increased vascular permeability</p> <ul style="list-style-type: none"> ▼ Blood-brain barrier opening ▼ Drug delivery vehicles ▼ Stem cell delivery | <p>Tissue destruction</p> <ul style="list-style-type: none"> ■ Denervation ■ Histotripsy ■ Hyperthermia ■ Mechanical ablation ■ Thermal ablation ■ Vascular disruption ■ Other | <p>Other</p> <ul style="list-style-type: none"> ● Amplification of cancer biomarkers ● Angiogenesis ● Cardiac pacing ● Clot lysis ● Hemostasis ● Neuromodulation ● Radiosensitization ● Sensitization to chemotherapy ● Sonodynamic therapy ● Stem cell homing |
|--|---|---|--|---|

Mechanisms of Action Research Sites by Country



Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body. No mechanisms of action research sites in South America and Africa.

North America

- 7 Canada
- 63 United States

Europe

- 1 Cyprus
- 1 Czech Republic
- 1 Denmark
- 6 France
- 9 Germany
- 3 Israel
- 4 Italy
- 3 The Netherlands
- 3 Norway
- 2 Russia
- 2 Spain
- 3 Switzerland
- 6 United Kingdom

Asia

- 18 China
- 2 Iran
- 9 Japan
- 1 Malaysia
- 8 Republic of Korea
- 6 Taiwan

Oceania

- 2 Australia

Mechanisms of Action Research Sites by Action and Region

Action	Region				Totals
	N. America	Europe	Asia	Oceania	
Drug Delivery					
● Blood-brain barrier opening	21	10	18	1	50
● Drug delivery vehicles	11	4	4	–	19
● Hyperthermia	11	3	2	–	16
● Sonoporation	6	3	1	–	10
● Therapeutic delivery (unencapsulated)	14	6	2	–	22
● Vasodilation	2	–	–	–	2
Immunomodulation					
▲ Immune cell delivery	3	1	–	–	4
▲ Immunomodulation	19	7	6	–	32
▲ Immunotherapeutic delivery	6	1	–	1	8
Increased vascular permeability					
▼ Blood-brain barrier opening	14	5	3	–	22
▼ Drug delivery vehicles	18	12	15	–	45
▼ Stem cell delivery	9	–	1	–	10
Tissue destruction					
■ Denervation	4	4	–	–	8
■ Histotripsy	20	7	3	–	30
■ Hyperthermia	5	5	1	–	11
■ Mechanical ablation	19	12	9	–	40
■ Thermal ablation	34	25	13	1	73
■ Vascular disruption	13	3	3	–	19
■ Other	–	–	–	–	

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body. There are no mechanisms of action research sites in South America and Africa.

Mechanisms of Action Research Sites by Action and Region *continued*

Action	Region				Totals
	N. America	Europe	Asia	Oceania	
Other					
● Amplification of cancer biomarkers	11	1	1	–	13
● Angiogenesis	1	1	1	–	3
● Cardiac pacing	–	1	–	–	1
● Clot lysis	14	4	2	–	20
● Hemostasis	1	–	–	–	1
● Neuromodulation	22	8	8	1	39
● Radiosensitization	6	7	–	1	14
● Sensitization to chemotherapy	4	3	–	–	7
● Sonodynamic therapy	5	–	4	–	9
● Stem cell homing	3	–	–	–	3

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body. There are no mechanisms of action research sites in South America and Africa.

70 North America

Sites by Region

Canada	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
London Health Sciences Centre				■	
Ryerson University				■ ■	● ● ●
Sunnybrook Health Sciences Centre†	● ● ● ● ●	▲ ▲	▼ ▼	■ ■ ■	● ● ● ●
The Hospital for Sick Children (SickKids)	● ● ● ●		▼	■ ■ ■ ■	●
Toronto General Hospital				■	
University of Alberta					●
University of Waterloo		●			

United States

Arizona State University					●
Arkansas Heart Hospital			▼		
Boston University	● ● ●			■ ■ ■	●
Brigham and Women's Hospital†	●		▼ ▼	■ ■ ■	●
BURL Concepts Inc.	●			■	●
California Institute of Technology		▲	▼		
CHI St. Luke's Health				■	
Children's National Health System		▲	▼	■ ■ ■	●
Cincinnati Children's Hospital Medical Center		▲		■ ■	
City College of New York	●				
Columbia University	●		▼ ▼	■ ■	●
Drexel University			▼		●
Duke University			▼	■	
Food and Drug Administration			▼	■	●

Region

North America*

Drug delivery

- Blood-brain barrier opening
- Drug delivery vehicles
- Hyperthermia
- Sonoporation
- Therapeutic delivery (unencapsulated)
- Vasodilation

Immunomodulation

- ▲ Immune cell delivery
- ▲ Immunomodulation
- ▲ Immunotherapeutic delivery

Increased vascular permeability

- ▼ Blood-brain barrier opening
- ▼ Drug delivery vehicles
- ▼ Stem cell delivery

Tissue destruction

- Denervation
- Histotripsy
- Hyperthermia
- Mechanical ablation
- Thermal ablation
- Vascular disruption
- Other

Other

- Amplification of cancer biomarkers
- Angiogenesis
- Clot lysis
- Hemostasis
- Neuromodulation
- Radiosensitization
- Sensitization to chemotherapy
- Sonodynamic therapy
- Stem cell homing

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.

* Indications not being researched in a region have been removed from the key.

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Mechanisms of Action Research Sites, North America continued

United States continued	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Fox Chase Cancer Center			▼	■	
Georgia Institute of Technology	●●●	▲▲		■ ■ ■ ■	● ●
Indiana University School of Medicine	●			■	● ●
Iowa State University				■	●
Johns Hopkins University School of Medicine	●				
Medical University of South Carolina			▼	■	
Montefiore Medical Center			▼		
National Institutes of Health			▼▼▼		
North Carolina State University	●			■ ■	●
Northeastern University	●●●		▼		
Ohio State University	●		▼	■ ■	
Oklahoma State University	●●●	▲▲		■	●
ProMedica Toledo Hospital				■	
Purdue University - West Lafayette	●				●
Roswell Park Cancer Institute		▲			
San Diego State University		▲▲		■ ■	●
Stanford University School of Medicine†	●●●●	▲▲▲	▼▼	■ ■ ■	● ● ●
Swedish Neuroscience Institute					●
The Methodist Hospital			▼	■	● ● ●
Tulane University			▼	■ ■	● ●
UCLA Ronald Reagan Medical Center				■ ■ ■ ■	● ● ●
University of California, Davis		▲		■	●
University of California, Irvine				■	●
University of California, Los Angeles				■ ■	
University of California, San Diego Thornton Hospital	●				
University of California, San Francisco			▼	■ ■	●
University of Chicago	● ●			■ ■ ■ ■	●
University of Cincinnati				■ ■ ■ ■	●
University of Colorado Boulder	●				
University of Illinois at Urbana-Champaign					●
University of Kansas			▼	■ ■ ■ ■	
University of Maryland School of Medicine†		▲			●

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.
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MECHANISMS OF ACTION RESEARCH

Mechanisms of Action Research Sites, North America continued

United States continued	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
University of Michigan	● ●			■	●
University of Minnesota	● ● ● ●		▼ ▼	■ ■ ■ ■ ■	● ●
University of Nebraska Medical Center					●
University of North Carolina				■	
University of Pittsburgh Medical Center	●		▼	■	●
University of Puerto Rico					●
University of Southern California Keck Hospital	●	▲	▼	■	●
University of Texas at Austin	●				
University of Texas MD Anderson Cancer Center		▲	▼	■ ■	● ●
University of Texas Southwestern Medical Center	● ●		▼	■ ■	
University of Utah	● ● ● ●		▼	■ ■ ■ ■ ■	●
University of Virginia Health System†	● ● ● ● ● ●	▲ ▲ ▲	▼ ▼	■ ■ ■ ■ ■	● ● ● ● ●
University of Washington	● ●	▲		■	● ●
University of Wisconsin				■	
Vanderbilt University	● ●			■	● ● ●
Virginia Tech Carilion Research Institute	●	▲		■ ■ ■	
Wake Forest University Baptist Medical Center	●	▲	▼ ▼		●

Region
North America*

Drug delivery

- Blood-brain barrier opening
- Drug delivery vehicles
- Hyperthermia
- Sonoporation
- Therapeutic delivery (unencapsulated)
- Vasodilation

Immunomodulation

- ▲ Immune cell delivery
- ▲ Immunomodulation
- ▲ Immunotherapeutic delivery

Increased vascular permeability

- ▼ Blood-brain barrier opening
- ▼ Drug delivery vehicles
- ▼ Stem cell delivery

Tissue destruction

- Denervation
- Histotripsy
- Hyperthermia
- Mechanical ablation
- Thermal ablation
- Vascular disruption
- Other

Other

- Amplification of cancer biomarkers
- Angiogenesis
- Clot lysis
- Hemostasis
- Neuromodulation
- Radiosensitization
- Sensitization to chemotherapy
- Sonodynamic therapy
- Stem cell homing

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.

* Indications not being researched in a region have been removed from the key.

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44 Europe

Sites by Region

	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Cyprus					
Cyprus University of Technology	● ● ●		▼	■ ■	●
Czech Republic					
University Hospital - Brno				■	●
Denmark					
Aarhus University Hospital				■	
France					
CHU de Bordeaux - Hôpital Saint-André				■	
CHU de Tours - Hôpital Bretonneau	●		▼		
Hopital Pitie-Salpetriere	● ● ●		▼	■	●
Inserm Lyon†	● ● ●	▲	▼	■ ■ ■ ■ ■	● ● ●
Institut Langevin - ESCPI	●		▼	■ ■ ■	●
University of Franche-Comte				■	
Germany					
Amper Klinik				■	
Charite Universitaetsmedizin Berlin				■	●
German Cancer Research Center Heidelberg	●	▲	▼	■ ■	●
SRH Waldklinikum Gera				■	
University Hospital of Cologne	● ● ●	▲		■ ■ ■ ■ ■	● ● ●
University Hospital of Leipzig				■	●
University Hospital Schleswig-Holstein				■	
University of Heidelberg	●		▼	■	● ● ●
University of Munich			▼	■	

Region Europe*	Drug delivery ● Blood-brain barrier opening ● Drug delivery vehicles ● Hyperthermia ● Sonoporation ● Therapeutic delivery (unencapsulated)	Immunomodulation ▲ Immune cell delivery ▲ Immunomodulation ▲ Immunotherapeutic delivery Increased vascular permeability ▼ Blood-brain barrier opening ▼ Drug delivery vehicles	Tissue destruction ■ Denervation ■ Histotripsy ■ Hyperthermia ■ Mechanical ablation ■ Thermal ablation ■ Vascular disruption ■ Other	Other ● Amplification of cancer biomarkers ● Angiogenesis ● Cardiac pacing ● Clot lysis ● Neuromodulation ● Radiosensitization ● Sensitization to chemotherapy
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Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.

* Indications not being researched in a region have been removed from the key.

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MECHANISMS OF ACTION RESEARCH

Mechanisms of Action Research Sites, Europe continued

	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Israel					
Action Physics				■ ■ ■ ■ ■	
Chaim Sheba Medical Center				■	●
Technion - Israel Institute of Technology					● ●
Italy					
Istituto Superiore di Sanita				■	
Scuola Superiore Sant'Anna			▼	■ ■ ■	
University of Milano-Bicoca				■	●
University of Turin			▼		
The Netherlands					
Eindhoven University of Technology			▼	■ ■ ■	●
Radboud University Nijmegen Medical Centre		▲		■	
University Medical Center Utrecht	● ● ● ● ●	▲	▼	■ ■ ■ ■ ■	●
Norway					
Haukeland University Hospital			▼		
Norwegian University of Science and Technology	●		▼		
The Intervention Centre, Oslo University Hospital Rikshospitalet				■	
Russia					
N. N. Petrov Research Institute of Oncology				■	
Rostov Scientific Research Institute of Oncology				■	

Region

Europe*
Oceania*

Drug delivery

- Blood-brain barrier opening
- Drug delivery vehicles
- Hyperthermia
- Sonoporation
- Therapeutic delivery (unencapsulated)

Immunomodulation

- ▲ Immune cell delivery
- ▲ Immunomodulation
- ▲ Immunotherapeutic delivery

Increased vascular permeability

- ▼ Blood-brain barrier opening
- ▼ Drug delivery vehicles

Tissue destruction

- Denervation
- Histotripsy
- Hyperthermia
- Mechanical ablation
- Thermal ablation
- Vascular disruption
- Other

Other

- Amplification of cancer biomarkers
- Angiogenesis
- Cardiac pacing
- Clot lysis
- Neuromodulation
- Radiosensitization
- Sensitization to chemotherapy

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.

* Indications not being researched in a region have been removed from the key.

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Mechanisms of Action Research Sites, Europe continued

	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Spain					
CINAC HM Puerta del Sur				■	
La Paz University Hospital	●		▼		
Switzerland					
Center for Ultrasound Functional Neurosurgery				■	
University of Geneva				■	●
University of Zurich			▼		
United Kingdom					
Imperial College London				■	
Institute for Medical Science and Technology			▼	■	
King's College Hospital		▲	▼	■	
The Institute of Cancer Research†	●●	▲▲▲		■ ■ ■ ■ ■	●●
University College London					●
University of Hull				■	

2 Oceania
Sites by Region

	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Australia					
Royal Women's Hospital Melbourne				■	
University of Queensland		▲		■	●

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.
† Center of Excellence

44 Asia Sites by Region

China	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Beijing Normal University					●
Chongqing Medical University	●	▲	▼	■ ■	
First Affiliated Hospital of Nanjing Medical University			▼		
First Affiliated Hospital of Shihezi University					●
Nanjing Medical University				■	
Peking Union Hospital, Chinese Academy of Medical Sciences			▼		●
Queen Mary Hospital of the University of Hong Kong		▲		■	
Shanghai Jiaotong University	●			■	
Shenzhen Institutes of Advanced Technology - Chinese Academy of Science	●		▼	■	●
Shenzhen University	●		▼		
Southern Medical University			▼		
Sun Yat-Sen University	●		▼		
The Third Xiangya Hospital of Central South University				■ ■	
The University of Hong Kong			▼	■	
Third Military Medical University				■ ■	
Wenzhou Medical University	●				
Wuhan University	●				
Xi'an Jiaotong University				■ ■	●

Iran	Drug delivery	Immunomodulation	Increased vascular permeability	Tissue destruction	Other
Iran University of Medical Sciences	●		▼		
Islamic Azad University				■	

Region Asia*

Drug delivery

- Blood-brain barrier opening
- Drug delivery vehicles
- Hyperthermia
- Sonoporation
- Therapeutic delivery (unencapsulated)

Immunomodulation

- ▲ Immunomodulation
- #### Increased vascular permeability
- ▼ Blood-brain barrier opening
 - ▼ Drug delivery vehicles
 - ▼ Stem cell delivery

Tissue destruction

- Histotripsy
- Hyperthermia
- Mechanical ablation
- Thermal ablation
- Vascular disruption

Other

- Amplification of cancer biomarkers
- Angiogenesis
- Clot lysis
- Neuromodulation
- Radiosensitization
- Sonodynamic therapy

Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.

* Indications not being researched in a region have been removed from the key.

Mechanisms of Action Research Sites, Asia continued

	Drug delivery	Immunomodulation	permeability	Increased vascular Tissue destruction	Other	
Japan						
Fukuoka University School of Medicine						●
Hokuto Hospital					■	
Kobe Saisei Mirai Clinic						●
Kochi University Hospital				▼		●
National Center of Neurology and Psychiatry		●				
Teikyo University		●		▼		
Tohoku University					■	●
Tokyo University of Pharmacy and Life Sciences		●		▼		
Washokai Sadamoto Hospital					■	●
Malaysia						
University of Malaya				▼		
Republic of Korea						
Asan Medical Center					■	
Chonnam National University				▼		
Daegu-Gyeongbuk Medical Innovation Foundation (DGMIF)		●				
Ewha Womans University Medical Center						●
Jeju National University		●			■ ■ ■	●
Korea Institute of Science and Technology			▲		■	●
Samsung Advanced Institute of Technology				▼		
Seoul National University Hospital		● ● ● ●	▲	▼	■ ■	
Taiwan						
Academia Sinica					■	
Chang Gung University		● ● ●	▲	▼		●
National Chiao Tung University		●				
National Taiwan University		● ● ●	▲	▼	■ ■	
National Tsing Hua University		●		▼	■ ■	● ● ●
National Yang-Ming University		●				

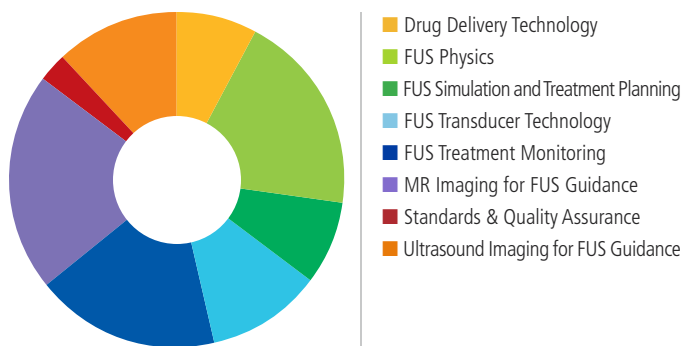
Mechanisms of action research sites are any site conducting basic science research to understand how focused ultrasound affects the body.

Technical Research Sites by Region



Technical research sites are any site investigating hardware or software solutions related to focused ultrasound. No technical research sites in Africa and South America.

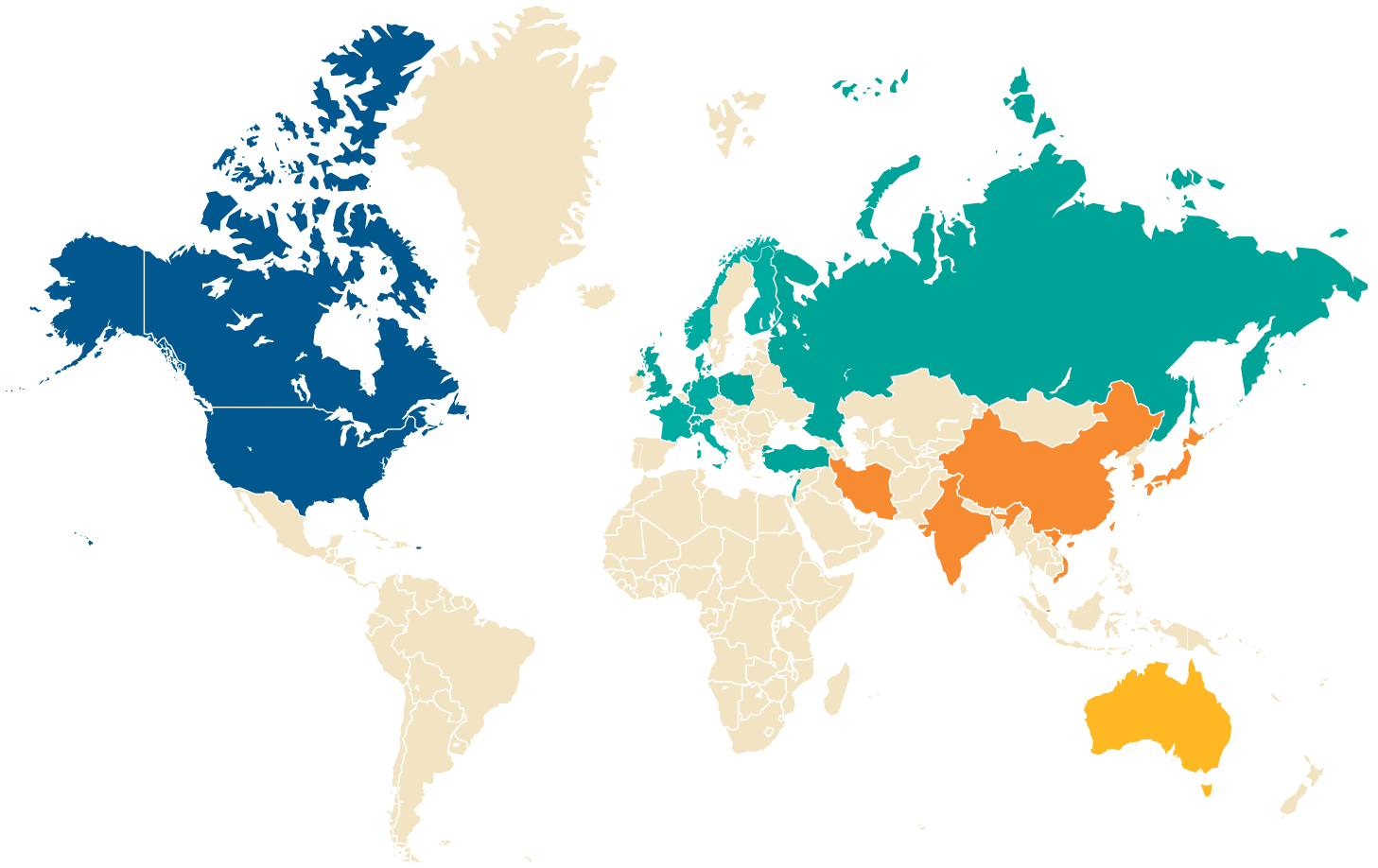
Type of Technical Research



Technical Research

Technical research programs are designed to address high priority scientific and engineering problems. Solutions developed by technical sites help to make clinical treatments faster, safer, less expensive, and available to the widest patient population possible. Technical research projects supported by the Foundation include those in areas of image guidance, treatment monitoring, transducer design, procedure planning, and physics simulation.

Technical Research Sites by Country



Technical research sites are any site investigating hardware or software solutions related to focused ultrasound. No technical research sites in Africa and South America.

■ North America

- 4 Canada
- 42 United States

■ Europe

- 1 Denmark
- 1 Finland
- 7 France
- 10 Germany
- 2 Israel
- 6 Italy
- 3 The Netherlands
- 2 Norway
- 2 Poland
- 2 Russia
- 5 Switzerland
- 1 Turkey
- 7 United Kingdom

■ Asia

- 13 China
- 1 India
- 1 Iran
- 8 Japan
- 5 Republic of Korea
- 1 Singapore
- 4 Taiwan
- 1 Vietnam

■ Oceania

- 1 Australia

Technical Sites by Region

	Region				Totals
	N. America	Europe	Asia	Oceania	
■ Drug Delivery Technology	16	8	2	1	27
■ FUS Physics	30	21	14	–	65
■ FUS Simulation and Treatment Planning	12	10	5	–	27
■ FUS Transducer Technology	14	17	7	–	38
■ FUS Treatment Monitoring	24	24	13	–	61
■ MR Imaging for FUS Guidance	27	26	17	–	70
■ Standards & Quality Assurance	4	4	2	–	10
■ Ultrasound Imaging for FUS Guidance	20	14	6	–	40

Technical research sites are any sites investigating hardware or software solutions related to focused ultrasound. There are no technical research sites in South America and Africa.

46 North America

Sites by Region

Canada

	Ryerson University
	Sunnybrook Health Sciences Centre†
	The Hospital for Sick Children (SickKids)
	University of Waterloo

United States

	Artann Laboratories
	Boston University
	Brigham and Women's Hospital†
	BURL Concepts Inc.
	CHI St. Luke's Health
	Children's National Health System
	Cincinnati Children's Hospital Medical Center
	Columbia University
	Drexel University
	Duke University
	George Mason University
	Georgia Institute of Technology
	Iowa State University
	North Carolina State University
	Ohio State University
	ProMedica Toledo Hospital
	Stanford University School of Medicine†
	Swedish Neuroscience Institute
	The Methodist Hospital
	Tulane University
	UCLA Ronald Reagan Medical Center

	University of California, Irvine
	University of California, Los Angeles
	University of California San Diego Thornton Hospital
	University of California, San Francisco
	University of Chicago
	University of Cincinnati
	University of Illinois at Urbana-Champaign
	University of Kansas
	University of Michigan
	University of Nebraska Medical Center
	University of Southern California Keck Hospital
	University of Texas MD Anderson Cancer Center
	University of Texas Southwestern Medical Center
	University of Utah
	University of Virginia Health System†
	University of Washington
	Urology Associates
	Virginia Tech Carilion Research Institute
	Wake Forest University Baptist Medical Center
	Washington University in St. Louis
	Worcester Polytechnic Institute

Region

North America

-
-
-
-
-
-
-
-

Technical research sites are any sites investigating hardware or software solutions related to focused ultrasound.


† Center of Excellence

50 Europe Sites by Region

Denmark

 Aarhus University Hospital



Finland

 VTT Technical Research Centre of Finland

France

  Centre Léon Bérard

   CHU de Bordeaux - Hôpital Saint-André

  CHU de Tours - Hôpital Bretonneau

      Hôpital Pitie-Salpetriere

      **Inserm Lyon†**

     Institut Langevin - ESPCI

  University of Strasbourg

Germany

  Charite Universitaetsmedizin Berlin


   Fraunhofer Institut BMT

    Fraunhofer MEVIS


   German Cancer Research Center Heidelberg

  Physikalisch-Technische Bundesanstalt

   SRH Waldklinikum Gera

      University Hospital of Cologne

 University Hospital Schleswig-Holstein

 University of Heidelberg

 University of Munich

Israel


    Action Physics


 Technion - Israel Institute of Technology



Italy


 European Institute of Oncology

 Istituto Superiore di Sanita

 Laboratorio di Tecnologie Oncologiche (LATO) HSR Giglio, Fondazione Istituto San Raffaele G. Giglio di Cefalu

   Scuola Superiore Sant'Anna







  University of Milano-Bicoca

 University of Rome - La Sapienza


The Netherlands


  Eindhoven University of Technology

 Radboud University Nijmegen Medical Centre

       University Medical Center Utrecht

Norway

 Norwegian University of Science and Technology

 The Intervention Centre, Oslo University Hospital Rikshospitalet

Poland

   Institute of Fundamental Technological Research - Polish Academy of Sciences

  Szpital Pro-Familia


Russia


 N. N. Petrov Research Institute of Oncology

  Rostov Scientific Research Institute of Oncology


Region Europe

 Drug Delivery Technology

 FUS Physics

 FUS Simulation and Treatment Planning

 FUS Transducer Technology

 FUS Treatment Monitoring

 MR Imaging for FUS Guidance

 Standards & Quality Assurance


 Ultrasound Imaging for FUS Guidance

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Technical Research Sites, Europe continued








Switzerland

	Center for Ultrasound Functional Neurosurgery
	FUS-Center, University of Zurich, Children's Hospital
	University Hospital Zurich
	University of Basel
	University of Geneva

Turkey














	Sabanci University
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United Kingdom


	Basingstoke and North Hampshire Hospital
	Churchill Hospital
	Imperial College London
	The Institute of Cancer Research†
	University College London
	University of Dundee
	University of Hull

34 Asia
Sites by Region


China

	Chongqing Medical University
	Fudan University Shanghai Cancer Center
	Nanjing Medical University
	Peking Union Hospital, Chinese Academy of Medical Sciences
	Peking University First Hospital
	Shanghai Jiaotong University
	Shenzhen Institutes of Advanced Technology - Chinese Academy of Science
	Southern Medical University
	The University of Hong Kong
	Third Military Medical University
	Tianjin Medical University
	Wuhan University
	Xi'an Jiaotong University









India

	Supercomputer Education and Research Centre
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Iran

	Islamic Azad University
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Japan

	Breastopia Namba Hospital
	Hokkaido University
	Hokuto Hospital
	Kochi University Hospital
	National Center of Neurology and Psychiatry
	Tohoku University
	University of Tokyo
	Washokai Sadamoto Hospital

Region
Asia

-  Drug Delivery Technology
-  FUS Transducer Technology
-  Standards & Quality Assurance
-  FUS Physics
-  FUS Treatment Monitoring
-  Ultrasound Imaging for FUS Guidance
-  FUS Simulation and Treatment Planning
-  MR Imaging for FUS Guidance


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Technical Research Sites, Asia continued


Republic of Korea

 Asan Medical Center

 Jeju National University

 Korea Institute of Science and Technology


 Seoul National University Hospital

 Sogang University


Singapore


 Nanyang Technological University

Taiwan


 I-Shou University

 National Health Research Institutes

 National Taiwan University

 National Tsing Hua University

Vietnam


 Pham Ngoc Thach University of Medicine

1

Oceania


Site by Region


Australia

 University of Queensland


Region
Asia
Oceania

 Drug Delivery Technology


 FUS Physics

 FUS Simulation and Treatment Planning

 FUS Transducer Technology

 FUS Treatment Monitoring

 MR Imaging for FUS Guidance

 Standards & Quality Assurance

 Ultrasound Imaging for FUS Guidance

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FOCUSED ULTRASOUND FOUNDATION

1230 Cedars Court, Suite 206
Charlottesville, VA 22903
434.220.4993 MAIN LINE

www.fusfoundation.org

Contact

Emily White, MD

Director of Operations

ewhite@fusfoundation.org EMAIL

434.277.1274 DIRECT LINE

Inquiries for reproduction can be directed to
Emily White at ewhite@fusfoundation.org

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