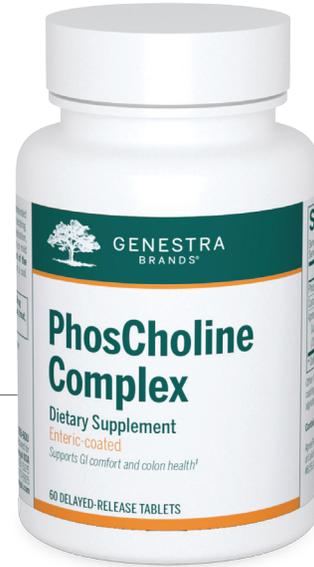




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# PhosCholine Complex



## Delayed-release combination of phosphatidylcholine, curcumin and ApresFlex® *Boswellia serrata* extract

- Enteric-coated for delayed release in the intestines
- Supports gastrointestinal health<sup>†</sup>
- Promotes joint health and comfort<sup>†</sup>
- Convenient tablet format

PhosCholine Complex is a unique combination of phosphatidylcholine, curcumin and ApresFlex® *Boswellia serrata* extract in a delayed-release tablet format. Phosphatidylcholine is an important phospholipid present in cell membranes throughout the body. Specifically, it is the primary phospholipid in mucus and is particularly critical to the intestinal tract. Phosphatidylcholine may help establish the hydrophobic barrier of the intestines, while regulating signalling pathways involving TNF- $\alpha$  and NF $\kappa$ B. Turmeric has a long history of traditional use and contains curcumin, the primary bioactive compound responsible for a variety of beneficial health effects. Preclinical research suggests that curcumin may provide further support to the gastrointestinal tract by scavenging reactive oxygen species, mediating the infiltration of neutrophils and regulating NF $\kappa$ B activation. PhosCholine Complex also contains the clinically studied ApresFlex® *Boswellia serrata* extract. Although boswellia has been traditionally used to support a range of body systems, recent research has focused on its effects on the gastrointestinal system and joints. Emerging evidence suggests that boswellia can regulate leukotriene metabolism, which may in turn promote gastrointestinal health, as well as joint comfort and mobility. Additionally, this formula is enteric-coated to promote targeted release in the intestines.<sup>†</sup>

### SUPPLEMENT FACTS

Serving Size 2 Tablets  
Servings per Container 30

AMOUNT PER SERVING		% DV
Phosphatidylcholine (from soy bean)	375 mg	*
Curcumin (from turmeric rhizome)	100 mg	*
ApresFlex® <i>Boswellia</i> ( <i>Boswellia serrata</i> ) Gum Oleoresin Extract (20% 3-Acetyl-11-keto-beta-boswellic acid)	50 mg	*

\* Daily Value (DV) not established

Other ingredients: Cellulose, hypromellose, croscarmellose sodium, silica, delayed-release tablet coating (ethylcellulose, ammonium hydroxide, medium-chain triglycerides, oleic acid, sodium alginate, stearic acid), ascorbyl palmitate  
Contains: Soy

ApresFlex® is a trademark of Laila Nutraceuticals. US Patent #8,551,496 and other patents pending.

### Recommended Dose

Take 2 tablets 2 times daily or as recommended by your health professional.

### Size

60 Delayed-Release Tablets

### Product Code

10355



Non  
GMO



Gluten  
Free



Dairy  
Free



Vegan

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# PhosCholine Complex

## Scientific Rationale:

The intestines play important roles in the body, including the absorption of water and minerals, and the formation and excretion of feces.<sup>1</sup> Homeostasis in this region depends primarily on the intestinal barrier, which helps to maintain a balance between the microbiota and gut-associated immune system.<sup>1</sup> This barrier can be impacted by genetics or environmental factors, such as smoking, medication, stress and lifestyle habits.<sup>2,3</sup> Alterations in the barrier may lead to the recruitment of leukocytes, which produce a range of compounds that can impact intestinal health.<sup>3</sup>

Phosphatidylcholine is an important phospholipid present in the intestinal tract.<sup>3</sup> As it may help establish the hydrophobic barrier of the intestines, phosphatidylcholine plays a critical role in the region's protective ability.<sup>3,4†</sup> Preclinical research suggests that phosphatidylcholine can further support intestinal health by regulating signalling pathways, including TNF- $\alpha$  secretion and NF $\kappa$ B activation.<sup>4,5†</sup>

Clinical trials have evaluated the ability of phosphatidylcholine to support intestinal health.<sup>†</sup> In one randomized, double-blind, placebo-controlled trial, daily supplementation with 6 g of delayed-release phosphatidylcholine significantly improved quality of life scores and supported the intestines, as measured by improvements in clinical, endoscopic and histology scores.<sup>6,7†</sup> Similarly, daily supplementation with 3.2 g of delayed-released phosphatidylcholine significantly supported intestinal health and histology scores when compared to the placebo in a randomized clinical trial.<sup>8†</sup> Further benefits of delayed-released phosphatidylcholine supplementation on intestinal health were reported when consumed at 2 g per day for 12 weeks.<sup>9†</sup> PhosCholine Complex provides enteric-coated phosphatidylcholine, which allows for targeted release in the terminal ileum, rather than premature absorption in the jejunum.<sup>4†</sup>

Boswellia is one of the oldest and most prized traditionally used herbs.<sup>10†</sup> It contains a variety of boswellic acids, including the well-researched acetyl-11-keto- $\beta$ -boswellic acid (AKBA).<sup>10</sup> Preclinical research has reported that this herb may regulate leukotriene metabolism, which may contribute to beneficial effects on the intestines.<sup>11†</sup> In one animal trial, semisynthetic AKBAs mediated the recruitment of leukocytes, while supporting intestinal health.<sup>12†</sup> Similarly, daily supplementation with 1,200 mg of boswellia extract for six weeks significantly supported intestinal health, as measured by stool frequency during the final study week.<sup>13†</sup>

Boswellia has also been shown to support healthy joint metabolism.<sup>14†</sup> Preclinical research demonstrates that boswellia resin and AKBA help maintain healthy activity of the 5-lipoxygenase (5-LOX) and matrix metalloproteinase (MMP) enzymes, which have an impact on leukotriene activity and connective tissue integrity.<sup>14†</sup>

PhosCholine Complex contains ApresFlex<sup>®</sup> Boswellia extract, a novel extract containing 20% AKBA and the non-volatile oil fraction of boswellia. In a bioavailability study, AKBA was found to be more bioavailable in the systemic circulation of rats supplemented with ApresFlex<sup>®</sup> Boswellia extract when compared to an extract standardized to 30% AKBA.<sup>14</sup> ApresFlex<sup>®</sup> extract also inhibited 5-LOX activity 21% more effectively than the other extract.<sup>14†</sup>

Randomized, double-blind, placebo-controlled trials have reported that ApresFlex<sup>®</sup> supports joint comfort.<sup>15,16†</sup> In one trial, supplementation with 50 mg of ApresFlex<sup>®</sup> twice daily significantly improved joint comfort and function scores within five days.<sup>15†</sup> Similarly, daily ApresFlex<sup>®</sup> supplementation for 90 days demonstrated a superior ability to support joint health when compared to a boswellia extract standardized to 30% AKBA, as measured by greater and more rapid improvements in comfort, flexibility and physical function scores.<sup>16†</sup>

Turmeric is a plant native to India and Southeast Asia that has a long history of traditional use.<sup>17</sup> Its primary constituent is curcumin, which is responsible for turmeric's bright yellow color.<sup>17</sup> Curcumin has been researched for its antioxidant effects, as well as its ability to regulate pathways associated with cyclooxygenase-2 (COX-2) and LOX enzymes, NF $\kappa$ B, and cytokines such as TNF- $\alpha$  and various interleukins.<sup>17†</sup> Preclinical evidence also suggests it may provide beneficial effects to the intestines, including the mediation of oxidative stress, neutrophil infiltration and colonic architecture.<sup>17†</sup>

In one pilot study, participants received 1,100 mg of curcumin daily for one month, followed by 1,650 mg of curcumin daily for another month.<sup>18</sup> By the end of the trial, curcumin supplementation significantly promoted intestinal health, as measured by a score of general well-being, number of stools, stool quality and abdominal comfort.<sup>18†</sup> Similarly, beneficial effects of curcumin supplementation on the intestines were reported in a randomized, double-blind, placebo-controlled trial.<sup>19†</sup> The study authors reported that daily intake of 2 g of curcumin for six months led to improvements in both clinical and endoscopic activity indices.<sup>19†</sup>

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