



High-Throughput Aptamer Discovery

111 College Pl, Rm. 2-212
Syracuse, NY 13205 USA
www.aptaMatrix.com



Fast Facts

Founders:	Philip Borer Bruce Hudson
Date Founded:	2003
Employees:	5
Headquarters:	Syracuse, NY
Revenue:	N/A
University:	Syracuse University
Federal Funding Agency:	National Institutes of Health
Initial Research Funding:	\$991,000

AptaMatrix's focus is to accelerate the rate of aptamer discovery using its patent pending Acyclic Identification of Aptamers (AIA) approach in addition to developing its novel AlloSwitch™ sensor technology capable of creating rapid diagnostic tools for detection of chemical and biological targets, and leveraging this diagnostic platform for drug discovery applications.

Aptamers are DNA/RNA molecules that have affinities for their targets similar to antibodies. Aptamers have shown great potential to replace antibodies in biosensors, point-of-care diagnostics, therapeutics, and all of the areas currently dominated by antibodies. AlloSwitches™, have demonstrated the ability to transduce molecular recognition of biological targets into a real-time (seconds) optical signal for identifying environmental and terrorist released contaminants in liquid systems.

The Story Behind the Company

Syracuse University chemistry professor Philip Borer's ground-breaking research is at the core of both the AIA method and the AlloSwitch technology. Borer's research specializes in the structure and stability of nucleic acids and their complexes with proteins.

The AlloSwitch concept was developed at Syracuse in collaboration with fellow chemistry professor Bruce Hudson as an ultrasensitive method to detect binding to the nucleocapsid protein from HIV-1. Hudson and Borer had collaborated for many years in anti-AIDS research, however it became clear that AlloSwitch technology had wide application in contaminant sensing and drug discovery.

The fundamental research behind AptaMatrix was conducted at Syracuse University with funding from the National Institutes of Health.



When the meeting matters...

Syracuse Technology Garden
235 Harrison Street, Suite 201
Syracuse, NY 13202
www.collabworx.com



Fast Facts

Founders:	Marek Podgorny, Roman Markowski
Date Founded:	2000
Employees:	8
Headquarters:	Syracuse, NY
Revenue:	N/A
University:	Syracuse University
Federal Funding Agency:	Department of Defense (Defense Advanced Research Projects Agency)
Initial Research Funding:	\$3M

CollabWorx is a provider of secure real-time collaboration and Conferencing over Internet Protocol (CoIP) solutions in the government, health care, education, and green technology markets. CollabWorx specializes in supporting both synchronous and asynchronous communications to facilitate secure collaboration within the most demanding environments.

The company's flagship product, the Secure Real-Time Collaboration (SRTC) platform, is based on patented event-sharing technology that provides secure communications for voice, video, chat, instant messaging, advanced co-browsing, virtual whiteboards, document editing, and application and desktop sharing. This event-sharing technology differentiated CollabWorx SRTC platform from all other products and has been used for a variety of purposes ranging from on-line foreign language and advanced technical training to delivering a secure and dependable collaborative command and control solution for U.S. defense and intelligence agencies. Current deployments of CollabWorx technology include an on-line communication system for the FBI's "Render Safe" congressionally mandated operation essential for national security.

The Story Behind the Company

In the early days of the Internet, Dr. Marek Podgorny, a professor at Syracuse University's College of Engineering, was interested in how to harness the interconnectedness of the web as a tool in defense applications. Dr. Podgorny's significant contributions to development and application of massively parallel database systems, video-on-demand, and Internet collaboration led to the implementation of the first network-centric command and control architecture. The patented results of this DARPA-sponsored research project have been turned into the foundation of the CollabWorx Secure Real-Time Collaboration (SRTC) platform. Currently, the company is developing on-line health care solutions for medical consults and for advanced home care and patient monitoring over Internet.



70 Cohoes Avenue
Green Island, New York, 12183
www.cisuvc.com



Fast Facts

Founders:	Leo Schowalter Glen Slack
Date Founded:	1997
Date Acquired:	2011
Acquiring Company:	Asahi KASEI
Employees:	35
Headquarters:	Cohoes, NY
Revenue:	N/A
University:	Rensselaer Polytechnic Institute
Federal Funding Agency:	Department of Defense (Office of Naval Research, Ballistic Missile Defense Organization)
Initial Research Funding:	\$7M

Crystal IS, Inc. is a leading manufacturer of proprietary, high-performance UVC LEDs for monitoring, purification and sterilization applications in the water, food, air, and healthcare sectors. The performance and design freedom of the company's LEDs enable engineers to develop new applications and product designs, unconstrained by the limitations of traditional UV sources.

Crystal IS was acquired by Asahi KASEI (AK), a leading manufacturer in the chemicals and fibers, housing and construction materials, electronics and health care sectors, in 2011. Crystal IS continues to maintain its operations in Cohoes, NY, not far from Rensselaer Polytechnic Institute.

The Story Behind the Company

Crystal IS was founded in 1997 by Rensselaer Polytechnic Institute (RPI) Professors Glen Slack and Leo Schowalter, with the goal of aggressively developing defect-free, native aluminum nitride (AlN) substrates to enable reliable nitride semiconductor devices. The Department of Defense Office of Naval Research & Ballistic Missile Defense Organization funded the initial work that led to the formation of the company. RPI had unique facilities that made this research possible and Crystal IS has continued to take advantage of the unique facilities and expertise on the RPI campus.



100 Duffy Avenue, Suite 510
Hicksville, NY 11801
www.generalsentiment.com



Fast Facts

Founders:	Greg Artzt Mark Fasciano Steve Skiena
Date Founded:	2008
Employees:	14
Headquarters:	Jericho, NY
Revenue:	N/A
University:	Stony Brook University
Federal Funding Agency:	National Science Foundation
Initial Research Funding:	\$800,000

General Sentiment is a social analytics company that delivers insights that change the way brands make product and marketing decisions. Fueled by big data natural language processing and text analytics, the company offers a Social Intelligence Platform that analyzes more than 75 million online news and media sources every day and interprets these online conversations to discover actionable social insights.

In addition to the Social Intelligence Platform, General Sentiment provides an application program interface and a custom reporting service, which also allow corporate executives to comprehensively understand brand perception and optimize the effectiveness of marketing campaigns.

The Story Behind the Company

General Sentiment was founded in 2008 to harness the power of a natural language processing (NLP) and sentiment analysis system called Lydia, which was developed at Stony Brook University by company cofounder and professor of computer science Dr. Steven Skiena. Dr. Skiena serves as the company's chief science officer.

The initial research and development behind General Sentiment was undertaken at Stony Brook University with an \$800,000 grant from the National Science Foundation.



The future of breast imaging is here

150 Lucius Gordon Drive
Suite 112
West Henrietta, NY 14586
www.koningcorporation.com



Fast Facts

Founders:	Ruola Ning
Date Founded:	2002
Employees:	9
Headquarters:	Rochester, NY
Revenue:	N/A
University:	University of Rochester
Federal Funding Agency:	National Institutes of Health (National Cancer Institute)
Initial Research Funding:	\$679,597

Koning Corporation develops and manufactures advanced medical imaging systems that combine computed tomography with flat panel digital acquisition to produce superior high-quality images with true isotropic resolution. This revolutionary technology provides 3D volumetric imaging in significantly less acquisition time and at lower cost than comparative modalities.

Koning Corporation's cornerstone product, Koning Breast CT (KBCT) is focused on the early detection and diagnosis of breast cancer. The KBCT is the first fully-integrated, dedicated CT scanner designed specifically to image the entire breast with high spatial and contrast resolution at a radiation dose in the range of diagnostic mammography. The KBCT virtually eliminates tissue overlap and superimposition of structures, which are two factors often responsible for failure to diagnose breast cancer early, when it is more treatable.

The Story Behind the Company

The Koning imaging system was invented by company founder Ruola Ning, Ph.D., a professor of Radiology at the University of Rochester Medical Center, with initial support from the National Cancer Institute, part of the National Institutes of Health. The initial research funding to Dr. Ning led to the development of the concept for the cone beam CT scanner, the technology behind the KBCT.

The technology was further developed under the direction of URMIC Imaging Science Chair David L. Waldman, M.D., Ph.D., whose work led to the first patient scans with the KBCT in 2006. Substantial additional grant funding from NIH and the Department of Defense supported work by Koning and the University of Rochester to fully develop and commercialize the technology. The University of Rochester holds several patents on the cone beam scanner, and the UR licensed the technology to Koning Corporation to make, use and sell the devices.



7 Flowerfield, Suite 28
St. James, NY 11780
www.mesoscribe.com



Fast Facts

Founders:	Richard Gambino, Rob Greenlaw, Jon Longtin, Sanjay Sampath
Date Founded:	2002
Employees:	17
Headquarters:	St. James, NY
Revenue:	N/A
University:	Stony Brook University
Federal Funding Agency:	Department of Defense (Defense Advanced Research Projects Agency)
Initial Research Funding:	\$4M

MesoScribe specializes in manufacturing harsh environment sensors and structurally integrated electronics using its proprietary Mesoplasma™ Direct Write (DW) Technology. Direct Write devices are robust and reliable, and process automation enables high-precision manufacturing and high throughput production for cost-effective implementation. Offering unique advantages for sensor fabrication and electronics integration, Direct Write is a platform suited for extreme environment diagnostics, health management and prognosis, wiring and infrastructure, and integrated antenna solutions.

The Story Behind the Company

MesoScribe Technologies was founded in 2002 to commercialize the Mesoplasma™ Direct Write (DW) Technology developed at Stony Brook University's College of Engineering under a \$4 million grant from the Department of Defense's Defense Advanced Research Agency. The company is the sole commercialization lead for the Mesoplasma™ Direct Write process originally developed under the DARPA MICE (Mesoscopic Integrated Conformal Electronics) Program.

Dr. Sanjay Sampath, a distinguished professor of materials science and engineering, led the DARPA research at Stony Brook. He cofounded the company with Stony Brook colleagues Richard Gambino, professor emeritus of materials science, and Dr. Jon Longtin, an associate professor in the Department of Mechanical Engineering.

PHOEBUS OPTOELECTRONICS LLC

12 Desbrosses Street
New York, NY 10013

www.phoebusoptoelectronics.com



Fast Facts

Founders:	David Crouse, Michael Crouse, Thomas James
Date Founded:	2003
Employees:	6
Headquarters:	New York, NY
Revenue:	N/A
University:	The City University of New York
Federal Funding Agency:	National Science Foundation Department of Defense (Army Research Laboratory)
Initial Research Funding:	\$6M in SBIR/STTR and other government contracts

Phoebus is a research-phase nanotechnology company focused on design, prototyping and licensing of metamaterials – a new class of enabling optical materials - for alternative energy, remote sensing and chem/bio detection applications.

Phoebus is currently developing advanced solar cells, hydrogen generating and methanol generating devices, bio sensors, chemical sensors, and infrared imaging systems. The company has partnerships with numerous government agencies and large defense companies and is in discussions with several sets of venture capitalists for a large investment.

The Story Behind the Company

Phoebus Optoelectronics LLC was founded in 2003 to transition technology and commercialize nanotechnology, metamaterials, photonic and optical devices developed by company founders and researchers at the Center for Metamaterials at the City College of City University of New York (CUNY). Funding to the Center for Metamaterials from the National Science Foundation and the Department of Defense, through the Army Research Laboratory supported the preliminary research and development on the technology that would become Phoebus's first commercialized device. Company founder David Crouse continues to lead the National Science Foundation Industry/University Cooperative Center for Metamaterials.

As Phoebus has grown, it has increased its technical staff to six scientists and engineers and currently performs two-thirds of its research and development tasks within the company and subcontracts to CUNY about one-third of the R&D tasks. The company participates in programs offered by the CUNY Center for Advanced Technology in Photonics Applications (CUNY CAT), which supports industry/university collaborative projects leading to the transfer of technology to industry and the generation of economic impact.



P.O. Box 205
Pittsford, NY 14534
www.sciencetakeout.com

Fast Facts

Founders:	Dina Markowitz
Date Founded:	2008
Employees:	14
Headquarters:	Pittsford, NY
Revenue:	N/A
University:	University of Rochester
Federal Funding Agency:	National Institutes of Health
Initial Research Funding:	\$1.2M

Science Take-Out develops, manufactures and sells innovative and easy-to-use hands-on science activity kits designed for use by an individual student or small group of students. Science Take-Out kits are pre-packaged, hands-on science activities covering numerous topics in high school biology and middle school life sciences. Each kit contains all the materials and instructions needed to complete the laboratory activity. Science Take-Out activities do not require any special laboratory equipment, and can be used in any educational setting. Science Take-Out kits are created and field-tested by a team of science educators who have extensive expertise in curriculum, instruction, and assessment.

The Story Behind the Company

University of Rochester faculty members, Dr. Dina Markowitz and Susan Holt started Science Take-Out in 2008 in order to make hands-on science more accessible to teachers. Dr. Markowitz, a professor of environmental medicine and director of the UR Life Sciences Learning Center, and Holt, a retired high school biology teacher and a curriculum writer at the UR Life Sciences Learning Center, have been long-time collaborators on science education projects funded by the National Institutes of Health (NIH). Through an NIH Science Education Partnership Award (SEPA), funded by the National Center for Research Resources the UR researchers developed hands-on lab activities for high school students. Some of these activities eventually became Science Take-Out kits.

Currently, seven Science Take-Out kits are directly based on activities from Dr. Markowitz's university-based science education grant projects. These kits have become a successful way of disseminating University of Rochester's curriculum materials to teachers and their students. The company has 27 different kits that are in use in almost every state in the country and also in numerous schools internationally.

Stony Brook Biotechnology

39 Erland Road
Stony Brook, NY 11790

Fast Facts

Founders:	Anil Dhundale
Date Founded:	2004
Employees:	1
Headquarters:	Stony Brook, NY
Revenue:	N/A
University:	Stony Brook University
Federal Funding Agency:	National Institutes of Health (National Institute of Allergy and Infectious Diseases)
Initial Research Funding:	\$1M



Stony Brook Biotechnology, LLC was formed by Dr. Anil Dhundale to develop and commercialize proprietary biomarkers discovered at Stony Brook University. The first commercial goal was to enable microsphere-based transcript profiling of blood platelets for the diagnosis of Essential Thrombocythemia (ET) that causes high platelet levels. The diagnosis of ET by exclusion, currently the only available method, is costly, nonspecific and time consuming and invasive testing must be performed to rule out other disease causing high platelet levels. Stony Brook Biotechnology's value proposition is in time, money and discomfort saved versus the current standard of diagnosis by exclusion.

The company's longer-term vision is to find commercial application of other blood-related biomarker assays from research at Stony Brook University.

The Story Behind the Company

Fundamental hematologic research conducted over more than a decade in the laboratory of Dr. Wadie Bahou with Drs. Gnatenko, Dhundale and Wei Zhu at Stony Brook University resulted in discovery of the first biomarkers that could potentially serve as a diagnostic tool for hematologists. This work was funded by the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH). Other biomarkers have been discovered and are undergoing review for commercialization potential. Stony Brook Biotechnology is an R&D company at an early stage, seeking grant funding for proof of concept studies with biomarkers identified by academic research.



6 Metrotech Center
Brooklyn, NY 11201
www.synthezyme.com/



Fast Facts

Founders:	Richard Gross
Date Founded:	2008
Employees:	4
Headquarters:	Brooklyn, NY
Revenue:	N/A
University:	New York University
Federal Funding Agency:	Department of Defense (DARPA)
Initial Research Funding:	\$4.5M

SyntheZyme is a sustainable chemical company that is successfully bridging the renewables and chemical industries, transforming sugars and natural plant-based oils like palm, algae, soybean, canola and corn into commodity and specialty cost-effective bio-based commercial products.

The company uses the understanding of biocatalysis to replace petrochemical based industrial chemicals with bio-based and biodegradable alternatives. SyntheZyme's key strategy is in the development of modified sophorolipids to that can be tailored to different applications, focusing on chemicals for plastics, pesticides, cosmetics and personal care product ingredients.

The Story Behind the Company

SyntheZyme's technology is based on the innovations of Dr. Richard Gross, professor of polymer science and head of the Center for Biocatalysis and Bio-processing of Macromolecules at the Polytechnic Institute of New York University. Dr. Gross founded SyntheZyme in 2008 to pursue major opportunities in developing biocatalytic routes to bio-based monomers, polymers and surfactants.

He is the inventor of the concept of biobased ω -hydroxyfatty acid monomers and their polymers from triglyceride feedstocks. Gross discovered new technological approaches for amplifying the biological activity and fine-tuning the physico-mechanical properties of surfactants produced by microbes. The initial research that spawned SyntheZyme was funded by the Department of Defense's Defense Advanced Research Projects Agency (DARPA).

TONUS Therapeutics

8210 Golden Oak Circle
Williamsville, NY 14221

www.tonustherapeutics.com/index.htm



Fast Facts

Founders:	Philip Gottlieb, Jeff Harvey, Frederick Sachs, Thomas Suchyna
Date Founded:	2009
Employees:	4
Headquarters:	Williamsville, NY
Revenue:	N/A
University:	University at Buffalo
Federal Funding Agency:	National Institutes of Health Department of Defense
Initial Research Funding:	\$15M

Tonus Therapeutics is a young biotech company that is working to develop drugs that treat diseases involving biomechanics, with an immediate focus on muscular dystrophy.

Tonus currently has two drugs in the pipeline under patent protection that act on mechanosensitive ion channels, which are tiny conduits that help control the flow of electrolytes, such as calcium across the cell membrane. In healthy cells the channels are closed, but when a cell is stretched or contorted, the channels open and let calcium and other substances into the cell. This is what happens in muscular dystrophy. The Tonus drugs are the only drugs known to be specific for this class of ion channels.

The Story Behind the Company

Originally named Rose Pharmaceuticals, Tonus Therapeutics was founded based on the work of Dr. Frederick Sachs and his collaborators at the State University of New York at Buffalo in the Department of Physiology and Biophysics and the Center for Single Molecule Biophysics. Dr. Sachs and his research team, including company co-founders Dr. Thomas Suchyna and Dr. Philip Gottlieb, were studying the effect of venoms on mechanosensitive ion channels and discovered a peptide in the venom of the Chilean rose tarantula, which they named GsMTx4. This research was significant because GsMTx4, now made by chemical synthesis, has been classified by the U.S. Food and Drug Administration as an “orphan drug” for muscular dystrophy, a designation used to recognize promising methods of treating rare diseases.

The work of Dr. Sachs and his research team that led to the formation of Tonus Therapeutics was supported with grants from the Department of Defense and the National Institutes of Health, as well as the Oishei Foundation of Buffalo.



Delivering Innovative THz Solutions to the World

15 Tech Valley Drive, Suite 102
East Greenbush, New York 12061
www.z-thz.com



Fast Facts

Founders:	Thomas Tongue, Wendy Zhang, Xi-Cheng Zhang
Date Founded:	2005
Employees:	11
Headquarters:	East Greenbush, NY
Revenue:	N/A
University:	Rensselaer Polytechnic Institute
Federal Funding Agency:	National Science Foundation, Department of Defense (Army Research Office)
Initial Research Funding:	\$4M

Zomega Terahertz Corporation is focused on developing and deploying Terahertz-based technology solutions for both the public and private sector. Terahertz has the ability to penetrate through many common non-metallic materials. The necessity for devices and systems that provide material-specific information has made terahertz waves a compelling option for non-destructive testing and stand-off evaluation of materials.

Terahertz waves have low photon energies, one million times weaker than x-rays, and will not cause harmful photoionization in biological tissues, which has advantages for imaging and in operational contexts where an operator or other subjects may be exposed to terahertz radiation. In addition to being considered safe for most applications, terahertz radiation can penetrate through many commonly used nonpolar dielectric materials such as paper, cardboard, textiles, plastics, wood, leather and ceramic with moderate attenuation. This allows terahertz waves to be used in non-invasive and non-destructive inspection using spectroscopy and imaging techniques.

The Story Behind the Company

While at Rensselaer Polytechnic Institute, Dr. Xi-Cheng Zhang, an established leader in the development of terahertz technology and director of Rensselaer's Center for Terahertz Research, made breakthroughs in developing electro-optic terahertz emitters and detectors that have opened the door to tremendous sensing and imaging opportunities for academic and industrial applications. Zomega Terahertz Corporation was formed in 2005 to commercialize Zhang's advances in terahertz technology.

Research and development of some of the patented terahertz technology licensed by Zomega was conducted at Rensselaer Polytechnic Institute with federal grants from the National Science Foundation, Department of Defense's Multi-University Research Initiative and the Army Research Office.