

# Hologic - Cytac Merger Creates Global Leader in Women's Health

What do you get when you cross a women's health company that sells mammography and osteoporosis assessment screening and diagnostic imaging technologies with a women's health company that sells diagnostics and therapeutic devices to Ob-Gyns? A single company capable of selling goods and services across the entire continuum of care, according to Delaware based Jim Culley, Ph.D., Director of Strategic Projects for **Hologic Inc.**, explaining the reasoning behind the recent \$6.2 billion merger of Hologic with **Cytac Corp.**

Hologic, which reported 2006 sales of \$463 million, began with proprietary imaging technology for the assessment of bone densitometry, bought its way into digital mammography with the acquisition of Newark, Delaware based **Direct Radiography Corp.** from **Sterling Diagnostic Imaging**, which had acquired the business from **DuPont**. The acquisition netted Hologic a critical proprietary direct-to-digital imaging platform, and the company didn't realize it at the time, the acquisition would ultimately lead to explosive growth in the years to come.

Hologic's acquisition of Direct Radiography is a good example of what a mid-sized company can do that a giant competitor can't. "We were in need of diversification and we were willing to take chances," says Culley. "DuPont developed it, and they'd already spent millions of dollars on it, but there were still years of development work. When we acquired the company it had negative cash flow. That's not the profile of a company that a Siemens or GE would acquire, particularly when breast cancer isn't of overall strategic significance to them."

Initially, Hologic continued developing the Direct Radiography products for chest and extremity imaging. However in 2000, Hologic had the opportunity to acquire **Trex Medical Corp.**, the leading manufacturer of analog mammography and breast biopsy systems with the well known Lorad brand. The acquisition catapulted Hologic to a leadership position in analog mammography, but it also gave the company the springboard for its largest product ever. "We combined the Direct Radiography Corp. detector technology with the Lorad platform to create what is become the best of breed digital mammography product, our Selenia," Culley noted. "Selenia captured early a 60% share of the U.S. digital mammography market in 2007 and is gaining significant share in Europe, Asia and South America."

Selenia uses amorphous selenium as a photoconductor to absorb x-rays and directly generate electronic signals without first converting them to light. The process eliminates light diffusion and cuts radiation scatter, resulting in better resolution and contrast.

For its next act the Delaware Hologic site is helping to develop the first breast tomosynthesis (3D mammography) system. Tomosynthesis yields 3D views of mammography at x-ray doses similar to conventional 2D digital x-ray mammography. Clinicians hope that tomosynthesis will help them detect and characterize suspicious lesions better by eliminating many common imaging problems, such as overlapping and shadows that can obscure lesions. Late last year, Hologic submitted the technology for FDA approval and the company is hopeful that it can beat its competitors in bringing this technology to market.

As mammography goes digital, something else happened: the rapid pace of change and technological obsolescence that go hand in hand with digital products shorten the replacement cycle for imaging equipment. "If you look at the U.S. market," says Zhenxue Jing, Ph.D., VP of Advanced Technologies & Newark Engineering, "there are 13,600 mammography systems in the

market, 4,000 of them are digital. Digital has created a sense of technological obsolescence with clearly defined clinical benefits to the new technology. If you can find cancers earlier, even in subsets of women, say those under 50, or those who have dense breasts, or those who are pre or perimenopausal, you are doing a disservice if you don't have digital."

Hologic is ideally positioned to take advantage of the changes in mammography. "Within a five to seven year period, we will have two to three new technologies - analog to digital, digital to tomosynthesis, and tomosynthesis to some fusion aspect where mammography is combined with the results of some other imaging modality," adds Jing.

But while the Delaware based detector business has been the growth engine for Hologic, the company has solidified its position in mammography with four acquisitions in just over a year, and in the process, moved from the merely diagnostic side to the interventional side with the purchase of **Suros Surgical Systems Inc.**, the developer of minimally invasive biopsy and excision systems for the breast. At the same time last year, Hologic also strengthened its breast imaging technology base with the purchase of R2 Technology, adding computer aided detection to its mammography product line.

Similarly, Cytac, which posted sales of \$608 million in 2006, began with a successful diagnostic test that it developed in house, the *ThinPrep* pap test and imaging system for cervical cancer screening, and through a series of acquisitions built up its presence in Ob-Gyn markets. Making the link from the diagnosis to the treatment of cancer, Cytac bought **Proxima Therapeutics** for \$160 million in 2005. It was, however, the \$325 million acquisition of **Novacept** in 2004 that signaled its transformation from a diagnostics company operating in cervical cancer to a specialty company targeting the Ob-Gyn market. Novacept developed a device for minimally invasive endometrial ablation for use in the physician's office, and its rapid adoption demonstrated that there was a need for new treatment options in a market that has, until fairly recently, simply resorted to the invasive removal of reproductive organs as the solution to a host of women's conditions. Even today, there are 600,000 hysterectomies in the U.S. each year.

Cytac had already gone a great distance to bring innovative technologies under a single umbrella, and now the Hologic merger unifies the diagnosis and treatment of women's disorders in an even larger framework. The merger puts together non-overlapping product lines in a leading health care company with the largest sales and service organization focused on women's health.

The merger signals that the time has finally come for the minimally invasive revolution--evidenced by small battles already fought and won in niche markets--in gynecology. "Today we are all focused on trying to provide better medicine at a lower cost. That means less trauma, less morbidity, things that are not only good for the patient, but the health care system. The earlier we find problems, the easier it is to treat and cure it in a less invasive way at a lower cost," says Culley. And now Cytac brings other important pieces--minimally invasive therapeutic devices and access to treating physicians, which are also gatekeepers to other providers of women's health services--to diagnostic laboratories, radiology centers, and the oncology community. "The Hologic-Cytac merger provides, in one company, the framework to screen, diagnose, and treat women's disorders."

Culley points out that combined, "Hologic and Cytac hold the number one position in nine different technology areas, and there is no overlap. We are clearly complementary in terms of market access to different technologies." Cytac calls on breast surgeons, Hologic does not. Hologic has image-guided biopsy technologies, and other image-guiding capabilities, and can enable future minimally invasive therapies. Indeed, there is no need for fledgling women's

health companies to wring their hands about the removal, from the list of possible exit strategies, two acquisitive women's health companies. Culley says the company won't sit back and do nothing while it works through merger integration issues; it will continue to tuck into its portfolio acquired companies and technologies that make sense. Even as it worked on the Cytoc merger, Hologic entered into a definitive agreement to acquire **BioLucent Inc.**, the manufacturer of a radiolucent breast cushion that makes mammography more comfortable for women. Likewise, Cytoc, which has a \$100 million venture fund available for emerging technologies, recently invested in the Series A round of **Combinent BioMedical Systems Inc.**, the developer of a device for vaginal drug delivery.

"In the future," says Culley, "We believe there will be an increasing number of indications that can be addressed by incorporating image guidance to least invasive approaches for diagnosis, treatment and therapy. This merger helps us to better position for this exciting clinical movement."

## **New Additions to the Hologic Family of Products**

### **ThinPrep® Cervical Cancer System**

The most widely used method for cervical cancer screening in the United States.

### **NovaSure® Endometrial Ablation System**

Offers a quick, simple and safe alternative to hysterectomy and hormone therapy for the treatment of menorrhagia (heavy menstrual bleeding).

### **FirstCyte® Breast Cancer Risk Assessment Test**

Used to detect atypical changes in cells lining the milk ducts, where an estimated 95 percent of all breast cancers originate.

### **MammoSite® 5-Day Targeted Breast Cancer Radiation Therapy System**

Allows physicians to deliver radiation from inside the breast following removal of a tumor. This technology enables women to complete radiation therapy in up to 5 days.

### **FullTerm® Preterm Birth Fetal Fibronectin Test**

Shown to be the single strongest independent predictor of preterm birth.

### **GliaSite® Brain Cancer Radiation Therapy System (RTS)**

One of the most promising therapies introduced in the last ten years, GliaSite RTS is designed for the treatment of newly diagnosed, metastatic and recurrent brain tumors by delivering radiation from within the cavity created by the surgical removal of the tumor.

### **Cellient® Automated Cell Block System**

The first fully automated cell block system. The vacuum-assisted filtration concentrates available cells within the block. You're left with diagnostically useful, higher-quality blocks you can review more efficiently—all in under an hour



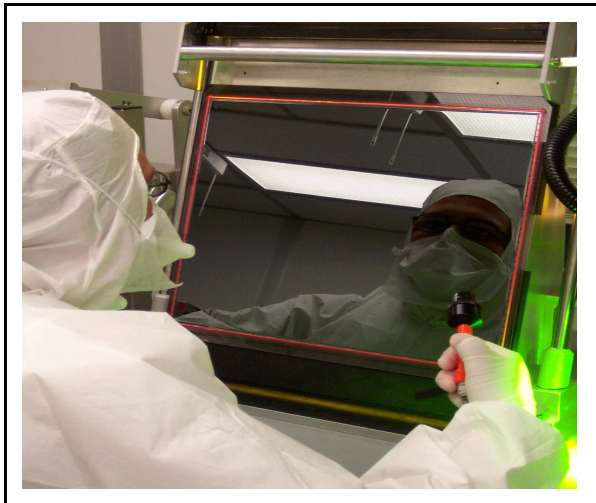
Hologic manufactures digital mammography at their manufacturing facility in Newark, Delaware. The manufacturing of detectors consists primarily of vapor deposition coatings in clean rooms, microelectronics fabrication, assembly, test, burning and quality control.



Hologic became a major player in digital mammography with the acquisition of Newark, Delaware based Direct Radiography Corp. from Sterling Diagnostic Imaging, which had acquired the business from DuPont.



Tom Carper was an early supporter of digital imaging technology and visited the Newark plant site when then Sterling Diagnostic Imaging began their first major expansion into digital x-ray imaging



Just under 200 Hologic employees work in the company's 168,000 square foot research and development, manufacturing and administrative site in Newark, Delaware.