Merging minds,
medicine & industry
Biomedical technology is the 21st century’s odyssey, taking us past barriers that once stood in the way of insights and cures. More than any field of scientific discovery, it is expanding human potential, not only medically but also economically. In the aftermath of the human genome project, it has been richly collaborative. Innovation and technology transfer have caused drug discovery to surge. The high-technology sector of medical devices and systems holds as much potential. In 1997, BEACON seized on this unique focus, and has since become a driving force behind it. Headquartered in Hartford, Connecticut, BEACON has formed a preferential access network that links more than 35 academic, medical and corporate interests. Our focus as facilitator is to promote a meeting of minds and resources so that partnerships can thrive. And great ideas can proceed faster along the timeline of testing, prototyping and, ultimately, production.

BEACON is the only organization that gives bioengineering experts access to this full complement of resources. From scientific brainpower to commercialization capabilities. From clinics and labs to venture capital. All are available to members for active collaboration, eliminating the costs of infrastructure investment, while heightening all levels of expertise.

BEACON leverages all of these strengths and, for the mutual benefit of all partners, brings them into focus.
It began with an insight. BEACON’s founder, Joseph Bronzino, Ph.D., P.E., made a discovery in 1997. Four major academic institutions in Connecticut — Trinity College, the University of Hartford, the University of Connecticut (Storrs) and the University of Connecticut Health Center — had good but small bioengineering programs. Their joint resources, however, were impressive: 30+ faculty members with the potential to work together. Bronzino proposed a major program uniting these academic institutions with Hartford Hospital, John Dempsey Hospital and Baystate Medical Center. And BEACON was born, fueled by a three-year, $1 million grant from the Whitaker Foundation and matching funds from member institutions.

A brilliant exchange. By January 2000, BEACON had met all of its initial goals. First on our list was to integrate biomedical engineering courses at member institutions. Student researchers can now attend classes beyond their campus at no extra charge. To enrich the repository of scientific knowledge in Greater Hartford, we hired four new bioengineering faculty members with expertise in biomechanics and bioinstrumentation. And we brought about a transfer of technologies between labs, classrooms and clinics. A cross-cultural exchange was an unanticipated but very welcome outcome: our success inspired a group of schools in Germany to set up an alliance with BEACON, which continues to flourish.

Knowledge empowered. BEACON is primarily a facilitator, connecting its members with the full complement of our joint resources. Putting more torque behind ideas and invention. And saving companies the time they would ordinarily spend seeking experts or resources outside of their core capabilities. We’re moving beyond our geographic base, supporting efforts along the “Knowledge Corridor” that stretches between Northampton, Massachusetts and New Haven, Connecticut. We envision a day when BEACON’s collaborative partnerships will link labs and manufacturing floors from the Northeast to Puerto Rico.

“I applaud your efforts, passion, commitment and steadfastness to the goal of creating BEACON as a world-class organization.”

Thomas A. Goodrow, Vice President, Springfield Technical Community College

“BEACON is enhancing our relationships with others in the biotech sphere, particularly as it relates to our growing capability in clinical trials. I believe this type of relationship management and the opportunities will be critical catalysts to economic growth and development in Connecticut.”

Steven D. Hanks, MD MMM FACP, Chief Medical Officer, The Hospital of Central Connecticut
Our mission: engineering biomedical partnerships

The BEACON mission is to facilitate collaborative exchange and research among its industrial, clinical and academic partners. Our commitment is to foster an environment that optimizes the development and delivery of commercially viable innovations in biomedical science and engineering for healthcare applications.

OUR OBJECTIVES: Taking biomedical innovation to market.

Over time, BEACON’s success will be measured in viable products. Biosensors. Medical instrumentation. Artificial organs. Tissue engineering. Medical informatics. Medical imaging, Rehabilitation engineering. Biomaterials. We facilitate the science as well as the economics of innovation in all of these categories.

All of our objectives are pointed in this direction. From building our network in Connecticut and beyond to giving new medical device companies a jumpstart, BEACON is focused on innovations that can improve medical outcomes. Devices that can change lives for the better. And products that can generate real economic opportunity.

BEACON endeavors to:

- Continually develop a “Preferential Access Network” that gives our members access to the expertise and resources within the BEACON community.
- Promote collaborative research and partnerships among our academic, medical and industrial partners in the field of biomedical engineering.
- Facilitate the development of new medical device companies by assisting academics and clinicians in developing their business plans and obtaining funds.
- Provide educational opportunities (courses, seminars, curriculum, programs, etc.) that improve understanding and foster the acquisition of specific knowledge and expertise in the field of biomedical engineering.
- Build bridges to other centers and organizations interested in biomedical research and development.
- Develop BEACON hubs in other regions to enhance the overall leverage capabilities of our organization.

THE WORLD OF BIOMEDICAL ENGINEERING

Biomechanics
- Medical & Biological Analysis
- Biosensors
- Clinical Engineering
- Medical & Bioinformatics
- Rehabilitation Engineering
- Biomedical Instrumentation
- Bionanotechnology

Prosthetic Devices & Artificial Organs
- Medical Imaging
- Biomaterials
- Biotechnology
- Tissue Engineering
- Neural Engineering

Medical Informatics
Synergy: many minds on the same wavelength.

Success of any kind is seldom the result of a single action. It rides on a wave generated by many minds. In the bioengineering field, turning an idea into a product requires enormous resources as well as highly trained minds in several disciplines — a synergy that’s hard to come by from within a single organization.

The BEACON network is all about synergy and efficient use of resources, including time. Our success depends on scientific ingenuity and real clinical applications, as well as corporate commitment and conformity to a stringent code of ethics. The distinguished names currently on our membership list include academic institutions, medical centers, major corporations, and financial and law firms of distinction. Incubating companies add fresh insights and potential to our growing network, supported by members of established reputations.

Who can know for certain where the next biomedical engineering breakthrough will begin? In brokering collaboration between a diversity of experts, we are helping to form a crossroads where ideas, invention and industry can meet today — and advance technology’s next wave.

A summation of our parts. Since 1997, BEACON has evolved. Within the umbrella organization, three main entities now serve separate functions: collaboration, commercialization, and new research. Our not-for-profit parent organization, BEACON, builds and maintains our preferential access network. BEACON brings members together in collaborative ventures and partnerships, aiding the development of business plans and financing. BTN, Inc., our for-profit branch, provides services essential in turning a new medical technology into a commercial success. As BTN helps start-up companies roll out products with real profit potential, it will help support the non-profit mission of the BEACON Foundation, our third entity. A 501(c)(3) corporation, the Foundation receives major gifts from all sources, allocated toward research and development efforts in the realm of biomedical engineering.
Brain science: A biomedical engineering graduate traces memory's elusive path. With his soft-spoken voice, Joshua Griffis can make a complex experiment sound like simple arithmetic. But the Trinity College graduate ('03) has chosen a field of endeavor that is anything but simple — or soft. Griffis is immersed in biomedical engineering research requiring surgical dexterity as well as equations the length of a blackboard.

His research assistantship at Trinity College is currently funded through a federal grant program, the result of his supervisor's association with BEACON. His mission is to help determine how short- and long-term memory pathways develop in the brain by analyzing the firing patterns in the brains of infant rats. Over time, this work may have implications for aids that could assist learning-disabled children.

While an undergraduate at Trinity College, Griffis had committed to a major in biomedical engineering with a focus on electrical engineering. But Trinity’s curriculum was two courses shy of his ambitious goals, which included an interest in stem cell research. Through his advisor, he learned that he could receive the credits he needed by commuting to UConn Health Center (Farmington, Connecticut), thanks to the BEACON consortium. Advanced courses in tissue engineering and physiological systems bore fruit in research he presented at a BEACON symposium during his senior year.

A career in neuroscience and bioengineering looks very promising for Griffis. In the meantime, he is helping to answer some important questions that may someday serve the minds and memories of young learners.

Expert thinking. At BEACON, we can quickly refer companies to experts in any field for the completion of a project. From business to microbiology, our members are prominent practitioners.
Breakthrough: A lab in search of using ensembles of DNA markers comes of age. Alliances are the key ingredient today for successful ventures. This is especially true for emerging companies in the field of medical technology. One such example is GENOMAS®, Inc., a biomedical company advancing personalized medicine with revolutionary diagnostic Phyziotype™ for personalized health. Phyziotype systems provide physicians with the unprecedented capability to prescribe personalized and highly effective preventive exercise and diet programs and drug treatments for each patient. (www.genomas.net).

GENOMAS’ founder, Dr. Gualberto Ruaño, MD, PhD, has utilized his unique partnerships with Hartford Hospital, The Institute of Living, The Hospital of Central Connecticut and BEACON to continually flourish. Dr. Ruaño is the recipient of the first BEACON Medical Technology Award in recognition of his pioneering entrepreneurial and scientific contributions to personalized medicine. He was chosen because he is an international thought leader in the field of personalized medicine making revolutionary contributions to medical technology and its clinical application.

BEACON is at the forefront of creative synergies between industry, hospital and the capital markets to catapult many advances in the field of medical technology to the mainstream of healthcare.

"Through the exchange of sound and effective ideas, and because of our involvement as BEACON members in several technology initiatives, we have been able to develop furthermore our current international efforts and expand our core business stateside."

Oscar Misla, CEO, Ciracet Corporation, Puerto Rico

"BEACON has opened up new opportunities for us to explore in the Connecticut Corridor."

Donna Moats, Director, New Product Marketing Group, Tyco/Healthcare/Kendall
Fast forward: Biodynamics lab gets just-in-time delivery from machine technology center. Donald Peterson, Ph.D., is an inventor. It goes with his territory, the biodynamics lab at UConn’s Health Center (Farmington, Connecticut), where he serves as Assistant Professor of Medicine and Biomedical Engineering Coordinator. Tracking biomechanics, including nerve and muscle impulses, calls for sensitive devices that Dr. Peterson perfects in his lab. But producing them in quantities requires a precision machining team with small parts processing skills.

So when Dr. Peterson needed to produce a sensing device for an international study, he looked off-campus for a team of precision machinists. “Through BEACON, I learned about Asnuntuck Community College (ACC),” he says. Based in Enfield, Connecticut, the college’s Machine Technology Center was ready and willing to team up with biomedical researchers in producing multiple-piece units for test runs. “I was down to the wire when I contacted them,” says Dr. Peterson, “but they were able to produce the 15 units I needed quickly.”

In the span of 10 training days, ACC students and instructors had machined and assembled the devices, using a process as meticulous as clockwork. The devices were mechanical housing units for mini sensors that measure body vibrations and grip force. Strapped to a test subject’s hand, they can record the potentially damaging effect of vibrating tools — a chain saw, for instance — on nerve, bone and muscle. Thanks to ACC’s quick turnaround, the devices have already gathered data from test subjects in Sweden and Finland.

Frank Gulluni, ACC Machine Technology Director, and Bob Bressani and Bob Horrigan, staff members, welcome similar collaborations with UConn or other institutions. The biodynamics project provided a unique training experience for students as well as an academic partnership that may burgeon into externships and new opportunities. “Indirectly, the economic benefits for ACC are many and varied,” says Gulluni. Joint grant applications and courses that boost enrollment are just two examples.

“I’d welcome ACC students into my lab to learn prototyping skills for future inventions,” says Dr. Peterson. That could help speed an understanding of, and even cures for, painful debilities that now result when workers aren’t adequately protected from the tools of their trade.

Job surge. Over time, BEACON’s networking activities will help to strengthen the local economy. It’s likely that the new technologies and biomedical products generated will bring about an influx of new jobs.
Join a leading light. Shared resources. Active collaboration with experts in biomedical engineering and related fields. Access to facilities for testing and product development. Mentoring and development support for small companies. Networking opportunities. The interchange of ideas essential to educational and technological advancement. The BEACON network is a single source for all of these benefits. To find out more, contact us at 877.723.2266, or visit our website at www.beaconalliance.org. We offer corporate, medical and academic memberships. And we welcome your ideas.
"The Northeast's Knowledge Corridor extends from Northampton, Massachusetts to New Haven, Connecticut with Hartford as its epicenter. There’s no doubt that it can become a center for medical device and system development, making it an economic engine for the region. We are establishing an environment for continued enrichment of bioscience and biomedical engineering ventures. In the process, we are continually stirring the pot to form partnerships that will enhance the creative process."

Joseph D. Bronzino, Ph.D., P.E.,
President & Executive Director,
BEACON

THE WORLD OF BIOMEDICAL ENGINEERING

Biomechanics
Medical & Biological Analysis
Biosensors
Clinical Engineering
Medical & Bioinformatics
Rehabilitation Engineering
Physiological Modeling
Bionanotechnology

Prosthetic Devices & Artificial Organs
Medical Imaging
Biomaterials
Biotechnology
Tissue Engineering
Neural Engineering
Biomedical Instrumentation

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