## DIM

## **Enhanced Delivery System**

DIM (diindolylmethane) has been shown to help regulate and promote a more efficient metabolism of estrogen, and an optimal ratio of estrogen metabolites.\*

DIM Enhanced Delivery System contains BioResponse DIM®, a unique formulation containing pure diindolylmethane, an indole. Indoles are plant compounds with health promoting properties, and are found in cruciferous vegetables such as broccoli, cabbage, cauliflower and Brussels sprouts.\* The phytochemicals in cruciferous vegetables have been shown to beneficially affect the body's hormonal and detoxification systems, and epidemiological studies support the health benefits of consuming these vegetables.\*



#74140 120 vegetarian capsules

## **Key Features**

- Promotes healthy estrogen metabolism and balance<sup>\*</sup>
- Helps promote the conversion of estrogen to its beneficial, protective 2-hydroxyestrone metabolites and reduces production of genotoxic 16α-hydroxyestrone\*
- Stimulates detoxification enzyme systems\*





DIM is a major active acid-catalyzed derivative of one of the phytochemicals in cruciferous vegetables, indole-3-carbinol (I3C). DIM is thought to be responsible for the health effects of dietary I3C.\* DIM Enhanced Delivery System is a stable, bioavailable form of DIM, made possible through a proprietary delivery system. The formula is co-solubilized with phosphatidylcholine, and microencapsulated in starch particles.

Research over the past thirty years has determined that healthy estrogen metabolism is closely linked to several healthy parameters in men and women, particularly some involving the breast, uterus, prostate and other reproductive tissue.\* Genetics, excess weight, poor diet and other lifestyle factors may result in an imbalance of estrogen metabolites. Xenoestrogenic compounds, such as organochlorine pesticides, can also significantly disrupt healthy estrogen metabolism.

These estrogen disruptors alter estradiol hydroxylation metabolism producing a higher ratio of the genotoxic  $16\alpha$ -hydroxyestrone ( $16\alpha$ -OHE1) to the safer and weaker estrogenic 2-hydroxyestrone (2-OHE1).\* The genotoxic  $16\alpha$ -OHE1 can potentially disrupt several normal cellular metabolic processes.\* DIM promotes the conversion of estrogen to its beneficial, protective 2-hydroxyestrone metabolites and reduces production of genotoxic  $16\alpha$ -OHE1.\* Modulating these aspects of estrogen metabolism, particularly the production of  $16\alpha$ -OHE1, may contribute to healthy aging.\*

Supplement Facts	
Serving Size Servings Per Container	4 Capsules 30
Amount Per Serving	% Daily Value
BioResponse DIM® 300 mg *  (A patented Diindolylmethane complex - starch, DIM (25% min.),  Vitamin E succinate, phosphatidylcholine (soy), silica)	
* Daily Value not established.	

Other ingredients: Hydroxypropyl methylcellulose, cellulose, L-leucine.

**Suggested Use:** As a dietary supplement, 2 to 4 capsules one or two times daily, or as directed by a healthcare practitioner.

## References:

Bell MC, Crowley-Nowick P, Bradlow HL, et al. Gynecol Oncol 2000;78:123-9. Ben-Jonathan N, Cooper RL, Foster P, et al. Environ Health Perspect 1999;107 Suppl 4:605-11.

Bradlow HL, Davis D, Sepkovic DW, et al. Sci Total Environ 1997;208:9-14.
Bradlow HL, Sepkovic DW, Telang NT, et al. Ann N Y Acad Sci 1999;889:204-13.
Chang YC, Riby J, Chang GH, et al. Biochem Pharmacol 1999;58:825-34. Chen I, Safe S, Bjeldanes L. Biochem Pharmacol 1996;51:1069-76.
Davis DL, Telang NT, Osborne MP, et al. Environ Health
Perspect 1997;105 Suppl 3:571-6.

Ge X, Fares FA, Yannai S. Anticancer Res 1999;19:3199-203. Lake BG, Tredger JM, Renwick AB, et al. Xenobiotica 1998;28:803-11.

Michnovicz JJ, Adlercreutz H, Bradlow HL. J Natl Cancer Inst 1997;89:718-23. Riby JE, Chang GH, Firestone GL, et al. Biochem Pharmacol 2000;60:167-77. Sanderson JT, Slobbe L, Lansbergen GW, et al. Toxicol Sci 2001;61:40-8. Shertzer HG, Senft AP. Drug Metabol Drug Interact 2000;17:159-88. Wattenberg LW, Loub WD. Cancer Res 1978;38:1410-3.

The mechanisms for DIM's health benefits primarily involve the induction of mixed function oxidases and phase II detoxification enzyme systems by the binding and activation of the arylhydrocarbon receptor (AhR).\* Research using human breast cells (MCF-7) has shown that the binding of DIM® to the arylhydrocarbon receptor can result in rapid formation of the nuclear AhR complex and consequent induction of gene expression and synthesis of cytochrome P450 detoxification enzyme (CyP450A1).\* DIM® consequently produces increased levels of the protective hydroxylated estrogen 2-OHE1.\* Some have suggested that DIM may also positively affect cellular signaling pathways.\*

It is becoming increasingly apparent that DIM may provide an important mechanism for supporting successful aging despite the increasing levels of xenoestrogenic compounds in our modern world.\*