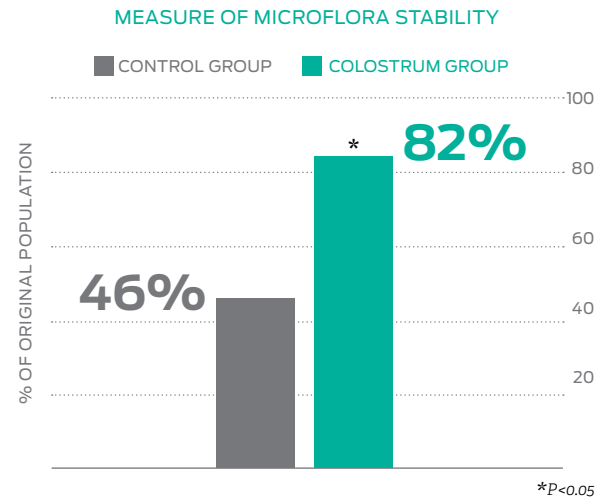


# RESEARCH AND RESULTS

THE SCIENCE THAT SETS US APART

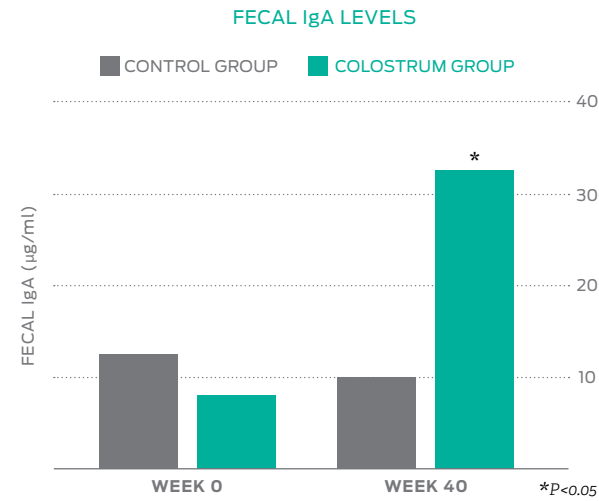
## EFFECT OF COLOSTRUM ON GUT & IMMUNE HEALTH

After an exercise challenge, dogs fed a colostrum-supplemented diet had more stable gut microflora.



Satyraj E, Reynolds A, Pelker R, et al. Supplementation of diets with bovine colostrum influences immune function in dogs. Br J Nutr. 2013;110(12):2216-21.

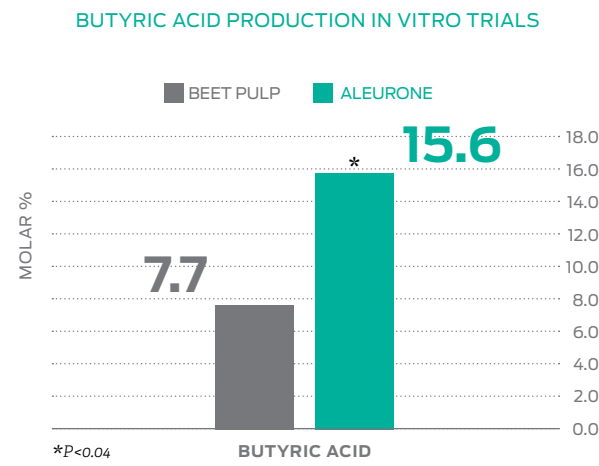
Dogs fed colostrum-supplemented diet had higher fecal IgA levels.



Satyraj E, Reynolds A, Pelker R, et al. Supplementation of diets with bovine colostrum influences immune function in dogs. Br J Nutr. 2013;110(12):2216-21.

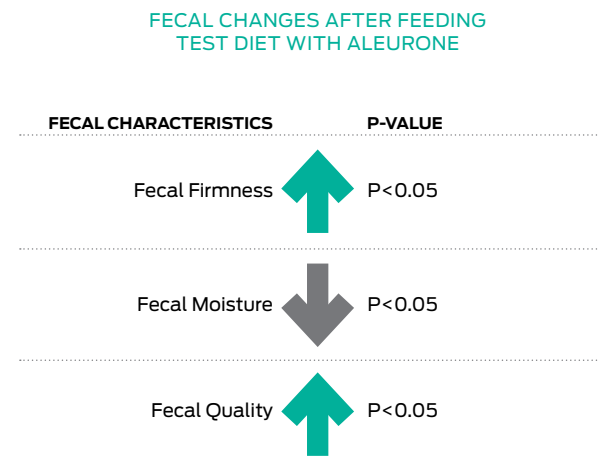
## EFFECT OF ALEURONE ON DIGESTIVE HEALTH

The proportion of butyric acid production from aleurone has been shown to be significantly greater than that from beet pulp.



NPPC Internal Data 2008-2010

Studies conducted by Purina® show improved fecal quality in dogs fed a test diet with aleurone.



NPPC Internal Data 2008-2010

LEARN MORE AT [WWW.PURINAPROPLANVETS.COM](http://WWW.PURINAPROPLANVETS.COM)

For more information, visit [www.PurinaProPlanVets.com](http://www.PurinaProPlanVets.com) or call us at 1-800-222-VETS (8387), 8:00 am to 4:30 pm CST, Monday-Friday

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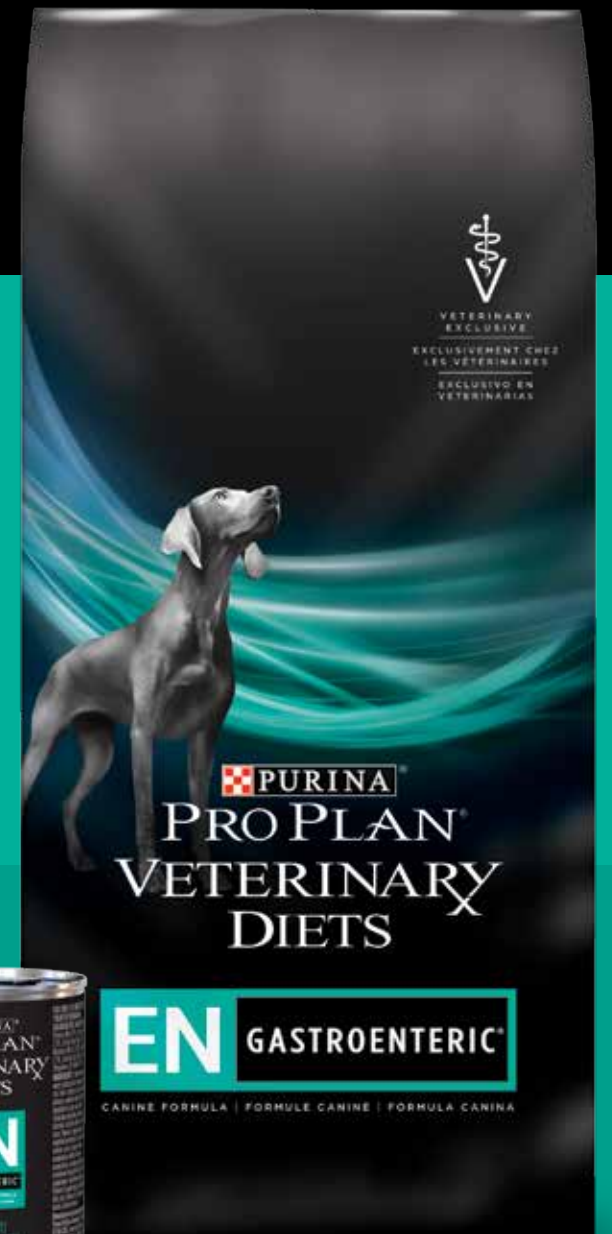
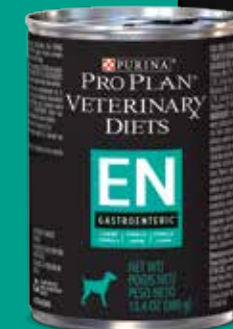
# PURINA® PRO PLAN® VETERINARY DIETS

# EN GASTROENTERIC®

## MEDICAL INDICATIONS

Multiple Indications for a Wide Range of Patients

- ✓ Vomiting and diarrhea
- ✓ Gastritis and enteritis
- ✓ Malabsorption and maldigestion
- ✓ Pancreatitis
- ✓ Exocrine pancreatic insufficiency (EPI)
- ✓ Inflammatory bowel disease (IBD)
- ✓ Hepatic disease not associated with encephalopathy



**EN GASTROENTERIC®**  
CANINE FORMULA | FORMULE CANINE | FORMULA CANINA

# THE CANINE GI OPPORTUNITY

## INDICATION RELEVANCE

1 out of 3 clients using vet services reported that their dog experienced a GI issue in the past year.<sup>1</sup>

GI problems are one of the most common reasons for clients to visit their veterinarian.<sup>2</sup>

<sup>1</sup>2011 Gastrointestinal Issues Study.  
<sup>2</sup>Kynotec Veterinary Medicine Landscape 2017

## DIETARY MODIFICATION

Some common causes of GI upset are stress, dietary indiscretion and sudden changes in diet.

Dietary modifications can help to nutritionally manage dogs with these conditions by providing a diet with high total digestibility that also helps support gastrointestinal and immune health.

## PURINA® PRO PLAN® VETERINARY DIETS EN GASTROENTERIC® HEALTH BENEFITS

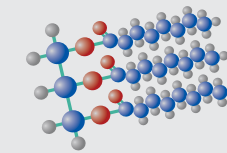
| BENEFIT   | INGREDIENTS  | MECHANISM  |
|---|--|--|
| <b>GASTROINTESTINAL HEALTH</b> <ul style="list-style-type: none"> <li>High total digestibility to promote nutrient absorption</li> </ul>  | <ul style="list-style-type: none"> <li>High quality protein sources</li> <li>CHO sources including rice</li> </ul> | <ul style="list-style-type: none"> <li>Total formula digestibility on dry matter at 87.3% dry and 86.7% wet</li> <li>High protein digestibility (90.7% dry and 85.0% wet) and CHO digestibility (93.3% dry and 93.2% wet)</li> </ul> |
| <ul style="list-style-type: none"> <li>Contains medium-chain triglycerides (6-18% of fat), a source of fat which is easily digested and absorbed to provide readily available energy</li> </ul> | <ul style="list-style-type: none"> <li>Sources of MCTs: coconut oil (dry) and MCT vegetable oil (wet)</li> </ul>   | <ul style="list-style-type: none"> <li>MCTs need 3 steps to digest and are absorbed directly into enterocytes or bloodstream, facilitating the work of the digestive tract and providing readily available energy</li> </ul>         |
| <ul style="list-style-type: none"> <li>Contains prebiotic fiber</li> </ul>  | <ul style="list-style-type: none"> <li>Prebiotics aleurone from wheat bran (dry) and inulin (wet)</li> </ul>       | <ul style="list-style-type: none"> <li>Helps nourish a healthy GI tract</li> </ul>   |
| <ul style="list-style-type: none"> <li>Contains colostrum (dry)</li> </ul>  | <ul style="list-style-type: none"> <li>Colostrum</li> </ul>  | <ul style="list-style-type: none"> <li>Colostrum (dry) helps stabilize intestinal microflora, reducing the risk of stress-related diarrhea</li> </ul>  |
| <b>GENERAL HEALTH</b> <ul style="list-style-type: none"> <li>Contains colostrum (dry)</li> </ul>  | <ul style="list-style-type: none"> <li>Colostrum</li> </ul>  | <ul style="list-style-type: none"> <li>Colostrum (dry) interacts with immune cells in the intestine to help support immune system: Local increase in IgA</li> </ul>  |
| <ul style="list-style-type: none"> <li>Formulated to help support a healthy immune system</li> </ul>  | <ul style="list-style-type: none"> <li>Antioxidant vitamins A and E</li> </ul>                                     | <ul style="list-style-type: none"> <li>High in antioxidant vitamins A and E to support a healthy immune system</li> </ul>  |

# A CLOSER LOOK

A GLIMPSE INSIDE THE SCIENCE

## HOW DO MEDIUM-CHAIN TRIGLYCERIDES HELP GI PATIENTS?

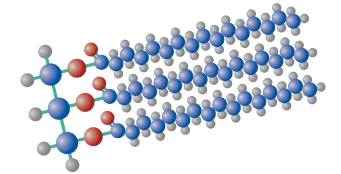
Medium-chain triglycerides are a source of fat which is easily digested and absorbed to provide readily available energy.



### Medium-Chain Triglycerides

- Water-soluble
- Passes into enterocyte intact
- Transported through portal vein, bypassing the lymphatic system

**3 STEPS TO DIGEST**

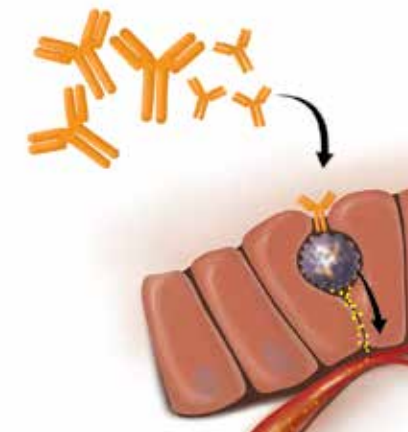


### Long-Chain Triglycerides

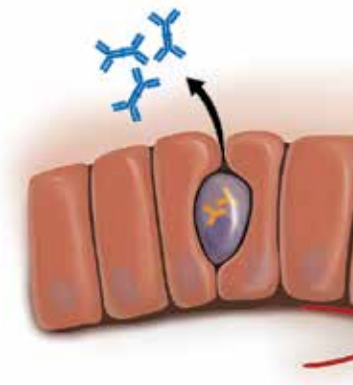
- Requires emulsification by bile salts
- Requires reconstruction in enterocyte
- Transported through the lymphatic system

**8 STEPS TO DIGEST**

## WHAT ARE THE BENEFITS OF COLOSTRUM?



Antibodies in colostrum bind to immune cells in the GI tract.



As a local response, these immune cells release IgA into the GI tract.



IgA helps protect the GI tract from pathogens, promoting a healthy balance of intestinal microflora.

IgG helps promote a healthy systemic immune system.

As a systemic response, cytokines are secreted into the circulatory system and stimulate other immune cells to release IgG into the bloodstream in response to immune system challenge.

