FORTIFLORA®
N°1 IN SCIENTIFIC STUDIES

behind its active strain SF68[1], among all strains approved in EU for dogs and cats

PURINA®
PRO PLAN®

FortiFlora®

15 YEARS
OF SCIENTIFIC EXCELLENCE

[1] *Enterococcus faecium* NCIMB 10415 (4b1705) – SF68

The role of probiotics in veterinary medicine

In recent years, the awareness of probiotic use has increased in small animal vet practice to manage many different conditions. This increase is linked to the understanding that the **gastrointestinal (GI)** tract is the largest immune organ of the body, containing **70%**[1] of all immune cells, which are located in the **gut-associated lymphoid tissue (GALT)**.

The GI tract is also home to billions of different bacteria known as the **intestinal microbiota**, which play a crucial role modulating both innate and acquired immunity[2].

The intestinal microbiota needs to interact with the gut epithelial cells for proper immune regulation and maintenance of **intestinal homeostasis**[2].

Supplementing with probiotics not only can help prevent harmful bacteria from colonising the intestines, but also, support the body's immune system through an immunomodulatory effect that is **strain-specific**[3].

PRO PLAN® FortiFlora®. An effective probiotic for cats and dogs

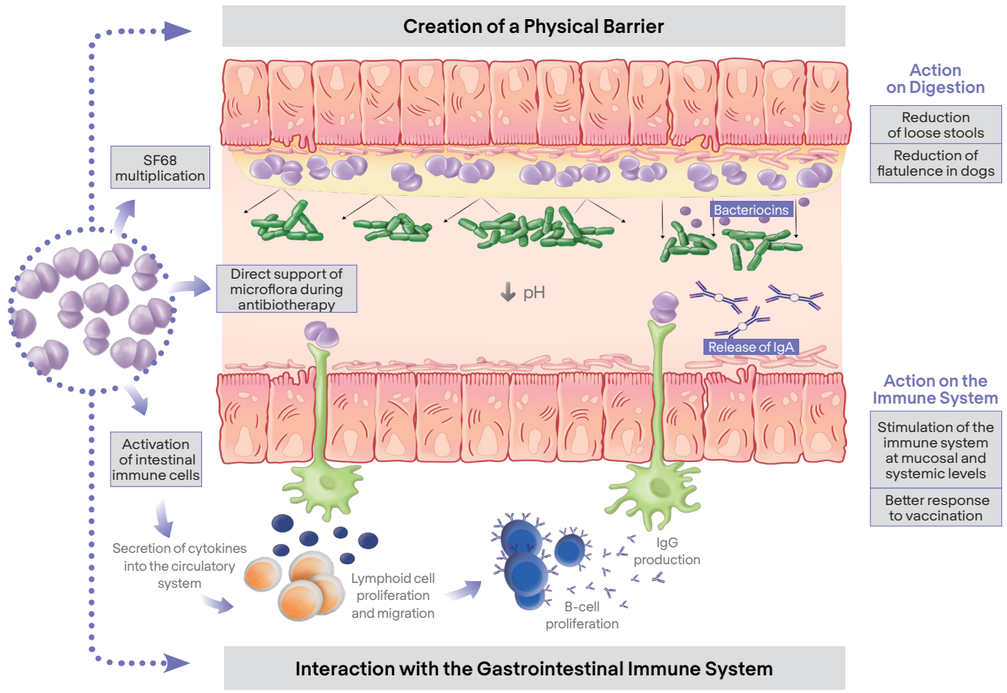
***Enterococcus faecium* (SF68)** strain belongs to a large genus of lactic acid bacteria that have gained respect for a remarkable safety and efficacy use as probiotics in humans and animals[4].

***Enterococcus faecium* SF68 NCIMB 10415 (4b1705) is the active strain of PRO PLAN® FortiFlora®**, a probiotic approved by the European Commission (under Regulation (EU) No 1061/2013) to be safely administered to both cats and dogs.

PRO PLAN® FortiFlora® (SF68) has many proven benefits when administered orally to cats and dogs of all ages (from weaning), thanks to its process of microencapsulation that guarantees the arrival of viable microorganisms to the intestinal tract.

1. Vighi G, Marcucci F, Sensi L, et al. 2008. Allergy and the gastrointestinal system. Clin Exp Immunol. 153(S1), 3–6.
2. Christopher CL. 2018. Enteric Immunity Happy Gut, Healthy Animal. Vet Clin Food Anim. 34. 1–18.
3. Ohashi Y, Kazunari U. 2009. Health-beneficial effects of probiotics: Its mode of action. Anim Sci J. 80,361-371
4. Holzapfel W, Arini A, Aeschbacher M, et al. 2018. Enterococcus faecium SF68 as a model for efficacy and safety evaluation of pharmaceutical probiotics. Benef Micr. 9(3):375-388

Through its different modes of action, FortiFlora® helps promote gut health and microbiota balance while helping support a healthy immune system.



PURINA® PRO PLAN®

FortiFlora®

HOW AND WHEN TO USE FORTIFLORA®

Recommended for	Administration guidelines
GASTROINTESTINAL DISTURBANCES	
Gastrointestinal disturbance and loose stools associated with microflora imbalance Poor faecal quality Reduction of flatulences in dogs	Give 1 sachet of FortiFlora® every day, sprinkled on top of the regular food, until at least 7 days after the remission of the signs
LOOSE STOOLS	
Loose stools associated with stress	Give 1 sachet of FortiFlora® every day, 3 days before the stressful event, during the whole period of stress and until at least 3 days after the end of the stress
Loose stools associated with antibiotic use	Give 1 sachet of FortiFlora® every day during the antibiotic use and until 7 days after the last dose of antibiotic. For maximum efficacy, give Fortiflora® at least 3 hours before or after the antibiotic administration
Loose stools associated with diet change	Give 1 sachet of FortiFlora® a day, from 3 days before the start of the diet transition until 7 days after the pet has been fed entirely with the new diet
IMMUNE FUNCTION	
Helps promote immune system	Give 1 sachet of FortiFlora® every day, for at least 30 days
PALATABILITY	
Poor appetite as it acts as a palatability booster	Add 1 sachet of FortiFlora® daily to the regular food as long as palatability enhancement is required

Recommended for cats and dogs of all ages (from weaning)

FORTIFLORA®
N°1 IN SCIENTIFIC STUDIES

behind its active strain SF68*, among all strains approved in EU for dogs and cats

15 YEARS OF SCIENTIFIC EXCELLENCE

2002
- Investigation of health beneficial effects of SF68 in dogs[1]

2003
- SF68 helps support immune function in young dogs[2]

2005
- SF68 helps enhance the immune response to *Giardia intestinalis* in mice[3]

2006
- Effect of SF68 on faecal microflora in puppies[4]
- Effect of SF68 on immune status and faecal microflora in kittens[5]
- Effect of SF68 on prevention of naturally occurring diarrhoea in kittens[6]

2007
- Effect of SF68 on faecal microflora and faecal output in kittens[7]
- **Effect of SF68 on immune function in cats[8]**

2009
- Influence of SF68 on giardiasis in dogs[9]
- **Pilot study to evaluate the effect of SF68 on cats with latent feline herpesvirus-1[10]**

2011
- **Effect of SF68 on diarrhoea in cats and dogs housed in an animal shelter[11]**

2012
- **Effects of SF68 on stress diarrhoea in dogs[12]**
- **SF68 helps reduce flatulence in dogs[13]**

2016
- Effect of SF68 supplementation in overweight and obese cats[14]

2017
- **Effect of SF68 in cats administered amoxicillin-clavulanate[15]**
- **Evaluation of SF68 in shelter dogs treated with metronidazole[16]**

2018
- SF68 as a model for efficacy and safety evaluation of pharmaceutical probiotics[17]

2019
- SF68 as adjunctive therapy for oclacitinib-responsive adult atopic dermatitis in dogs[18]
- Effect of probiotic *Enterococcus faecium* SF68 on liver function in healthy dogs[19]

2021
- 5 ongoing studies in the fields of Dermatology, Immunity, Reproduction and Renal

Enterococcus faecium NCIMB 10415 (SF68)
MAKING HISTORY
THROUGH REMARKABLE SCIENCE

* *Enterococcus faecium* SF68 NCIMB 10415 (4b1705)

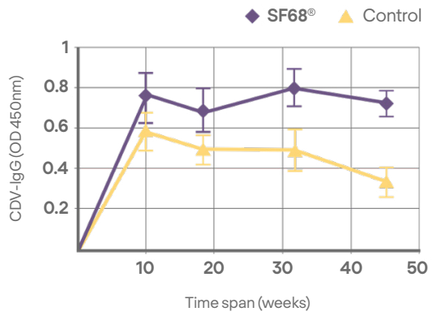
1. Cavadini and Dowling. 2002. Investigation of health beneficial effects of *Enterococcus faecium SF68* (NCIMB 10415) in dogs. Nestlé Purina internal report.
2. Benyacoub, J. et al. 2003. Supplementation of food with *Enterococcus faecium* (SF68) stimulates immune functions in young dogs. Journal of Nutrition 133(4), pp. 1158-1162.
3. Benyacoub J, et al. 2005. *Enterococcus faecium SF68* enhances the immune response to *Giardia intestinalis* in mice. J Nutr. 135(5):1171-6.
4. Czarnecki-Maulden. 2006. Effect of E. faecium SF68 (NCIMB 10415) on faecal microflora in puppies. Purina Internal Report.
5. G Czarnecki-Maulden. 2006. Effect of *Enterococcus faecium SF68* (NCIMB 10415) on immune status and faecal microflora in kittens. Purina Internal Report.
6. Czarnecki-Maulden. 2006. Effect of *Enterococcus faecium SF68* (NCIMB 10415) on prevention of naturally occurring diarrhoea in kittens. Purina Internal Report.
7. G Czarnecki-Maulden and J Jackson. 2007. Effect of *Enterococcus faecium SF68* (NCIMB 10415) on faecal microflora and faecal output in kittens. Purina Internal Report.
8. Veir JK, et al. 2007. Effect of supplementation with *Enterococcus faecium* (SF68) on immune function in cats. Vet. Ther. 8(4):229-238.
9. Simpson KW, et al. 2009. Influence of *Enterococcus faecium SF68* probiotic on giardiasis in dogs. J Vet Intern Med. 23(3):476-81.
10. Lappin MR, et al. 2009. Pilot study to evaluate the effect of oral supplementation of *Enterococcus faecium SF68* on cats with latent feline herpesvirus 1. Journal of Feline Medicine and Surgery 11(8), pp. 650-654.
11. Bybee SN, et al. 2011. Effect of the probiotic *Enterococcus faecium SF68* on presence of diarrhoea in cats and dogs housed in an animal shelter. J Vet Intern Med. 25(4):856-60.
12. A M Gore, A Reynolds. 2012. Effects of *Enterococcus faecium* on stress diarrhoea. ACVIM Forum Proceedings; 453.
13. Waldron M, Kerr W, Czarnecki-Maulden G and Davis (2012). Supplementation with *Enterococcus faecium* reduces flatulence in dogs. 16th European Society of Veterinary Comparative Nutrition (ESVCN) Congress. September 2012.
14. Kathrani A, et al. 2016. Effect of short-term probiotic *Enterococcus faecium SF68* dietary supplementation in overweight and obese cats without comorbidities. Vet Rec Open. 2016 Apr 6;3(1):e000164.
15. Torres-Henderson C, et al. 2017. Effect of *Enterococcus faecium* Strain SF68 on Gastrointestinal Signs and Faecal Microbiome in Cats Administered Amoxicillin-Clavulanate. Top Companion Anim Med. 32(3):104-108.
16. Fenimore A, et al. 2017. Evaluation of Metronidazole with and without *Enterococcus faecium SF68* in shelter dogs with diarrhoea. Topics in Companion Animal Medicine, 32(3), pp. 100-103.
17. Holzapfel W, et al. 2018. *Enterococcus faecium SF68* as a model for efficacy and safety evaluation of pharmaceutical probiotics. Beneficial Microbes, 9(3):375-388.
18. Yamazaki C, et al. 2019. Pilot evaluation of *Enterococcus faecium SF68* as adjunctive therapy for oclacitinib responsive adult atopic dermatitis in dogs. J Small Anim Pract. Aug;60(8):499-506.
19. Lucena. 2019. Effect of probiotic *Enterococcus faecium SF68* on liver function in healthy dogs. Journal of Veterinary Internal Medicine - Wiley Online Library.

PRO PLAN® FortiFlora®. Outstanding results in the spotlight

Supplementation of food with *Enterococcus faecium* (SF68®) stimulates immune functions in young dogs. *(Benyacoub J et al. 2003)*[1]

For the first time, the administration of probiotic lactic acid bacteria is proven to boost specific immune functions in puppies.

- Faecal IgA and canine distemper virus (CDV) vaccine-specific circulating IgG and IgA were higher in the group receiving the probiotic versus the control group.
- The proportion of mature B cells [(CD21+/major histocompatibility complex (MHC) class II+] was also greater in the probiotic group versus the control group.



Effect of supplementation with *Enterococcus faecium* (SF68®) on immune functions in cats. *(Veir JK, et al. 2007)*[2]

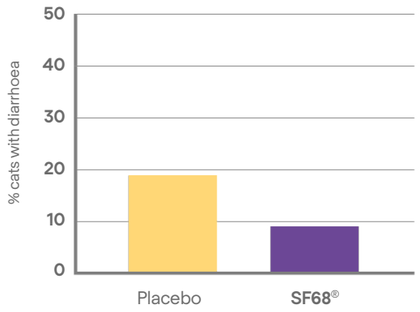
- The mean levels of feline herpesvirus-1 (FHV-1) – specific IgA in serum and saliva, and specific IgG in serum – were numerically greater in the SF68 group than in the placebo group.
- The percentage of CD4+ lymphocytes was significantly higher in the SF68 group, indicating systemic immune-modulating effects by SF68 in kittens.

Pilot study to evaluate the effect of oral supplementation of *Enterococcus faecium* SF68® on cats with latent Feline Herpesvirus-1. *(Lappin MR, et al. 2009)*[3]

- The administration of the probiotic lessened morbidity associated with chronic Feline Herpesvirus 1 (FHV-1) infection in some cats.
- Faecal microbial diversity was maintained throughout the study in cats supplemented with SF68, indicating a more stable microbiome compared with the placebo group.

Effect of the probiotic *Enterococcus faecium SF68* on presence of diarrhoea in cats and dogs housed in an animal shelter. *(Bybee SN et al. 2011)*[4]

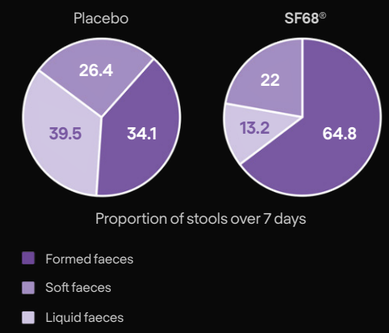
The percentage of cats with ≥2 days of diarrhoea was significantly lower in the SF68 group compared with the placebo group.



1. Benyacoub J, Czarnecki- Maulden G, Cavadini C, et al. 2003. Supplementation of food with *Enterococcus faecium* (SF68®) stimulates immune functions in young dogs. J Nutr. 133 (4). 1158- 1162.
2. Veir JK, Knorr R, Cavadini C, et al. 2007. Effect of supplementation with *Enterococcus faecium* (SF68®) on immune functions in cats. Vet Therap. 8: 4, 229- 238
3. Lappin MR, Veir JK, Satyaraj E, et al. 2009. Pilot study to evaluate the effect of oral supplementation of *Enterococcus faecium SF68*® on cats with latent feline herpesvirus 1. JFMS. 11(8), 650-654
4. Bybee SN, Scorza AV, Lappin MR. 2011. Effect of the probiotic *Enterococcus faecium SF68* on presence of diarrhoea in cats and dogs housed in an animal shelter. J Vet Intern Med. 25:856–8602.
5. Gore AM, Reynolds A. 2012. Effects of *Enterococcus faecium* on stress diarrhoea. ACVIM Forum Proceedings. p 453.
6. Waldron M, Kerr W, Czarnecki-Maulden G, et al. 2012. Supplementation with *Enterococcus faecium* reduces flatulence in dogs. 16th Eur Soc Vet Comp Nut (ESVCN) Congress. September.
7. Fenimore A, Martin L, Lappin MR. 2017. Evaluation of metronidazole with and without *Enterococcus faecium SF68* in shelter dogs with diarrhoea. Topics in Compan An Med. (32)100–103
8. Torres-Henderson C, Summers S, Suchodolski J, et al. 2017. Effect of *Enterococcus faecium* strain SF68 on gastrointestinal signs and fecal microbiome in cats administered amoxicillin-clavulanate. Top Companion Anim Med. 32:104-108.

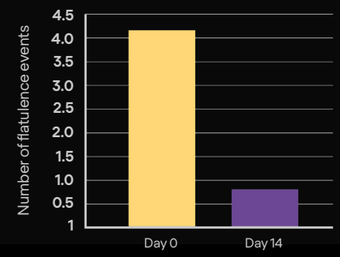
Effects of *Enterococcus faecium* on stress diarrhoea. *(Gore AM and Reynolds A. 2012)*[5]

- By day 4, 92% of the SF68 group had normal stools with 100% resolution by day five, while the placebo dogs had a slower recovery from clinical symptoms, and none reached full recovery within seven days.
- Dogs supplemented with SF68 had significantly less severe diarrhoea and for fewer days than dogs in the control group.



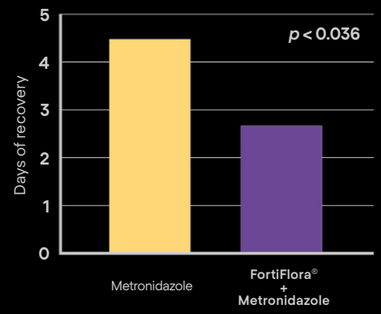
Supplementation with *Enterococcus faecium* reduces flatulence in dogs. *(Waldron M et al. 2012)*[6]

- Supplementation with *E. faecium* SF68 for 2 weeks resulted in both a reduction in the total number of flatulence events and the maximum amount of hydrogen sulphide released.



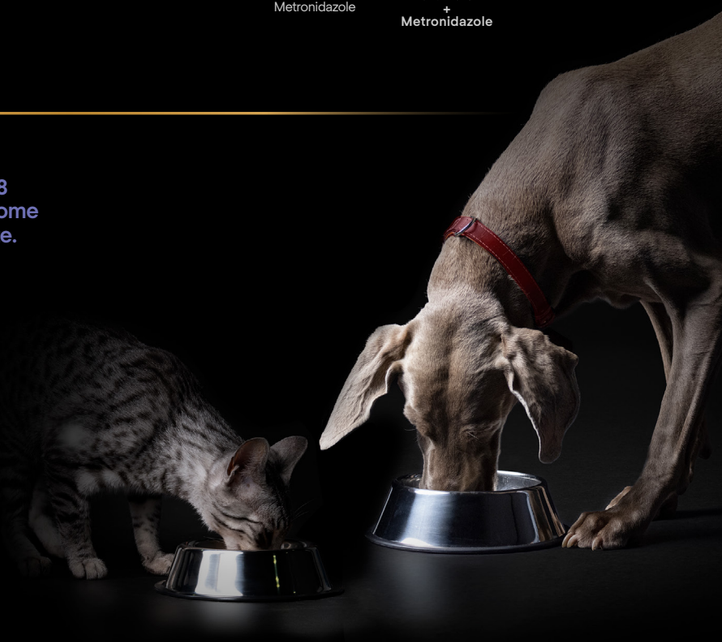
Evaluation of metronidazole with and without *Enterococcus faecium SF68* in shelter dogs with diarrhoea. *(Fenimore A et al. 2017)*[7]

- The percentage of days with normal stools were significantly higher for dogs administered metronidazole + SF68 (65.6%) compared to metronidazole alone (46.9%).
- Supplementation with *E. faecium* SF68 probiotic may help speed recovery in dogs with non-specific diarrhoea.



Effect of *Enterococcus faecium* strain SF68 on gastrointestinal signs and fecal microbiome in cats administered amoxicillin-clavulanate. *(Torres-Henderson C, et al. 2017)*[8]

- Faecal scores >5 (on a 7-point scale) were detected in 69.2% of cats fed SF68 compared to the 85.7% of cats fed with placebo.
- Faecal scores of 7 were only detected in the placebo group.



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https://www.vet-center.eu/eu for more information