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Startup wields natural bacterium to improve health of livestock

By *Blaine Friedlander*

Bactana Animal Health, a new company providing a natural, sustainable alternative to dosing livestock prophylactically with antibiotics and hormones, joined Cornell's McGovern Center for Venture Development in the Life Sciences earlier in May.

The new company is exploring the benefits of naturally occurring bacterium, *Faecalibacterium prausnitzii*, by introducing it into an animal's gut to stave off disease and promote healthy growth.



Blaine Friedlander/Cornell Chronicle

Rodrigo Bicalho, left, and John Kallassy, believe their new company Bactana Animal Health - which has just joined Cornell's McGovern Center - offers new, sustainable ways to help the health of livestock and other farm animals.

"The world's population is growing, and we are looking at a per capita increase in animal protein consumption. It's a trend that will only get bigger," said Dr. Rodrigo Bicalho, Ph.D. '08, associate professor of dairy production medicine in the College of Veterinary Medicine and chief scientific officer at Bactana.

For decades, antibiotics have been used liberally to promote growth and prevent disease in livestock throughout the United States and around the world. Because this practice contributes significantly to human antibiotic resistance, the U.S. Food and Drug Administration recently implemented the Veterinary Feed Directive (VFD), which bans antibiotics from being administered to livestock as a precautionary prophylactic, according to Bicalho.

"This regulation has created a widening gap in the animal health industry," said John Kallassy, MBA '03, Bactana's chief executive officer. "Prophylactic antibiotics have been given liberally to swine and poultry for decades. Livestock producers are now seeking new and cost effective alternatives. Our breakthrough technology is ripe to fulfill this newly emerging demand."

Existing nutritional and pharmaceutical products are not going to fill that gap, and because the world is increasingly demanding sustainable and effective solutions to meet building demand for quality protein, we are well positioned for success, said Kallassy.

Enter the *F. prausnitzii* bacterium. Bicalho's laboratory initially examined and mapped the microbiome of livestock through the first stages of life. "We found *F. prausnitzii* to be abundant among the healthier calves," said Bicalho. After two additional years of research, the laboratory isolated several, never-before-identified strains of the bacterium, which the new startup company now calls FPS-4.

Bactana's FPS-4 – a “pioneer gut colonizer” – is based on *F. prausnitzii* bacterium. It delivers a natural, safe, effective and inexpensive alternative to the overuse of antibiotics. In clinical trials, the product provided a 13 percent increase in weight gain in animals and a 66 percent reduction in the mortality rate associated with severe diarrhea.

By putting beneficial microbes in the guts of livestock, the animals are able to stave off disease. “We’re not only colonizing their guts with a good bacterium that prevents disease, it also promotes growth,” said Bicalho.

“The world’s growing population is demanding more milk, more chicken, more pork and beef, but they’d prefer to buy natural, low-cost, high-quality meat without antibiotics or hormones,” said Bicalho, who also is a fellow at the Atkinson Center for a Sustainable Future. “We need healthy animals that grow faster.”