

VETERINARY APPLICATIONS

IML INTRODUCES INTERFERON PRODUCT FOR CATTLE

IMAGE
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REASONS

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The start of shipping fever: cattle from many farms are mixed together and kept closely confined.

HOUSTON, Tex.—Interferon is now being marketed in the United States as an orally administered therapeutic agent—not to people, but to cattle. Immuno Modulators Laboratories (IML), located here, recently received Food and Drug Administration approval to sell its alpha interferon product, trade-named Agriferon, to treat bovine shipping fever within the state of Texas. (FDA has taken over for the U.S. Department of Agriculture in regulating veterinary applications of interferon.)

The company reports that this is the first interferon-based product ever approved for use in veterinary medicine, and it also seems to be the first orally ingested interferon preparation to be sold in the U.S. IML manufactures the interferon in Agriferon from human blood by a modified version of the Cantell process, according to vice president of marketing Lewis Berneman. He says the product works either by being absorbed by the lymphatic tissues that line the oral cavity, or by a mediated response in which interferon induces actions in the lymphatic system.

"We're marketing it as a therapeutic to be used on animals in the feedyard," he says. "We will market toward the administration of Agriferon to every calf as it enters the feedlot system."

Bovine shipping disease, technically known as bovine respiratory disease complex, is a spectrum of complications that results from the stresses and diseases cattle encounter as they are shipped from their native farms to the auction barn to the or-

der-buyer and, finally, to the feedlots. Viral disorders often progress to bacterial infections, with the most common cause of death being bacterial pneumonia, usually *Pasturella hemolytica*. "Within two days of arriving at the order-buyer barn, 70 percent of the calves are already producing endogenous interferon—which is a symptom that they are already infected," Berneman says.

IML estimates the loss due to bovine shipping fever approaches \$333 million annually—some 20 percent of it in Texas. Although the disease's prevalence varies throughout the year, Berneman reports, some 65 percent of all beef cattle contract it, and about 5–8 percent die from it.

IML will be selling its preparation for around \$1 per application; it recommends a treatment regimen of three doses administered over three days. Since at least 1.2 million head of cattle go through Texas feedlots annually (out of some 5 million nationwide), the potential market within Texas approaches \$4 million. Eventually, IML hopes to obtain nationwide sales approval. Next it will seek to persuade cattlemen to administer the drug to the 25 million head of cattle in the U.S. that are shipped each year for other reasons. Also, IML is working on an interferon-based appetite stimulator—the potential U.S. market here will be the entire cattle population of 120 million. IML reports that its production system could already handle such a demand.

As a 3½-year-old, privately held firm with only 25 employees, IML does need assistance in developing

and marketing its products. To this end, it forged a collaborative research and product development agreement last summer with International Minerals and Chemical Corp. (IMC, Chicago, IL), covering biological response modifiers in food animals. IML has also yielded worldwide marketing and distribution rights for these products to IMC, a major producer of phosphate, potash, and nitrogen fertilizer. IMC is reluctant to comment on the research of its biotech partner. However, chief technical officer Blake Ingles stresses that "there's still some experimental work to be done."

Other biotech specialty companies are also reported to be doing research on interferon applications to bovine shipping fever, notably Amgen, Immunex, and Genentech. Genentech (South San Francisco, CA) has a year-old, \$20 million research and development agreement with Granada Corp. (Houston, TX) for supplying the cattle industry with bovine interferons produced through recombinant DNA technology. Genentech estimates that the costs due to weight loss and death from bovine shipping fever exceed \$250 million a year; E.F. Hutton calculates that bovine shipping fever can cost U.S. beef producers as much as \$700 million a year. The investment banking and brokerage house also reports that Genentech's product has received a fast track approval status with FDA after entering large-scale field trials last winter, so IML may not be alone in the market for long.

—Arthur Klausner