



University Study Supports Benefit of Jaguar Animal Health's Neonorm Calf on Intestinal Microbiome in Pre-weaned Dairy Calves

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SAN FRANCISCO--(BUSINESS WIRE)--Oct. 27, 2015-- Jaguar Animal Health, Inc. (NASDAQ: JAGX) ("Jaguar" or the "Company"), an animal health company focused on developing and commercializing first-in-class gastrointestinal products for companion and production animals, announced today that a recently completed study by researchers from Cornell University College of Veterinary Medicine (Cornell) supports a benefit of Jaguar Animal Health's Neonorm™ Calf product on the optimization of the intestinal microbiome profile in pre-weaned dairy calves. The microbiome is a community of microorganisms that live normally in the gut and are vital to maintenance of gut health.

The objective of the study was to characterize the fecal microbiota of newborn calves experiencing diarrhea induced by enterotoxigenic *Escherichia coli* (*E. coli*) and identify possible relationships of treatment with a standardized, enteric-coated botanical extract derived from the *Croton lechleri* tree, the key composition of Neonorm™ Calf, and the altering of the intestinal microbiota profiles of the calves. Neonorm™ Calf is the Company's lead non-drug product, which has been formulated and clinically tested to specifically address the normalization of fecal formation and ion and water flow in the intestinal lumen of newborn dairy calves.

The study was designed to analyze a subset of randomly selected fecal samples collected during a challenge study conducted by Cornell in 2013 titled *Effect of Crofelemer Extract on Severity and Consistency of Experimentally Induced Diarrhea in Newborn Holstein Calves*. The results of the recently completed microbiome study show that the relative abundance of *Faecalibacterium*, a bacteria genus regarded as beneficial to the host, increased in treated calves when compared to control calves. Additionally, treated calves had a higher relative abundance of *Faecalibacterium* following cessation of treatment.

Dr. Rodrigo Bicalho, one of the authors of the Cornell microbiome study, has conducted microbiome research in neonatal calves for the past five years and has previously found positive associations of *Faecalibacterium* with weight gain and lower incidence of diarrhea, as described in a published study he co-authored titled *Fecal Microbial Diversity in Pre-Weaned Dairy Calves as Described by Pyrosequencing of Metagenomic 16S rDNA. Associations of Faecalibacterium Species with Health and Growth*.

"There were no negative controls used in the 2013 Cornell challenge study, as all calves were challenged with *E. coli* to bring on diarrhea. Nevertheless, although this challenge could have altered the natural course of the microbiome evolution, we were still able to see results in the recently completed microbiome study supporting a beneficial prebiotic mechanism of Neonorm™ Calf," stated Lisa Conte, Jaguar's president and CEO. "This mechanism would supplement and is potentially synergistic with the anti-secretory and weight gain benefits of Neonorm™ Calf. This is an exciting new realm in gut biome research, and the Cornell team will continue to investigate this potential prebiotic benefit with the Company as we develop a Neonorm™ Calf Plus formulation for entire herd management that can be administered in water and/or milk replacer."

As the Company announced earlier this month, the results of the 2013 Cornell challenge study evaluating the effect of Neonorm™ Calf was recently published in the official journal of the American Dairy Science Association, *Journal of Dairy Science*. The results of the 2013 study suggest that Neonorm™ Calf can significantly increase the fecal dry matter of neonatal calves with experimentally-induced enterotoxigenic *E. coli* diarrhea, and indicated a benefit of Neonorm™ Calf in supporting weight gain in calves. This month the Company also announced the results of a recently completed field study in Wisconsin, which further support the benefits of Neonorm™ Calf in reducing water loss associated with diarrhea and supporting weight gain in preweaned dairy calves.

Neonorm™ Calf contains the same standardized botanical extract as Neonorm™ Foal Plus, an equine product that Jaguar expects to launch this December. The Neonorm™ standardized botanical extract is derived from the *Croton lechleri* tree, which is sustainably harvested. Jaguar currently owns enough of this extract to formulate a combination of approximately one million doses of Neonorm™ Calf or Neonorm™ Foal Plus.

About Neonorm™ Calf

Neonorm™ Calf is an enteric-coated tablet designed to be orally administered to preweaned dairy calves twice daily for three days. It has been formulated and clinically tested to specifically address the normalization of fecal formation and ion and water flow in the intestinal lumen of newborn dairy calves. The product acts locally in the gut and is minimally absorbed systemically. It does not alter gastrointestinal motility, and, to date, has shown no significant effects on normally functioning intestinal ion channels and electrolyte or fluid transport, nor shown any side effects different from placebo. As a result, fecal formation is normalized in a short period of time, weight loss is mitigated, and supportive care costs and rehydration therapies such as oral rehydration solution, or ORS, are reduced. Neonorm™ Calf has not been evaluated by the FDA for use in animals.

On November 16th, Dr. Bicalho will be giving a presentation titled *Understanding Prebiotics and the Intestinal Microbiome of Calves* at Jaguar's 2015 Analyst and Investor Day in New York City. Parties interested in attending should contact Allison Soss at asoss@kcsa.com or 212.896.1267.

About Jaguar Animal Health, Inc.

Jaguar Animal Health, Inc. is an animal health company focused on developing and commercializing first-in-class gastrointestinal products for companion and production animals. Canalevia™ is Jaguar's lead prescription drug product candidate for the treatment of various forms of diarrhea in dogs. Neonorm™ Calf is the Company's lead non-prescription product. Canalevia™ is a canine-specific formulation of crofelemer, an active pharmaceutical ingredient isolated and purified from the *Croton lechleri* tree, which is sustainably harvested. Neonorm™ is a standardized botanical extract derived from the *Croton lechleri* tree. Canalevia™ and Neonorm™ are distinct products that act at the same last step in a physiological pathway generally present in mammals. Jaguar has filed nine investigational new animal drug applications, or INADs, with the FDA and intends to develop species-specific formulations of Neonorm™ in six additional target species, and formulations of Canalevia™ for cats, horses and dogs.

For more information, please visit www.jaguaranimalhealth.com.

Forward-Looking Statements

Certain statements in this press release constitute "forward-looking statements." These include statements regarding the potential prebiotic benefit of Neonorm™ Calf, the expected launch of Neonorm™ Foal Plus this December, the intention for researchers from Cornell to continue to investigate the potential prebiotic benefit of Neonorm™ Calf with Jaguar as the Company develops a Neonorm™ Calf Plus formulation, Jaguar's intention to develop species-specific formulations of Neonorm™ in six additional target species, and the Company's plan to develop formulations of Canalevia™ for cats, horses and dogs. In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "aim," "anticipate," "could," "intend," "target," "project," "contemplate," "believe," "estimate," "predict," "potential" or "continue" or the negative of these terms or other similar expressions. The forward-looking statements in this release are only predictions. Jaguar has based these forward-looking statements largely on its current expectations and projections about future events. These forward-looking statements speak only as of the date of this release and are subject to a number of risks, uncertainties and assumptions, some of which cannot be predicted or quantified and some of which are beyond Jaguar's control. Except as required by applicable law, Jaguar does not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

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