



## Milk Thistle Combination

(formerly LIV-Guard™)  
Stock #4076-5 (90 tablets)

Milk Thistle Combination is a powerful formula designed to help restore and support healthy liver function. Milk Thistle Combination provides important nutrients that protect the liver against damage from carcinogens, toxins and free radicals, including a concentrated milk thistle extract, standardized to contain 80% silymarin. Plus, with the addition of the powerful antioxidant, N-acetyl-cysteine (NAC), Milk Thistle Combination now provides even greater liver support.

Each tablet of Milk Thistle Combination provides:

Vitamin A (as beta-carotene) - 7,000 IU  
Vitamin C - 240mg  
Choline (bitartrate) - 60mg  
Inositol - 60mg  
Milk thistle concentrate - 175mg (containing 80% silymarin)  
N-Acetyl-cysteine (NAC) - 50mg  
Dandelion root - 150mg

**Choline**, another member of the B-complex vitamin, is derived from the chemical compound phosphatidylcholine (lecithin). Choline is an essential nutrient for liver health, as choline prevents fats from accumulating in the liver. In fact, choline deficiency promotes liver damage. In addition, animal research suggests that choline supplementation may help prevent cirrhosis.<sup>1-4</sup>

**Dandelion** has a long history of use in the treatment of hepatobiliary (relating to the liver and gallbladder) problems. In Germany, dandelion is actually licensed as a standard medicinal tea for treating biliary (gallbladder) disorders, digestive and gastrointestinal complaints, and to stimulate diuresis (discharge of urine). Both animal and human studies have shown that dandelion root enhances bile flow, which helps improve conditions such as bile duct inflammation, gallstones, hepatitis, jaundice and liver congestion. The root's high choline content may also be a contributing factor to dandelion's ability to function as a liver tonic. Dandelion is not recommended if there is obstruction of bile ducts, gallbladder empyema (pus in the gallbladder), or ileus (intestinal obstruction), and individuals with gallstones should consult their healthcare practitioner.<sup>2,5,6</sup>

**Inositol**, part of the B-complex vitamin and found in high concentrations in lecithin (along with choline), is a complex form of fatty acid. Inositol facilitates fat metabolism and helps lower blood levels of cholesterol. Working together with choline, inositol helps protect the liver.<sup>3</sup>

**Milk thistle** (*Silybum marianum*), which is used throughout the world, is one of the most commonly prescribed medicinal herbs. Milk thistle's reputation for protecting the liver has been studied and confirmed by laboratory and clinical research for the last 30 years, resulting in over 200 clinical studies. Most of the pharmacological research conducted on milk thistle has focused on the active constituent, a complex of flavonolignans collectively known as silymarin. Silymarin is one of the most potent hepatoprotective (liver-protecting) substances known. The anti-hepatotoxic activity of silymarin has been proven against a variety of liver toxins, including the severe poisoning of *Amanita phalloides* (the deathcap or toadstool mushroom), the quickest-acting and most virulent of liver toxins. In addition, silymarin is recognized as a powerful antioxidant that increases intracellular antioxidant activity to protect liver cells from free-radical damage.<sup>5-14</sup>

Silymarin not only protects the liver against toxic damage, but also regenerates hepatocytes (parenchymal cells of the liver) by increasing the rate of RNA synthesis, which stimulates protein synthesis and accelerates cell-regeneration and hepatocyte formation. In other words, silymarin actually increases the production of new liver cells to replace damaged cells. Fortunately, silymarin has not been shown to have stimulatory effect on malignant liver tissue.<sup>5-9,11-14</sup>

Clinical indications for milk thistle use, supported by trials using a standardized milk thistle extract (containing 70-80% silymarin), include abnormal liver function, acute and chronic viral hepatitis, alcoholic and non-alcoholic cirrhosis, cholangitis (inflammation of bile ducts) and pericholangitis (inflammation surrounding bile ducts), cholelithiasis (gallstones), cholestasis (impaired bile flow) and subclinical cholestasis of pregnancy, diabetes secondary to cirrhosis, fatty deposits in the liver, liver damage caused by toxic chemical exposure (anaesthesia, drugs, glues, halogenated hydrocarbons, paints, solvents), and deathcap mushroom poisoning. Milk thistle may also help psoriasis by reducing levels of circulating endotoxins and inhibiting leukotriene formation. Furthermore, milk thistle is especially well-indicated in patients with cancer, who are also undergoing chemotherapy, and in HIV-infected individuals on multi-drug protocol.<sup>6,8,9,12,15-17</sup>

**N-acetyl-cysteine (NAC)**, a specially modified form of the amino acid cysteine, is a precursor to glutathione—one of the most important anticarcinogens and antioxidants in the cells. In fact, glutathione deficiency is a cause of serious liver dysfunction and damage. Studies indicate that NAC is one of the two most effective antioxidants (second only to vitamin C) for increasing glutathione levels in patients with glutathione deficiency. In addition, animal research found that the antioxidant activity of NAC helped protect the liver against exposure to several toxic chemicals. In fact, very high levels of NAC are used in hospitals as a conventional treatment against acetaminophen poisoning.<sup>1,2,6,18</sup>

References:

- <sup>1</sup>Bratman MD, S. & Kroll PhD, D. *Natural Health Bible*. Prima Publishing, 1999.
- <sup>2</sup>Lining Jr, S., et. al. *The Natural Pharmacy, 2nd Ed*. Rocklin, CA: Prima Publishing, 1999.
- <sup>3</sup>Sterling RD, M. "Can Cirrhosis be Prevented?" *Nutrition Science News*; January, 1999.
- <sup>4</sup>Dunne, L. *Nutrition Almanac, 3rd edition*. NY, NY: McGraw-Hill, 1990.
- <sup>5</sup>*Herbal Medicine: Expanded Commission E Monographs*. Integrative Medicine Communications, 2000.
- <sup>6</sup>Pizzorno ND, J. & Murray ND, M. *Textbook of Natural Medicine, 2nd ed*. London: Churchill Livingstone, 1999.
- <sup>7</sup>Alschuler ND, L. "Digestive Disturbances: The Fatty Liver Connection." *International Journal of Integrative Medicine*; 2000, 2(2): 16-20.
- <sup>8</sup>Wassef RPh, F. "Enhancing liver detoxification." *American Journal of Natural Medicine*; 1998, 5(9):24-27.
- <sup>9</sup>Alschuler ND, L. "Milk Thistle: Goals & Objectives." *International Journal of Integrative Medicine*; 1999, 1(1):29-34.
- <sup>10</sup>Buhner, S. H. *Herbs for Hepatitis C and the Liver*. Pownal, VT: Storey Books, 2000.
- <sup>11</sup>Hobbs LAc, C. "Milk thistle therapy." *Herbs For Health*; 1997, 2(3): 47-49.
- <sup>12</sup>Mills, S. & Bone, K. *Principles and Practice of Phytotherapy*. London: Churchill Livingstone, 2000.
- <sup>13</sup>Flora, K., et. al. "Milk thistle (*Silybum marianum*) for the therapy of liver disease." *American Journal of Gastroenterology*; 1998, 93(2): 139-143.
- <sup>14</sup>*The Complete German Commission E Monographs*. Austin, TX: American Botanical Council, 1999.
- <sup>15</sup>Miller PhD, L. & Murray PhD, W. *Herbal Medicinals*. Binghamton, NY: Pharmaceutical Products Press, 1998.
- <sup>16</sup>Murray ND, M. *The Healing Power of Herbs*. Rocklin, CA: Prima Publishing, 1995.
- <sup>17</sup>*A-Z guide to drug-herb-vitamin interactions*. Rocklin, CA: Healthnotes, Inc., 1999.
- <sup>18</sup>"Glutathione, Reduced (GSH)." *Alternative Medicine Review*; 2001, 6(6).