

## Pittsburgh Biotech Innovator Seeks to Advance Hyperthermic Cancer Treatment



by Elizabeth Pagel-Hogan

Hyperthermia, or thermal therapy, is considered an effective means of treating cancer by raising the temperature of body tissues and cancer cells, thereby killing the cells or making them more susceptible to radiation treatments.

ThermalTherapeutic Systems, based in Pittsburgh, PA, seeks to provide economical and standardized access to hyperthermic perfusion with VERATHERM, a portable hyperthermic perfusion system. ThermalTherapeutic Systems designed VERATHERM for perfusionists, physicians and researchers involved in the field of hyperthermic and normal-thermic perfusion and is led by a team of ex-

perts in the fields of hyperthermic perfusion, molecular diagnostics, and medical device manufacturing.

Gardiner Smith, President and CEO, joined ThermalTherapeutic Systems in November 2011. ThermalTherapeutics has received a total of \$400,000 in funding from the Pittsburgh Life Science Greenhouse and has announced strategic alliances with SunStone Management Resources and Applied Medical Products and Solutions.

According to the National Cancer Institute, hyperthermia has been used an extensive list of cancers, including sarcoma, head and neck cancers, brain, lung, breast, liver and cancers of the peritoneal lining.

Hyperthermic Intraperitoneal chemotherapy (HIPEC), a version of hyperthermic treatment, is not a new procedure, but is traditionally used in conjunction with debulking a tumor surgically. Experts argue that the focused delivery of chemotherapy via regional perfusion minimizes the side effects associated with traditional chemotherapy. David C. Koch Regional Perfusion Cancer Therapy Center, part of UPMC Health System, specializes in HIPEC but is not the only provider of this kind of treatment.

Hyperthermia has been shown effective in making other forms of cancer treatment more effective, however, there has not been significant evidence showing hyperthermia has increased survival rates. Anecdotally, patients with a prognosis of survival of under a year who received HIPEC have survived to five years and beyond.

But hyperthermia has some drawbacks, too, mostly on the technological aspects of delivering the treatment. Controlling the temperature of the solution is essential. Experts confirm that best results are achieved when the area under treatment is kept "within an exact temperature range for the prescribed time. But current technology offers no way to measure the temperature inside a tumor. Also, nearby tissues need to be protected from high temperatures adds an extra challenge. The current preferred method for monitoring the temperature of treatment areas is to use magnetic resonance imaging (MRI) in place of thermometers on the ends of probes inserted into the patients' body.

According to a statement made in a 2010 press release, J. Michael Fausset, Chief Technology Officer for ThermalTherapeutic Systems, VERATHERM improves the quality of hyperthermic treatments because the device "precisely monitors temperature, pressure and flow" allowing the physician and technician to have more control over the treatment.

Because VERATHERM is portable, ThermalTherapeutic Systems feels it offers several benefits over previous perfusion delivery modalities. First, more patients can be treated at an increased number of facilities and varied clinical environments. Second, facilities can provide the highest standard of care at a lower cost and remain economically competitive. The device is capable of pumping heated and non-heated sterile solution at a high rate of speed, resulting in quick delivery of treatment and a reduction in the amount of time required to deliver treatment.

For more information, visit [www.thermaltherapeutics.com](http://www.thermaltherapeutics.com) ↑

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