

# CDG ESTRODIM



## RECOMMENDED USE

- Helps to support healthy estrogen metabolism
- Helps reduce the severity and duration of symptoms associated with recurrent breast pain (cyclical mastalgia)
- Provides antioxidants that help protect against cell damage caused by free radicals

## ESTROGEN BALANCE

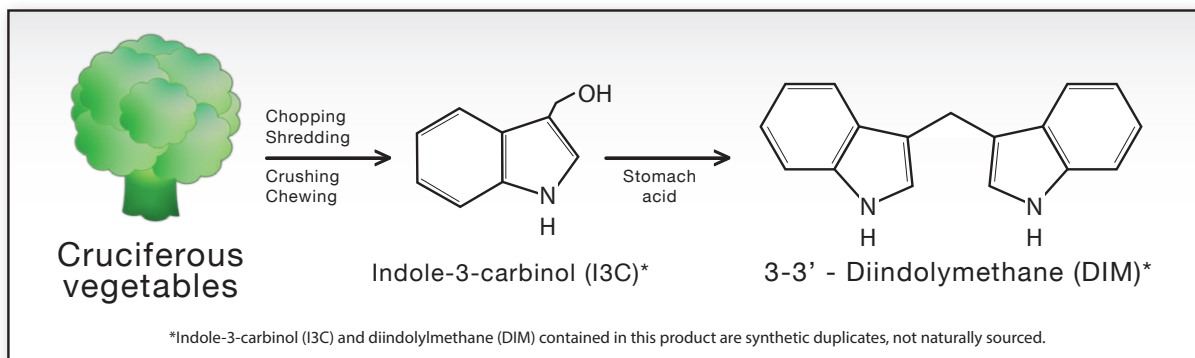
CDG EstroDIM is a targeted supplement that combines the synergistic benefits of indole-3-carbinol (I3C) and diindolylmethane (DIM) to support estrogen metabolism. Formulating I3C and DIM together creates the ideal combination of beneficial metabolites to support estrogen balance and reduce the severity of recurrent breast pain (cyclical mastalgia).

### Overview

Three major naturally occurring forms of estrogen in women are estrone (E1), estradiol (E2), and estriol (E3). Hormones have important functions in every area of the body. They are chemical messengers that interact with cells all over the body (especially tissues that are more sensitive to them, including breast tissue). The most important message they deliver to cells is to grow, divide and multiply. For this reason, hormones are critically important in human development and tissue repair. Supporting estrogen synthesis and metabolism is essential for proper hormonal balance. The means in which estrogen is metabolized can result in different metabolites,

each with individual biological activity. By keeping hormones in balance and ensuring the body is able to process hormones properly, I3C and DIM work together to reduce hormone overload. Current data on I3C and DIM suggests that these phytonutrients have strong potential for supporting breast health.<sup>1-4</sup> I3C\* is a naturally occurring compound derived from cruciferous vegetables such as broccoli, Brussels sprouts and cabbage. Together, I3C and DIM promote the creation of the favorable and protective 2-hydroxyestrone (2-OHE) metabolite versus production of 4-hydroxyestrone (4-OHE) and 16-alpha-hydroxyestrone (16-alpha-OHE), metabolites which can overstimulate cells and create free radicals that cause DNA damage.<sup>5</sup> The influence of I3C and DIM on estrogen metabolism creates a more desirable ratio of 2-OHE to 16-alpha-OHE. This assessment of 2:16-alpha-OHE ratio has been used to evaluate hormonal health.

Many of the health benefits derived from eating cruciferous vegetables (cabbage, Brussels sprouts, broccoli, etc.) are derived from the group of secondary metabolites known as



glucosinolates. When these vegetables are cut, crushed or chewed, the enzyme myrosinase (released from the cells) hydrolyses these glucosinolates into other compounds. For instance, glucosinolates from broccoli and brussel sprouts readily convert into I3C when consumed. I3C can then be further converted via stomach acid into other health promoting compounds, including DIM. These compounds are thought to be responsible for the various cellular activities involved in hormone health.

## I3C

I3C is a naturally occurring compound found in numerous cruciferous vegetables, such as broccoli, cauliflower, kale and cabbage. Following ingestion of I3C, the body converts it to several different metabolites, one of which is diindolylmethane (DIM). Both of these compounds, as well as many other I3C metabolites, have been shown to impact metabolic shifts and cellular activities for improved health outcomes. I3C has also been shown to temper estrogen signals by competing for binding sites and inhibiting the activity of estrogen receptors.<sup>6-15</sup> A study published in the Journal of Nutrition unveiled evidence that I3C supports healthy cellular function related to estrogen metabolism.<sup>16</sup>

## DIM

DIM\* is a phytonutrient and plant indole also found in cruciferous vegetables. As a dimer (formed chemical structure of two substances) of indole-3-carbinol, DIM promotes beneficial estrogen metabolism in both sexes supporting the formation of healthy estrogen metabolites.<sup>17-19</sup>

## Recommended Dose

**Adults:** Take 2 capsules per day.

## Medicinal Ingredients (per capsule)

DIM (3,3'-Diindolylmethane)..... 50 mg  
Indole-3-Carbinol ..... 100 mg  
Vitamin E (d-Alpha Tocopheryl Acid Succinate USP)..... 16.75 mg AT (25 IU)  
Calcium D-Glucarate USP (Calcium saccharate)..... 500 mg

## Non-Medicinal Ingredients

Hypromellose, Stearic acid, Silicon dioxide, Magnesium stearate, Microcrystalline cellulose, Calcium silicate.

## Risk Statements

Consult a health care practitioner prior to use to exclude the diagnosis of a serious cause of hormonal imbalance, and/or if you are attempting to conceive, have a liver disorder or symptoms of low estrogen (such as joint pain, mood changes, changes in libido, hot flashes, night sweats, vaginal

dryness or irregular menstruations), and/or if you are taking medications or natural health products. Discontinue use and consult a health care practitioner if you experience joint pain or hot flashes and/or if you develop liver-related symptoms (e.g. yellowing of the eyes and/or skin, dark urine, abdominal pain, jaundice) or symptoms of low estrogen. Do not use this product if you are pregnant or breastfeeding.

Keep in a cool, dry place, protected from light.

To be sure this product is right for you always read and follow the label.

## References

1. Yuan F et al. Anti-estrogenic activities of indole-3-carbinol in cervical cells: implication for prevention of cervical cancer. *Anticancer Res.* 1999 May Jun;19(3A):1673-80.
2. Frydoonfar HR, McGrath DR, Spigelman AD. The effect of indole-3-carbinol and sulforaphane on a prostate cancer cell line. *ANZ J Surg.* 2003 Mar;73(3):154-6.
3. Chinni SR, Li Y, Upadhyay S, Koppolu PK, Sarkar FH. Indole-3-carbinol (I3C) induced cell growth inhibition, G1 cell cycle arrest and apoptosis in prostate cancer cells. *Oncogene.* 2001 24;20(23) :29236.
4. Zhang J et al. Indole-3-carbinol induces a G1 cell cycle arrest and inhibits prostate-specific antigen production in human LNCaP prostate carcinoma cells. *Cancer.* 2003 Dec.
5. Miller, K. Estrogen and DNA Damage: The Silent Source of Breast Cancer? *J Natl Cancer Inst* 2003 Volume 95, Issue 2Pp. 100-102.
6. Auburn KJ, Fan S et al. Indole-3-carbinol is a negative regulator of estrogen. *J Nutr.* 2003 Jul;133(7 Suppl):2470S-2475S.
7. McAlindon TE et al. Indole-3-carbinol in women with SLE: effect on estrogen metabolism and disease activity. *Lupus.* 2001;10(11):779-83.
8. Meng Q et al. Indole-3-carbinol is a negative regulator of estrogen receptor-alpha signaling in human tumor cells. *J Nutr.* 2000 Dec;130(12):2927-31.
9. Meng Q, Qi M et al. Suppression of breast cancer invasion and migration by indole-3-carbinol: associated with up-regulation of BRCA1 and E-cadherin/catenin complexes. *J Mol Med.* 2000;78(3):155-65.
10. Lee IJ, Han F, Baek J, Hisatsune A, Kim KC. Inhibition of MUC1 expression by indole-3-carbinol. *Int J Cancer.* 2004 May 10;109(6):810-6.

11. Brandi G et al. A new indole-3-carbinol tetrameric derivative inhibits cyclin-dependent kinase 6 expression, and induces G1 cell cycle arrest in both estrogen-dependent and estrogen-independent breast cancer cell lines. *Cancer Res.* 2003 Jul 15;63(14):4028-36.
12. Wong GY, Bradlow L et al. Dose-ranging study of indole-3-carbinol for breast cancer prevention. *J Cell Biochem Suppl.* 1997;28-29:111-6.
13. Bradlow HL, Michnovicz JJ et al. Long-term responses of women to indole-3-carbinol or a high fiber diet. *Cancer Epidemiol Biomarkers Prev.* 1994 Oct-Nov;3(7):591-5.
14. Chinni SR, Sarkar FH. Akt inactivation is a key event in indole-3-carbinol-induced apoptosis in PC-3 cells. *Clin Cancer Res.* 2002 Apr;8(4):1228-36.
15. Leibelt DA et al. Evaluation of chronic dietary exposure to indole-3-carbinol and absorption-enhanced 3,3'-diindolylmethane in sprague-dawley rats. *Toxicol Sci.* 2003 Jul;74(1):10-21. *Epub* 2003 May 02.
16. Ashok BT Abrogation of estrogen-mediated cellular and biochemical effects by indole-3-carbinol. *Nutr Cancer.* 2001;41(1-2):180-7.
17. Firestone GL, Bjeldanes LF. Indole-3-carbinol and 3,3'-diindolylmethane antiproliferative signaling pathways control cell-cycle gene transcription in human breast cancer cells by regulating promoter-Sp1 transcription factor interactions. *J Nutr.* 2003 Jul;133(7 Suppl):2448S-2455S. 1;98(11):2511-20.
18. Hong C, Firestone GL, Bjeldanes LF. Bcl-2 family-mediated apoptotic effects of 3,3'-diindolylmethane (DIM) in human breast cancer cells. *Biochem Pharmacol.* 2002 Mar 15;63(6):1085-97.
19. Nachshon-Kedmi M, Yannai S, Haj A, Fares FA. Indole-3-carbinol and 3,3'-diindolylmethane induce apoptosis in human prostate cancer cells. *Food Chem Toxicol.* 2003 Jun;41(6):745-52.