

Breast Cancer Detected Sooner

LORAD says its low-radiation imaging solutions are designed to catch cancer early.

Lorad says it has a track record of developing leading-edge technology.



WITH PINK RIBBONS AND MARATHON sponsorships, many companies support research and treatment for breast cancer, but LORAD has dedicated itself to providing innovative breast imaging solutions for the early detection of breast cancer. LORAD, a Hologic Inc. company, says it has established a track record for developing leading-edge technology to produce superior image quality and enhanced detection capabilities.

Founded in 1984, LORAD, which is short for "low radiation," set out to "commercialize the industry's first high-frequency, inverter-type, constant-potential mammography unit generator." According to the company, this product, launched just a year after the company started, reduced a mammography radiation dose by one-half and became the industry benchmark. The company has since continued to develop new and enhanced products for detection of the disease.

COMPANY PROFILE:

LORAD

- www.lorad.com
- 2003 sales: Approx. \$90 million
- Headquarters: Danbury, Conn.
- Employees: 250
- Products: Low-radiation mammography
- LORAD: "LORAD became the only company to develop four different mammography models."

years of breast imaging," the company says. "The patented HTC technology reduces X-ray scatter in two dimensions, delivering superior contrast and resolution without an increase in radiation dose."

In 2003, the company says, it began full commercial production of its mid-tier system, the LORAD Affinity, which can also be configured with its HTC technology. "The LORAD Affinity is a high-performance screen-film mammography system specifically developed to fill a market need for cost-effective product, with performance characteristics similar to high-end systems," the company says. "The Affinity replaced our previous mid-tier system, the Elite, which is no longer manufactured by LORAD."

Hologic

In 2000, Hologic acquired Trex Medical Corp., which included the LORAD product line. Since then, the company estimates it has sold more than 11,000 mammography systems world-

"LORAD became the only company to develop four different mammography models, including the self-propelled mobile mammography system," the company says. "Today, LORAD offers the most complete, technically sophisticated portfolio of mammography and minimally invasive biopsy systems available from a single provider."

The company offers a broad line of breast imaging products, including the Selenia full field digital mammography system, a series of screen-film mammography systems and a range of breast biopsy systems. This system was FDA approved in 2002.

"Its technology is based on our proprietary, amorphous selenium DirectRay digital detector, which preserves image sharpness by directly converting X-rays to electronic signal," the company says.

"We believe our Selenia full field direct-to-digital mammography system positions us to expand our share of the mammography market by offering clinicians one of the most advanced tools available for early detection of breast cancer."

LORAD's highest-end screen-film mammography system is currently the M-IV Platinum, which the company says is considered a technology leader in the mammography marketplace. "The M-IV Platinum incorporates our high transmission cellular (HTC) grid, recognized by Frost & Sullivan in connection with LORAD's receipt of the 2001 Frost & Sullivan Technology Innovation Award, as one of the most effective contrast improvements in 20



wide. "Our products are known within the industry for superior image quality and technological innovation," the company says. "We successfully integrated our DirectRay technology into the LORAD mammography product line and offer both digital upgrades to our existing installed base and new digital systems to potential customers."

Hologic is a publicly traded company based in Bedford, Mass. It says it is the leading provider of a broad array of radiographic solutions and ultrasound systems that incorporate direct-to-digital radiographic imaging technologies for both women's health and general radiographic applications.

Hologic was founded in 1986 by former CEO and Chairman S. David Ellenbogen and Chief Technical Officer Jay A. Stein, Ph.D. The company says its core business units are focused on osteoporosis assessment, mammography and breast biopsy, direct-to-digital X-ray for general radiography applications and mini C-arm imaging for orthopedic applications.

The company says it revolutionized the bone densitometry market with the introduction of the first dual-energy X-ray (DXA) bone densitometer in 1987. Currently,

Hologic develops, manufactures and markets X-ray bone densitometers and ultrasound bone analyzers that address the market for osteoporosis prevention and treatment – a key element of women's healthcare, the company says.

"[Our] Quantitative Digital Radiography [QDR] X-ray bone densitometers are used for the precise measurement of bone density to assist in the diagnosis and monitoring of osteoporosis and other metabolic bone diseases," the company says. "[We] have continued to maintain a position of leadership in this field through investment in research and development."

According to the company, the most notable recent product introductions include the Discovery QDR series of bone densitometers and Instant Vertebral Assessment technology. "[Our] densitometry systems are used by more leading medical schools, universities and osteoporosis opinion leaders than any other bone densitometer," the company says. "The current installed base is over 10,000 bone densitometry systems."

Today, Hologic employs approximately 740 people worldwide. It operates manufacturing facilities in Newark, Del., and Danbury, Conn. The company says it also maintains European sales and service programs in Belgium. Hologic says it operates an active R&D program "dedicated to bringing a continuing series of new products to market that will allow Hologic to be a significant participant in the digital imaging market."

Breast Cancer News

According to the Susan G. Komen Breast Cancer Foundation, many advancements in the field of cancer research and treatment were introduced and discussed at the annual meeting of the American Association for Cancer Research (AACR) in March 2004. The organization

Eastman Kodak Co. congratulates LORAD on its commitment to saving lives through the development of innovative diagnostic imaging products. Kodak's Image Sensor Solutions group specializes in developing and manufacturing charge couple device (CCD) and image sensor components used in high-performance commercial, industrial and health imaging applications such as the LORAD MultiCare Prone Stereotactic Breast Biopsy System. Kodak Blue Plus full-frame and interline CCDs are helping systems integrators provide cost-effective digital imaging products for use in general radiography, cardiology, fluoroscopy and mammography. "Image Sensor Solutions is proud to be an integral part of LORAD's most-advanced stereotactic biopsy products," says Chris McNiffe, Image Sensor Solutions, "and honored to be selected as a partner in LORAD's success."

released a report highlighting the developments that will affect patients and doctors dealing with the disease.

According to the group, the meeting featured advances in cutting-edge developments in laboratory, translational (research from the lab to the bedside) and clinical cancer research.

"The overall emphasis of the 2004 meeting was on innovation, and there was a lot of excitement about novel approaches to accelerate targeted drug development," the group said. "Although we are not there yet, the meeting certainly showed that there is progress being made."

One focus of the meeting was making a commitment to cancer research, discussed by Dr. Andrew C von Eschenbach, director of the National Cancer Institute (NCI) in Bethesda, Md. In his presentation, he noted the explosion in biomedical research over the past few years and said this research should provide opportunities to prevent more cancers from developing, improve the capability to detect earlier and safely eliminate the cancers that do develop.

He said this research should "allow the ability to modify and change the behavior of cancers so that people live with, not die from the disease." According to the group, von Eschenbach is optimistic that the cancer research community will achieve this through:

- The discovery of important events that occur within the cancer cell and its microenvironment.
- The development of state-of-the-art interventions for the detection, treatment and prevention of cancer.
- Delivering the care to all in need.

"This research is vital to our ability to take control of and overpower the disease," he stated.

In regards to new technologies, the meeting focused on nanotechnology – "the science of manipulating individual atoms and molecules to assemble themselves into microscopic structures, devices and systems that have unique properties and functions because of their small size."

According to the group, nanotechnology has many potential uses in the prevention, early detection, diagnostic imaging and

treatment of cancer.

A topic of many presentations was chemoprevention – the use of drugs and nutrients to prevent cancer. "Chemoprevention researchers try to find substances – in food or pharmaceuticals – that reverse, suppress, prevent or delay the progression from a precancerous state to cancer," the group says. "Their goal is to use these substances as a prevention strategy for people at a higher risk for cancer."

Some presenters discussed the role diet plays in cancer prevention and, thus, chemoprevention. Dr. Paul Talalay of John Hopkins University presented the ninth annual DeWitt S. Goodman Memorial Lecture and spoke about the "cancer-protective effects" of broccoli and broccoli sprouts, which contain sulforaphane – an antioxidant thought to be cancer fighting. "Other early research suggests that diets rich in antioxidants found in fruits and vegetables may lower cancer risk," the group says.

An enzyme called COX-2 was also discussed in terms of chemoprevention. The enzyme, which is found in normal cells as well as precancerous and cancerous cells, is thought to possibly promote the development of cancer. "Researchers have found that COX-2 inhibitors, medications typically used to decrease pain and inflammation, may have a role in slowing or preventing the growth of cancer cells," the group says. "The first evidence for their cancer preventative activity was noted in patients at high risk for developing colorectal cancer. Currently, clinical trials are being done to determine whether COX-2 inhibitors may have a role in preventing the development of breast cancer." ■

Pinnacle Data Systems Inc. has been designing, manufacturing and supporting OEM-specific server solutions for the medical equipment market place for over a decade. By leveraging its engineering, integration and repair capabilities in conjunction with technology partnerships, PDSi has been delivering tailored, OEM programs to medical industry leaders like Hologic, Inc. and LORAD, a Hologic company. These programs allow these organizations and others the opportunity to reduce their time to market and greatly extend their product lifecycle.

