PANTHERYX



La Belle Colostrum Pet Nutrition



Pet Foods & Supplements are Better With La Belle Colostrum



Colostrum ... More Than Just A Mother's Love

- Colostrum is produced by the mammary glands of nursing mothers and essential to the newborn during the first days of life
 - Helps baby build a strong, effective immune system
 - Creates a tough coating on baby's stomach and intestines to keep germs from causing illness
 - Feeds and builds up good bacteria in the gut for a strong microbiome
 - Gives baby the right blend of nutrients to grow

The same holds true for all mammals, including felines and canines



La Belle Colostrum Addresses Pet Parent's Top Concerns

Bovine Colostrum Pet Health Benefit Areas



Respiratory diseases are common in dogs and cats. Both young and aged animals are at increased risk of developing respiratory disease.



Healthy digestion is essential for pets to be able to use the nutrients from his food to build and GI repair tissues and obtain energy.



Aging, digestive problems, diet changes and stress often cause unwelcomed changes in stool frequency and consistency

Please refer to reference pages for claim support.

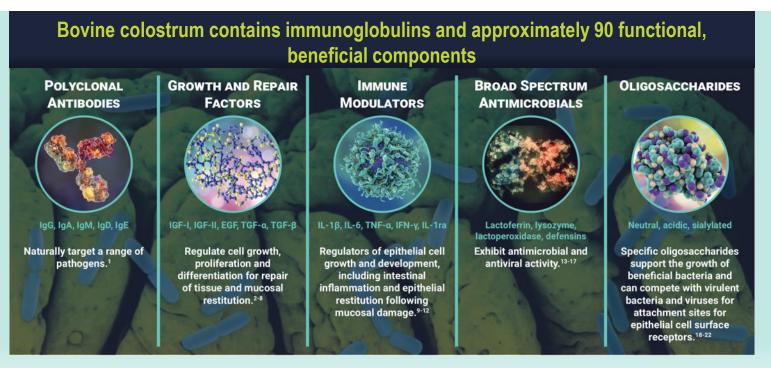
Bovine Colostrum Enables Pet Owners to Harness the Benefit of Colostrum Across the Lifespan of Their Pet

Designed by nature to be the biologically perfect first food

- Completely natural product, produced by nature and meant to nurture
- Calf receives all the colostrum it needs to kickstart its immunity
- Excess colostrum is collected and dried into a powder for a wide-range of applications and proven benefits in animals
- Many bioactive components work in tandem and from multiple angles and mechanisms of action to provide an array of benefits
- Supports immune health, digestive health and fecal quality



Colostrum Is A Powerhouse of Components



- Aids in uptake and metabolism of necessary nutrients
- Supports and maintains a healthy digestive and immune system
- Supports microbiome equilibrium in the gastrointestinal tract

R What Veterinarian's are Saying

As suggested in both veterinary and human studies of BC supplementation, reducing diarrhea, promoting a healthy gut and suppressing gut inflammation could be mediated by the direct antimicrobial and endotoxin-neutralizing effects of several BC components. In addition, the growth factors in BC may promote mucosal integrity and tissue repair.

John Ellis, DVM, PhD, dip ACVP, dip ACVM

Colostrum also provides several important growth hormones and other compounds such as lactoferrin for the **newborns**. The young animals can absorb these antibodies whole, which **provide immunity and protection from certain infections** for several weeks.

Although **older animals** cannot absorb antibodies as young animals can, colostrum may still be able to exert a local **anti-inflammatory effect in the intestinal tract when ingested**, or on the skin when applied topically.

Rania Gollakner, BS, DVM, MPH

What are the benefits of colostrum supplements for adult dogs? Bovine colostrum contains some proteins that can influence the dog's immunity (e.g. growth factors, antimicrobial proteins (lactoferrin) and immuno-modulatory proteins). Bovine colostrum has been shown to **improve the immune response to vaccination in adult dogs**. Bovine colostrum has also been shown **to improve the gut flora** (microbiome), which is likely to improve the gut health of the dog and **reduce the risk of diarrhea**.

Dr Alice Watson MA VetMB MRCVS

As I started using colostrum more and more in my patients, I started hearing all of the good results my clients were getting. Dogs who have picky appetites begin to **eat better while taking colostrum** because their gastrointestinal systems are working more efficiently.

With a healthier gut, there is less inflammation and discomfort with eating. I treat all acute and chronic diarrheas with colostrum and find that within three days or less, these pets are back to their normal diets. Steven R. Blake, DVM



Benefits of Colostrum Canine: In-depth Research Based Claims

ALL STAGES OF LIFE: PUPPIES, ADULTS & SENIOR DOGS

- Colostrum provides natural immunities through the synergy of immunoglobulins (IgG)
- Colostrum is a comprehensive source of immune factors & growth factors
- · Helps improve immune response when exposed to an infectious agent
- Helps maintain healthy immune function and balance without overstimulating the immune system
- · Helps increase response to canine distemper virus booster vaccination

NEWBORNS

- Supplements maternal colostrum by providing additional nutritional peptides and immune/growth factors promoting immune health and/or maintenance
- Helps strengthen a puppy's developing/immature immune system
- Supports the puppy's immature immune system to better respond to challenge without overstimulation
- Helps support defenses following early life vaccination









ALL STAGES OF LIFE: PUPPIES, ADULTS & SENIOR DOGS

- Colostrum provides immunoglobulins and other growth factors that stimulate the growth and repair of the GI tract
- Colostrum provides nutrients and other growth factors that support the normal GI tract balance and barrier function
- Increased IgA levels Enhances local gut immunity
- Helps address localized inflammatory conditions in the gut
- Supports GI mucosal barrier integrity, increased gut microbiota diversity & nutrient absorption
- Helps maintain a stable intestinal microflora due to GI/immune stressors
- Supports the balance of naturally-occurring beneficial bacteria in the digestive system



Benefits of Colostrum Canine: In-depth Research Based Claims

ALL STAGES OF LIFE: PUPPIES, ADULTS & SENIOR DOGS

- Helps improve fecal quality subject to the stresses of:
 - changing their diet
 - changing their environment
- Helps reduce stress-related diarrhea/loose stools
- Supports fecal volume & proper stool consistency
- Helps improve stool quality and firmness



• May reduce episodes of loose stools

- Better poop, easier to scoop
- Helps reduce scooting tracks

Please refer to reference pages for claim support.

Benefits of Colostrum Feline: In-depth Research Based Claims

ALL STAGES OF LIFE: KITTENS, ADULTS & SENIOR CATS

- Colostrum provides natural immunities through the synergy of immunoglobulins (IgG)
- Colostrum is a comprehensive source of immune factors & growth factors
- · Helps improve immune response when exposed to an infectious agent
- Helps maintain healthy immune function and balance without overstimulating the immune system

NEWBORNS

- Supplements maternal colostrum by providing additional nutritional peptides and immune/growth factors promoting immune health and/or maintenance
- Helps strengthen a kitten's developing/immature immune system
- Supports the kitten's immature immune system to better respond to challenge without overstimulation





Please refer to reference pages for claim support.





Please refer to reference pages for claim support

ALL STAGES OF LIFE: KITTENS, ADULTS & SENIOR CATS

- Colostrum provides immunoglobulins and other growth factors that stimulate the growth and repair of the GI tract
- Colostrum provides nutrients and other growth factors that support the normal GI tract balance and barrier function
- Increased IgA levels Enhances local gut immunity
- Aids in a cat's ability to cope with intestinal upsets
- Helps address localized inflammatory conditions in the gut
- Supports GI mucosal barrier integrity, increased gut microbiota diversity & nutrient absorption
- Helps maintain a stable intestinal microflora due to GI/immune stressors
- Supports the balance of naturally-occurring beneficial bacteria in the digestive system

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ALL STAGES OF LIFE: KITTENS, ADULTS & SENIOR CATS

- Helps improve fecal quality subject to the stresses of:
 - changing their diet
 - changing their environment
- Helps reduce stress-related diarrhea
- Supports fecal volume & proper stool consistency
- Helps improve stool quality and firmness



Please refer to reference pages for claim support.





• Better poop, easier to scoop

Pet Care Product Containing Colostrum



"This product contains colostrum proven to help strengthen a puppy's natural defenses to combat daily challenges"



"Improves immunity enriched with colostrum, this food helps promote better immunity in both the mother and her pups."



MERA finest fit Kitten is a complete feed for growing cats. With fresh poultry and forest fruits, it helps with the healthy development of young cats.

- With lots of fresh poultry
- ✓ Refined with forest fruits
- ✓ Recipe without wheat
- With immunity protection colostrum
- Inulin for developing a stable intestinal flora
- ✓ Optimal all-round care

Pet Care Product Containing Colostrum



Balanced Formula

Key Ingredients

- ✓ Enriched with Colostrum
- ✓ Whey Protein
- ✓ Essential Vitamins
- ✓ Essential Minerals



FEEDING DIRECTIONS:

Feed puppies two (2) tablespoons (30 ml) of liquid formula per four (4) ounces of body weight. For growing postweaned puppies, show dogs, and elderly or recovering dogs, feed one (1) tablespoon of liquid formula per Sibs of body weight. Small or weak puppies may need to be fed every three (3) to four (4) hours while larger or older puppies can do well being fed every eight (4) hours. Weigh puppies daily to ensure adequate feeding. Liquid formula can be rewarmed to room temperature. (Do NOT microwave). PREGNANT AND LACTATING DOSS: Mix two (2) tesspoons powder for Sibs of body weight until two (2) weeks after queening.

Milk Replacement



PRODUCT INFO PER 2 SOFT CHEWS (6 GRAMS):

Chews per Container: 90

Colostrum (15% IgG)	500 mg	Organic Mushroom Blend	100 mg
Organic Turmeric Root	200 mg	Quercetin Dihydrate	50 mg
Wild Alaskan Salmon Oil	100 mg	Apple Cider Vinegar	25 mg
Vitamin C (Ascorbic Acid)	100 mg	Probiotic Blend (10% FOS)	400 mill CFU*
* At time of packaging			

Other Ingredients: Salmon Hydrolysate, Rice Flour, Palm Fruit Oil, Sweet Potato, Carrot, Organic Brown Rice Syrup, Sunflower Lecithin, Cellulose Powder, Coconut Glycerin, Sorbic Acid, Rosemary Extract, Mixed Tocopherols

La Belle Premium Quality Colostrum

As the largest global supplier with 35+ yrs experience we control every stage of production, from collection through processing in state-of-the-art vertically integrated facilities

Colostrum Collection

Expansive and growing procurement network 1000+ dairies

Only collect first day colostrum from quality dairies



State-of-the-Art Processing

Registered FDA and USDA inspected facilities 21 CFR-111 & 117, cGMP, HACCP, FSSC, Kosher, Halal, Non-GMO

In-house clinical laboratory & accredited third-party validation



Quality

Stringent quality assurance systems

In-process and finished product tested for safety (micro) and to ensure that it meets specifications



Product Development

Deep expertise with colostrum formulations

Physical product development & piloting

Research and claims development



Manufacturing **Capabilities**

Bulk colostrum, blended powders, tablets, capsules

Packaging in jugs, bottles, and single-serve sachets

Multiple colostrum manufacturing locations for reliable & consistent supply





















Advanced claims with clinical studies to back them, efficacy and safety of bovine colostrum

The global bovine colostrum market is an attractive growth platform for health and wellness

Digestive Health

Immune Health

 La Belle Colostrum is a comprehensive solution with benefits in many areas of health and wellness and is available in a range of unique and desirable product formats

Fecal Quality

Note, PanTheryx has manufacturing capabilities for powders, capsules and Chewables as listed above. For pet food and soft chews, a contract manufacturer that specialize in those areas would be required for execution.

Canine & Feline

All stages of life





Our Invitation To You

- We invite you to join PanTheryx[™] in bringing nature's first food to pet parents around the world
- There are near-term opportunity areas for a strategic partnership:
 - Expand benefits of Holistic[®] by incorporating colostrum in current formulas
 - Complement Wellness[®] snacks with colostrum based supplements

PanTheryx, the world's premier supplier of bovine colostrum, can provide the quality and consistency you need regardless of the size of your opportunity

PANTHERYX



Thank You!

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R Benefits of Colostrum for a Penny a Day

BC material cost (\$/lb)	\$ 20.00
BC Usage (% of formula)	0.10
BC cost (\$ /lb of formula)	\$ 0.02
Total formula (lb) needed per day For a 35 lb dog *	0.5236
BC cost per day for a 35 lb dog $*$	\$ 0.01



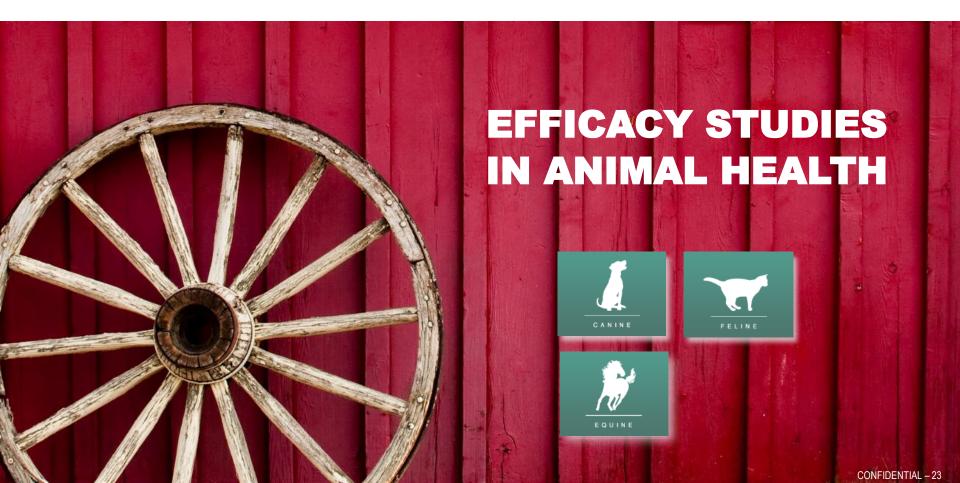
* Assumptions are as follows

- a) a 35 lb dog requires 835 kcal/day
- b) Typical pet food contains 3500 kcal/kg

c) Therefore, a 35 lb dog eats 238 g or 0.5236 lb of food/day



Health Benefit Applications - REFERENCES





Satyara E, et al. "Supplementation of diets with bovine colostrum influences immune function in dogs". British Journal of Nutrition, 2003; 110:2216-2221. In core deck – Nestle Purina study https://pubmed.ncbi.nlm.nih.gov/23773360/

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Tanaka T, et al. "Antiviral activity of lactoferrin against canine herpesvirus". Antiviral Research, 2003; 60(3): 193-199. - As an anti-microbial component of colostrum and milk, LF may play a significant role in protecting neonates from infectious diseases (Sanchez et al., 1992) http://www.sciencedirect.com/science/article/pii/S0166354203001578

Hellwig P, et al. "Effects of bovine lactoferrin on the immune system and the intestinal microflora of adult dogs". Archives of Animal Nutrition, 2008; 62(2): 152-161. https://www.tandfonline.com/doi/abs/10.1080/17450390801892575

Papers by Nestle: (Pantheryx has papers on file)

- Beneficial Effects of Natural Antibodies During Times of Stress in Puppies
- How Colostrum aids in managing canine gut health



Jean-Philippe, C. Beneficial effects of dietary colostrum supplementation in kittens, *Nestlé Purina Scientific Update of Feline Nutrition, Issue 4,* 1–8. <u>https://docplayer.net/40099972-Nestle-purina-scientific-update-on-nutrition-feline-nutritional-peculiarities-in-health-and-disease.html</u>

Levy JK, Crawford, C, Collante, WE. Use of adult cat serum to correct failure of passive transfer in kittens. J Am Vet Med Assoc 2001; 219:1401-1405. https://pubmed.ncbi.nlm.nih.gov/11724178/

McCann, KB, et al. "The effect of bovine lactoferrin on the ability of feline calicivirus to infect cell culture". Journal of Applied Microbiology, 2003; 95(5): 1026 -1033. https://pubmed.ncbi.nlm.nih.gov/14633031/

Paper: (Pantheryx has paper on file)

Unique Challenges to Managing the Neonate and Kitten, Margie Scherk, DVM, Diplomate ABVP (feline)Cats Only Veterinary Clinic Vancouver, British Columbia, Canada

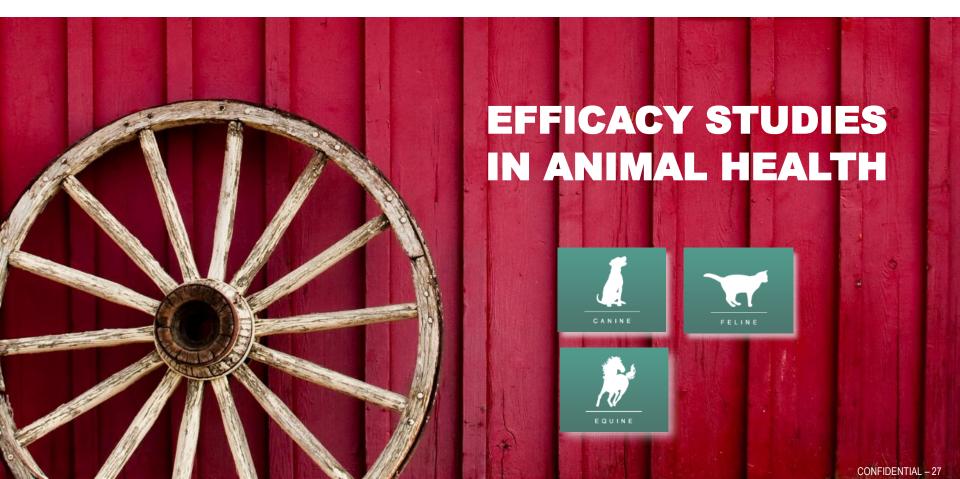
Bovine colostrum: A veterinary nutraceutical N. N. Pandey, A. A. Dar*, D. B. Mondal and L. Nagaraja Veterinary Medicine Division, Indian Veterinary Research Institute, Izatnagar-243 122, U.P, India Published: Journal of Veterinary Medicine and Animal Health Vol. 3(3), pp. 31-35, July 2011 https://academicjournals.org/JVMAH

Stelwagen K. et al, "Immune components of bovine colostrum and milk". Journal of Animal Science, 2008; 87(13 Suppl):3-9. https://pdfs.semanticscholar.org/4447/9ab565f20fe8dd8803700c39a02ed37bf17d.pdf

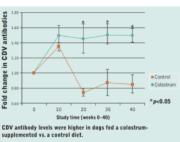
Gopal PK, Gill HS. "Oligosaccharides and glycoconjugates in bovine milk and colostrum". British Journal of Nutrition, 2000; 84 (Suppl 1):S69-S74.8. https://pdfs.semanticscholar.org/ed8c/2e808cd9ef3d04a6b9c8cba8e8e7c19c70d3.pdf

Stelwagen K. et al, "Immune components of bovine colostrum and milk". Journal of Animal Science, 2008; 87(13 Suppl):3-9. https://pdfs.semanticscholar.org/4447/9ab565f20fe8dd8803700c39a02ed37bf17d.pdf

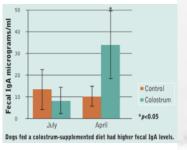
Health Benefit Applications



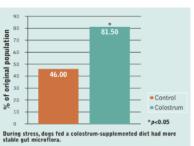
BOVINE COLOSTRUM STUDY - CANINE (older dogs)



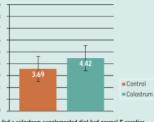
CDV vaccine response Fecal IgA levels



Measure of microflora stability



C-reactive protein levels



Dogs fed a colostrum-supplemented diet had normal C-reactive protein levels. **Aim:** The aim of the present study was to evaluate the immunomodulatory effect of dietary supplementation of BC in older dogs.

Protocol: The study was conducted in two phases: pre-test (8 weeks) and test (40 weeks), with twenty-four dogs (mean age 2.5 years) randomized into two groups. In the 'pretest' phase, both groups were fed a nutritionally complete diet. In the 'pretest' phase, both groups were fed a nutritionally complete diet. In the 'pretest' phase, all dogs received a canine distemper virus (CDV) vaccine, and dogs in the 'test group' were switched to a diet supplemented with 0.1 % spray-dried BC. Response to the CDV vaccine was evaluated by measuring vaccine-specific plasma IgG levels. Gut-associated lymphoid tissue response was assessed by measuring faecal IgA levels. Gut microbiota were evaluated by the temporal temperature gel electrophoresis methodology

Results:

- Dogs fed the BC-supplemented diet demonstrated a significantly higher vaccine response and higher levels of faecal IgA when compared with the control group.
- Supplementing diets with BC also resulted in significantly increased gut microbiota diversity and stability in the test group.

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No over immune stimulation

Conclusions:

Diets supplemented with BC significantly influence immune response in dogs

Satyaraj E, et al. (2013) Supplementation of diets with bovine colostrum influences immune function in dogs. British Journal of Nutrition 1-6. https://pubmed.ncbi.nlm.nih.gov/23773360/

BOVINE COLOSTRUM STUDY - CANINE

IMPROVING FECAL QUALITY IN PUPPIES



Benefits of Bovine Colostrum on Fecal Quality in Recently Weaned Puppies Presented as part of the WALTHAM International Science Symposium: Nature, Nurture, and the Case for Nutrition held in Bangkok, Thailand, October 28–31, 2003. This symposium & the publication of the symposium proceedings were sponsored by the published as a supplement to The Journal of Nutrition. WALTHAM Centre for Pet Nutrition, a division of Mars, Inc.

Aim: The aim of this trial was to evaluate the effect of a bovine colostrum protein concentrate on fecal quality in puppies during a period of environmental change

Protocol: A randomized placebo-controlled trial was carried out in Japan with 70 puppies of predominantly toy breeds (aged 40–50-d old) to determine the impact of an oral bovine colostrum supplement on fecal quality over a 10-d period. Standard puppy food, to which was added either 0.5 g of bovine colostrum powder daily (n = 37), or 0.5 g of skim milk powder daily (n = 33) was fed, for 10 d, starting on the second day after their arrival at one of two pet shops. Individual puppies were assigned to treatment A or B as they arrived.

Results:

- The puppies fed the bovine colostrum supplement had significantly lower average fecal scores (P, 0.05) for d 6–9 compared with the placebo group.
- The differences between the groups remained statistically significant until d 9 of the trial
- The results of this trial indicate that oral supplementation with bovine colostrum can improve fecal quality in puppies subject to the stresses of changing both diet and environment.

Conclusions:

Bovine colostrum supplementation may be an aid in reducing the rates of recurrent gastroenteritis and improving the vitality of puppies in early life.

BOVINE COLOSTRUM STUDY - CANINE



INCREASED PROLIFERATION & CANINE SKIN FIBROBLASTS

Aim: The aim of this study was to evaluate the effects of BC rich in bioactive components (immunoglobulins, natural growth factors, and hormones), as an in vitro stimulator of canine skin fibroblast proliferation and activity. This in vitro model could be used as a model for wound repair efficiency and periodontal tissue repair, among other benefits based upon reported actions.

Protocol: Cultures of normal canine dermal fibroblasts were established from canine skin samples taken from 4 dogs. Skin cells were enzymatically dispersed from skin biopsies. Activity that stimulated cell growth was assayed with the addition of various concentrations of BC in a 96-well microplate, and the plate was incubated for 24 and 48 h at 378C in 5% CO2.

Results:

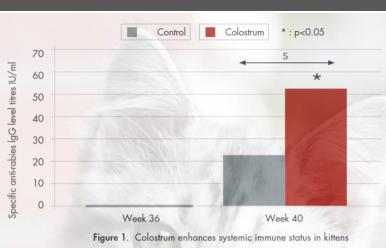
- Canine fibroblast growth was significantly stimulated in a dose-dependent manner
- The results showed that BC significantly (P , 0.05) stimulated dog fibroblasts at any dose used (0.1–1 mg/mL) at 24 h culture incubation, and the effect remained significant at 48 h for the dose of 0.3 and 1 mg/mL

Conclusions:

BC maintains activity of the bioactive substances that promote the cellular growth, suggesting potential proliferative actions by direct contact with target cells.

Torre C., et al. (2006) Bovine Colostrum Increases Proliferation of Canine Skin Fibroblasts https://pubmed.ncbi.nlm.nih.gov/16772497/

BOVINE COLOSTRUM STUDY - FELINE



Control Colostrum •: p<0.05

Ag

Aim: To assess if colostrum could have benefits on the local and systemic immune system in weaned kittens and to evaluate its positive impact on the intestinal flora.

Protocol: Twenty-four domestic shorthair kittens weaned at 12 weeks of age were included in a 44 week trial. Kittens were allocated into one of 2 diet groups- group 1 were fed a high quality kitten food and group 2 were fed the same diet supplemented with colostrum. All kittens received a feline rabies virus vaccine at time 0 and a booster vaccine at week 36. During the test period, kittens were subjected to a mild stress (room relocation) in order to evaluate the fecal microflora stability during a stress event.

Results:

- The kittens fed with the test diet supplemented with colostrum showed a significantly quicker and stronger response to rabies vaccination. There was a 50% increase in antibody levels in the kittens fed the colostrum-diet compared with kittens fed the control diet (figure 1).
- Stimulation of the local intestinal immune system was also observed in the group fed the colostrum- supplemented diet (figure 2). This enhanced local reduction of antibodies is likely to help protect kittens from potential intestinal infections making them more able to cope with intestinal upsets.

Conclusions: Colostrum's natural antibodies and other bio-actives have beneficial health effects in kittens. These compounds help to enhance the kitten's immature immune system to better respond to challenge, without overstimulation.

INCREASED INTESTINAL IMMUNE SYSTEM RESPONSE

COLOSTRUM BENEFITS THE NEONATE AND KITTEN

95% OF ANTIBODIES ARE ACQUIRED BY THE KITTENS FROM COLOSTRUM

Article: Unique Challenges to Managing the Neonate and Kitten Margie Scherk, DVM, Diplomate ABVP (feline) Cats Only Veterinary Clinic Vancouver, British Columbia, Canada Iams Pediatric Care Symposium — TNAVC 2005

Failure of Passive Transfer of Maternal Antibodies (FTP)

Kittens are born without detectable levels of serum IgG.¹ Maternal antibodies provide essential immunity against many infectious agents to which kittens are commonly exposed and 95% of antibodies are acquired by the kittens from colostrum.

For example, within 24 hours, a kitten's titer against feline panleukopenia virus reaches 72% of the queen's serum titer.² Inadequate maternal antibody protection may occur as a result of the inability to nurse, orphaning, low immunoglobulin levels in the queen, and/or poor colostrum quality or quantity.³

REFERENCES 1. Levy JK, Crawford, C, Collante, WR. Use of adult cat serum to correct failure of passive transfer in kittens. J Am Vet Med Assoc 2001; 219:1401-1405. 2. Casal ML, Jezyk PF, Giger U. Transfer of colostral antibodies from queens to their kittens. Am J Vet Res 1996; 57:1653-1658. 3. Levy JK. In-clinic treatment of failure of passive transfer in kittens, in Proceedings. Waltham Feline Medicine Symposium 2002 CONFIDENTIAL – 32



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THE COLOSTRUM COMPANY

La Belle Colostrum

Products



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Bovine Colostrum Has An Extensive History of Safe Use



AAFCO has published official food nutrient profiles defining Bovine Colostrum and Dried Bovine Colostrum. The words "feed grade" are not required when listed as an ingredient as a manufactured feed.



A 2019 independent scientific expert panel **affirmed the safety of PanTheryx bovine colostrum** as Generally Recognized As Safe (GRAS) for specific food and beverage uses



Bovine Colostrum is grandfathered as an old dietary ingredient under United Natural Products Association (UNPA)



6,000+ studies* illuminating science of bovine colostrum with new studies exploring safe applications for human and animal health



Higher Bioactivity

First Day Colostrum Milking which has higher bioactivity than subsequent days

Proprietary processing that does not degrade immune and growth factors, and retains bioactivity

Fat content helps protect bioactives from degradation in the stomach

M HALAL



Standardized Product (Protein, IgG, Fat)

Supply Chain PanTheryx capacity cov

PanTheryx capacity covers 75% of the total worlds production

Global supply and distribution network

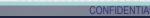
Stringent Testing

GFSSC 22000

USDA

US. Dairy

to ensure consistency of quality, safety, and efficacy



PANTHERYX

PanTheryx[™] is a nutrition and biotechnology company committed to the broad commercialization of bovine colostrum-based health and wellness solutions for the global human and animal health markets.



Premium Quality Colostrum



Nature's superfood, La Belle[®] Colostrum is a <u>COMPREHENSIVE</u> health solution comprised of a multitude of bioactive molecules that help to strengthen and sustain <u>health and vitality at all stages of life</u>.

Ethically sourced from quality dairies, La Belle Colostrum undergoes stringent testing to ensure consistency of quality, safety, and efficacy.

Abundant in immune and growth factors and other important bioactives, La Belle Colostrum helps the body to <u>REPAIR AND RESTORE</u> key structures and functions, helping your pet live a long and active life.

Used in multiple product categories to support domestic animal health



Immune Support



Gut Health



Domestic Animal Health

PANTHERYX



Manufacturing Capabilities







First in Global Bovine Colostrum Production Capacity



PanTheryx[™] capacity covers >75% of the total world's production



Sample and test incoming and outgoing items including colostrum, raw materials, and packaging components to ensure all

specifications are met

APS BioGro

PS BioGroup

Each batch of finished product is tested for safety and efficacy

Extensive in-process and final product compositional & micro testing



APS La Belle contracts with quality dairies to purchase and ethically collect excess colostrum



ANIMAL CARE

Dairies are in compliance with local, state, and federal laws and regulations for animal care and herd health

APS La Belle only collects from first day milkings after the calf receives what it needs.



QUALITY

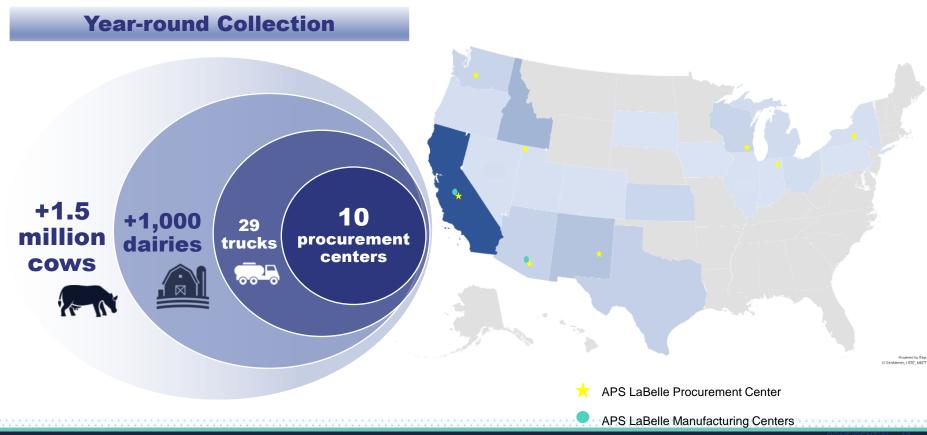
Each dairy is thoroughly evaluated through formal assessment process of quality guidelines.



TRACEABILITY

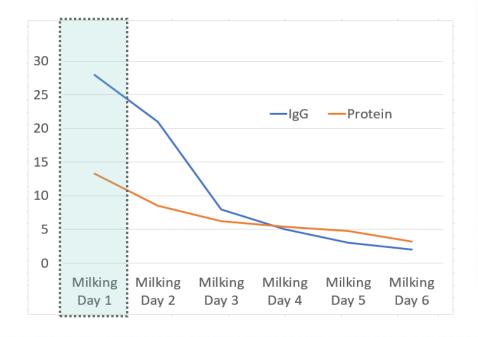
Dairies are assigned unique ID number which is traced throughout the entire manufacturing process





Colostrum to Milk Transition

APS La Belle only collects from first day milkings after the calf receives what it needs.





Collection Network- Broad and Expandable

Professionalizing the Future



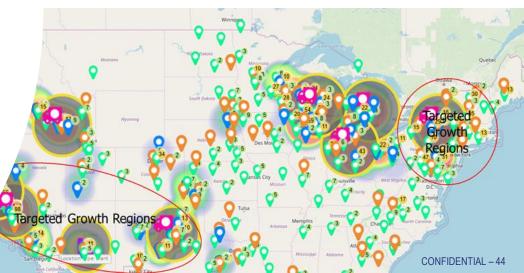




- 20 30% Fresh Network
- Targeted Farms / Regions (Improve Data)
- WorkWave Route
 Manger Deployed
- Increased Depot ROI

- Streamlined Frozen
 Collection
- Quality Grading & Paying Program
- Farmer Outreach
 Program
- Organic Enablement







Pantheryx is a human grade facility specializing in nutraceutical spray drying and blending of bulk ingredients.

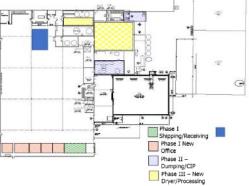
Current State:

- 2 World-Class Drying Facilities (AZ & CA)
- 5 Tower Dryers that output 1,700 MT
- Agglomeration & Non-Agglomerated Capabilities
- Fluid Beds processes for optimal particle size control and lecithin addition
- Steam transfer heating with max inlet temp 340 F & 420 F
- Proprietary Blending Hub (Flavoring & Proteins)
- Organic Certified Processor

Future State: 2020 and Beyond

- Master Plan Expansion Capability
- 4 6 Dryers (3,600 MT Capacity Add)
- Tanker Receiving Stations
- Pasteurization Processes









In-House Product Quality Testing Summarized Example

Initial product testing

- Visual Inspection
- Aflatoxin (ELISA)
- Quarterly Dairy Testing (Microbiology, Chemistry)
- IgG quantification (HPLC)

Prior to processing Identity (HPLC)

- Identity (HPLC)
- Microbiological
- IgG
- β-lactaglobulin
- α –lactalbumin

Processing testing

- Aflatoxin (ELISA)
- APC, *B. cereus*, coliform, Enterobaceriaceae, *E. coli, Listeria, Salmonella, S. aureus*, yeast + mold (Micro Plating, PCR)
- Antibiotics (Charm II)
- Ash, fat, moisture, pH, insolubility, titratable acidity, Protein (Chemistry)
- IgG (HPLC / SEC / RID)



Processing testing

- APC, *B. cereus*, coliform, Enterobacteriacea, *E. coli, Listeria, Salmonella, S. aureus*, yeast + mold (Micro Plating, PCR)
- Ash, fat, moisture, pH), protein (Chemistry)
- IgG (HPLC / SEC / RID)
- Heavy metals (ICP-MS)



Plant Certifications and Memberships

- cGMP (Good manufacturing practices)
- 21CFR117 (Risk-Based Preventative Controls for Human Food)
- 21CFR111 (Dietary Supplements)
- HACCP (Hazard Analysis and Critical Control Procedures)
- FSSC (Food Safety Systems Certification Ripon, Phoenix 2020)
- CNCA inspected by USDA for exporting into China
- Halal
- Kosher
- Registered FDA and USDA Inspected Facilities
- In-house laboratory and accredited third-party validation
- Standard Operating Procedures procurement, manufacturing, material handling, testing, finished goods release, line clearance, employee training







PURINA® PRO PLAN DRY PUPPY FOOD

 PRO PLAN Medium Puppy is a complete and balanced dry puppy food made for medium-sized puppies. It is also suitable for gestating or lactating mothers. This product contains colostrum proven to help strengthen a puppy's natural defenses to combat daily challenges.



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PURINA® PRO PLAN DRY PUPPY FOOD

 Based on this recent research, PRO PLAN® puppy formulas have been formulated with OptiStart®, containing natural antibodies & other bioactives from colostrum; and have been proven to strengthen a puppy's immature immune system.





VET WORTHY® MILK REPLACEMENT ENRICHED WITH COLOSTRUM

Balanced Formula

Key Ingredients

- Enriched with Colostrum
- ✓ Whey Protein
- ✓ Essential Vitamins
- ✓ Essential Minerals





FEEDING DIRECTIONS:

Feed puppies two (2) tablespoons (30 ml) of liquid formula per four (4) ounces of body weight. For growing postweaned puppies, show dogs, and elderly or recovering dogs, feed one (1) tablespoon of liquid formula per 5lbs of body weight. Small or weak puppies may need to be fed every three (3) to four (4) hours while larger or older puppies can do well being fed every eight (8) hours. Weigh puppy daily to ensure adequate feeding. Liquid formula can be rewarmed to room temperature. (Do NOT microwave). PREGNANT AND LACTATING DOGS: Mix two (2) teaspoons powder for 5lbs of body weight until two (2) weeks after queening.

Milk Replacement



USA Product

https://www.amazon.sg/Vet-Worthy-Milk-Replacement-Powder/dp/B076LYJB3V

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PETHONESTY ALLERGY RELIEF





https://www.ubuy.com.sg/search/index/view/product/B07KNFKHXH/s/pethonesty-allergy-relief-immunity-supplement-for-dogs-omega-3-salmon-fish-oil-colostrum-digestive-prebiotics-probiotics-for-seasonal-allergies-anti-itch-skin-hot-spots-soft-chews/store/store/kk/dp



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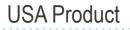
PURINA[®] PRO PLAN [®] DRY CAT FOOD Purina Pro Plan FOCUS Kitten Chicken & Rice Formula

Product Overview

- Purina Pro Plan Development Kitten Chicken & Rice Formula
- High-quality protein, including chicken as the #1 ingredient
- DHA, an omega-3 fatty acid, helps nourish brain and vision development
- Rich in antioxidants to help support a kitten's developing immune system
- Calcium, phosphorus and other minerals help build strong teeth and bones
- Vitamin A and linoleic acid, an omega-6 fatty acid, for healthy skin and coat
- Made with 41% protein to help meet a kitten's unique nutritional needs



Now With Colostrum



https://www.purina.com/pro-plan/cats/dry-cat-food/focus-kitten-chicken-rice

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PURINA[®] PRO PLAN [®] VETERINARY DIETS EN Gastroenteric Formula

Key Benefits

- Great-tasting dry dog food for a healthy GI tract.
- Features MCT vegetable or coconut oil.
- Designed to promote optimal nutrient absorption and total digestibility.
- Crafted in collaboration with nutritionists, researchers and veterinarians.
- Developed using high-quality ingredients including prebiotic fiber and healthy antioxidants.







MERA® FINEST FIT KITTEN

MERA finest fit Kitten is a complete feed for growing cats. With fresh poultry and forest fruits, it helps with the healthy development of young cats.

- ✓ With lots of fresh poultry
- Refined with forest fruits
- Recipe without wheat
- With immunity protection colostrum
- Inulin for developing a stable intestinal flora
- Optimal all-round care



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PEDIGREE STARTER MOTHER & PUP

 Improves immunity enriched with colostrum, this food helps promote better immunity in both the mother and her pups. Helps facilitate growth in puppies besides containing prebiotics that facilitate digestion, this dog food also helps puppies smoothly transition from being breastfed to eating solid food. The complete meal Packed with essential nutrients; this packet of dog food is a complete meal in itself.



ttps://www.subscribeany.com/product/pedigree-starter-mother-and-pup-3-kg-dog-food/



Benefits of Colostrum for a Penny a Day

Cost of BC material (\$/lb)	\$ 20.00
Usage (% of formula)	0.10
Upcharge (\$/ton)	\$ 40.00
Upcharge (\$/35 lb bag)	\$ 0.70
Additional cost per day for a 35 lb dog *	\$ 0.010

* Assumptions are as follows

a) a 35 dog requires 835 kcal/day

b) the typical food contains 3500 kcal/kg

c) so a 35 lb dog eats 238 g of food/day



