

Startup makes magnets to treat mental illnesses

By Philip Nutman

Although it may sound like something out of “Star Trek,” an Atlanta researcher has invented an electromagnetic device that modifies moods and can act as therapy in the treatment of depression.

Unlike electricity, which gets diffused by the skull, high-intensity magnetic pulses pass readily through bone, making more focused targeting of particular brain structures possible, said Dr. Charles M. Epstein, professor of neurology and director of the transcranial magnetic stimulation laboratory at Emory University School of Medicine.

“The electromagnet induces electric current in the brain and we know that that causes brain cells to fire, to become active, to kick out [neurotransmitters] like serotonin and norepinephrine,” he said.

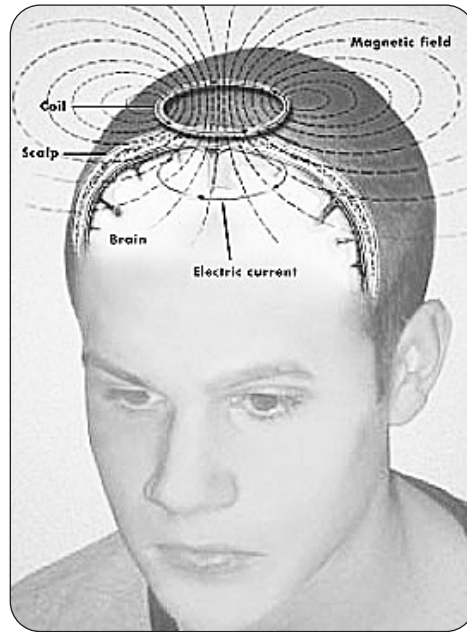
Atlanta-based **NeuroNetics LLC** has acquired the exclusive licensing rights to the second-generation high-field-pulsed magnetic technology invented by Epstein, designed and realized in collaboration with Florida-based engineer Kent Davey, and is currently raising funding for a large-scale U.S. clinical trial to seek Food and Drug Administration approval.

NeuroNetics is a private company financed and developed by **The Innovation Factory LLC**, a private biotech incubator founded in 1999 by Thomas D. Weldon, chairman, and Charles E. Larsen, CEO. The two also are co-founders of Norcross-based medical device company **Novoste Corp.** (Nasdaq: NOV).

“NeuroNetics will focus its efforts on therapies for disorders of the central nervous system,” said Steven Waite, president and chief operating officer of The Innovation Factory.

The first target for the new company will be a treatment for depression using this technology, said Waite, the founder and former CEO of **PrimeVision Health Inc.**, a North Carolina-based company that managed the business functions of eye-care medical practices.

An estimated 19 million Americans suffer from depression, resulting in a \$12 billion annual market, said Stanford W. Miller, NeuroNetics’ vice president and general manager.



SPECIAL

Brainstorm: The technology generates magnetic waves to target and stimulate specific areas of the brain.

“Conservatively, we feel the market for NeuroNetics, which is a portion of the 19 million people who have depression, is a potential gross amount of about \$4 billion, and that’s just in the U.S.,” he said.

According to the American Medical Association, depression is the condition with the second-largest effect on the U.S. worker today, following coronary issues, he said.

“[Our] future target markets may include other neuropsychiatric disorders such as schizophrenia, OCD (obsessive-compulsive disorder) and mania, as well as neurological disorders such as epilepsy,” Miller said. Miller was previously vice president of marketing for **Elektra Neuroscience** and brings 22 years of diagnostic and therapeutic medical device experience, including engineering product design, product management, marketing and new business development, to the company.

The transcranial magnetic stimulation (TMS) device provides a noninvasive, painless, subconvulsive stimulation of the brain,

he said.

“Prior to the advent of this technology, the only way to stimulate the brain was to shoot it with electricity — ECT (electroshock therapy) — which, although it’s the gold standard in treatment, is a very brutal procedure because you can’t control which part of the brain the seizure starts in and where it goes, resulting in memory loss, confusion, cardiac impact, etc.,” he said.

TMS is more like tickling the brain rather than a jump-start, he said.

“We know there are areas of the brain, most of them located in the frontal cortex, which house the mood circuits which control aggression, self-worth, sex drive, appetite and general mood, and we are learning more about it through functional neurological imaging,” he said.

NeuroNetics plans to market the product to clinical psychiatrists two years from the start of the trial, approximately a 24-month cycle, in late 2004, said Larsen, the Innovation Factory CEO.

“[The device] has already been approved in Canada and Israel because the thresholds of approval are different there,” but it is not yet on sale in those markets, he said.

To date, The Innovation Factory has raised \$30 million in venture capital through a consortium of VC companies —

Schroder Ventures Life Sciences, The Carlyle Group and **Versant Ventures**, he said.

In addition to NeuroNetics, Innovation Factory is presently incubating three other companies: **AcuFocus Inc.**, which is developing vision correction devices; **Cerebral Vascular Applications Inc.**, which is producing multiple medical devices to reduce incidence of stroke associated with atrial fibrillation; and **LipoSonix Inc.**, a company specializing in noninvasive cosmetic body shaping and weight reduction.

Philip Nutman is a contributing writer for Atlanta Business Chronicle. Reach him at atlantatechbiz@bizjournals.com.