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## Emerging Company Profile

# Esperance: Harmonizing hormones to cancer

By Michael Flanagan  
Senior Writer

Based on a technology invented at Louisiana State University as a means of sterilizing animals, **Esperance Pharmaceuticals Inc.** is developing fusion proteins that combine a tumor-seeking hormone receptor ligand and a cytotoxin to treat cancer. Next quarter, the company plans to start a Phase I trial of EP-100, which incorporates a cytotoxic peptide that may avoid resistance mechanisms because it causes tumor cell death without needing to be internalized.

"The technology was invented by researchers who were working with luteinizing hormone releasing hormone, which is expressed in cells in the pituitary gland responsible for reproduction in animals, and conjugating it to a cytotoxin with the idea of destroying those cells as a non-surgical method for sterilizing pets," said President Hector Alila.

That idea did not pan out because the LHRH receptor was not expressed throughout the target tissue. But according to Alila, an abundance of literature was reporting that the LHRH receptor is overexpressed in a wide variety of solid tumors. The LSU researchers subsequently confirmed that a cytotoxin conjugated to LHRH was capable of selectively targeting and killing tumor cells, which was the basis for the original patent that Esperance licensed at its founding in 2006.

### Esperance Pharmaceuticals Inc.

Baton Rouge, La.

Technology: Fusion proteins consisting of a tumor-seeking hormone receptor ligand conjugated to a cytotoxin

Disease focus: Cancer

Clinical status: Preclinical

Founded: 2006 by William Hansel, Carola Leuschner and Fred Enright

University collaborators: Louisiana State University

Corporate partners: None

Number of employees: 7

Funds raised: \$15 million

Investors: Louisiana Fund I, Themelios Venture Partners, Research Corp. Technologies, Louisiana Technology Fund and private investors

President: Hector Alila

Patents: 1 issued covering the use of a ligand and lytic peptide combination to selectively kill cells that express receptors for the ligand

Esperance was not the first mover in the space. **AEterna Zentaris Inc.** entered the clinic in 2005 with AEZS-108 (formerly AN-152), a synthetic LHRH-targeting peptide conjugated to doxorubicin. The company presented interim Phase II data last year showing AEZS-108 produced one complete response and two partial responses in 14 patients with LHRH receptor-positive endometrial cancer, as well as two partial responses among 21 patients with LHRH receptor-positive ovarian cancer. Final Phase II data are expected early this year.

Alila takes these results as further validation that targeting the LHRH receptor is an effective approach for attacking cancer cells, but he said Esperance believes it will take the concept one step further by improving upon the shortcomings of doxorubicin.

Doxorubicin is an anthracycline chemotherapeutic that works by entering a target cell and intercalating the DNA. "Unfortunately, patients often eventually develop resistance to the drug because of certain genetic mutations. We don't expect to have the same problem because our cytotoxin causes rapid cell death by directly disrupting the cell membrane," said Alila.

Esperance's lead compound is EP-100, a fusion protein consisting of an LHRH ligand conjugated to a novel but undis-

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closed cytotoxic peptide that Alila said the company discovered after taking the program over from LSU.

Esperance is applying for a composition of matter patent to cover the specific moiety, he added.

Alila said Esperance's IP, which covers the combination of a ligand and a lytic peptide, does not overlap with that of AEterna.

Alila also expects that EP-100 will offer a better safety profile than a doxorubicin-conjugated compound. "Proteases from the destroyed cells can cleave the intact chemotherapeutic, which is still active, so it gets released into the body where it can cause mild immunosuppression and other 'friendly fire' damage," he said.

In contrast, according to Alila, EP-100 is unlikely to produce off-target effects because it is a peptide that is susceptible to being catabolized by the protease enzymes released by destroyed cells.

The company plans to submit an IND for EP-100 in April and start a Phase I trial in 2Q09 that will enroll patients with solid tumors. "We are also developing a companion diagnostic that can identify patients overexpressing LHRH," which will be ready for use this spring, Alila said.

The goal is to have the Phase I data in hand by early next year, in time to move EP-100 into a Phase IIa trial in 2010, which Alila said will likely be in patients with LHRH receptor-positive ovarian cancer.

Because the LHRH receptor is overexpressed by a variety of solid tumors, Alila said Esperance will be interested in testing EP-100 in other indications.

In addition to hormones, the company's IP covers use of fusion proteins binding its cytotoxic peptides to growth factors, cytokines, antibodies or antibody fragments, and a whole host of other ligands, which will provide options for future candidates.

Esperance closed a \$15 million series A round in October that will carry the company into 2011.

**COMPANIES AND INSTITUTIONS MENTIONED**

**AEterna Zentaris Inc.** (TSX:AEZ; NASDAQ: AEZS), Quebec City, Quebec

**Esperance Pharmaceuticals Inc.**, Baton Rouge, La.

**Louisiana State University**, Baton Rouge, La.