

# Scientific Study 2014

The Effects of MedColl® Bio-Marine Collagen Pre-cursor Supplement Components on Type 1 Collagen Production in Human Dermal Fibroblasts

---

## MEDCOLL®

Conway Institute of Biomolecular and Biomedical Science, University College Dublin, Ireland

Dr. Hillary Cassidy, Dr. Robert Radford, Dr. Craig Slattery and Dr. Tara McMorrow



# Scientific study 2014

## MEDCOLL®

Conway Institute of Biomolecular and Biomedical Science, University College Dublin, Ireland

Dr. Hillary Cassidy, Dr. Robert Radford, Dr. Craig Slattery and Dr. Tara McMorrow

**BACKGROUND:** The appearance and function of human skin changes profoundly during aging and with exposure to external factors such as ultraviolet radiation and smoking. Fine wrinkles and reduced elasticity, classic signs of aging skin, are associated with behavioural changes in skin cells and in the protein scaffold that supports them (called the dermal extracellular matrix). A major component of this protein matrix is collagen, in particular Collagen type 1. Over time these skin collagens degrade and must be replaced. The main cells responsible for manufacturing collagen and other proteins in the skin are called dermal fibroblasts. These highly specialized cells are normally found just under the skin where they can maintain the protein scaffold. As skin ages, its ability to replace and maintain the protein scaffold also decreases. One theory proposed to try and prevent, or even reverse the appearance of skin aging is to boost dermal fibroblast activity. The aim of this study was to examine if the MedColl Derma® supplement affected collagen 1 production in human dermal fibroblasts in vitro.

**STUDY DESIGN:** Primary human dermal fibroblasts were grown under standard conditions in vitro. The effects of the MedColl Derma® supplement and components on dermal fibroblast Collagen 1 production was measured using real-time PCR. Control cells were grown in normal medium with no supplements.

**Human Dermal Fibroblast Cell Proliferation Assay:** Human dermal fibroblasts were exposed to 500µg/ml MedColl Bio-marine Collagen Precursor Complex™ alone or in combination with other components in supplement for 48 hours. Control cells were grown with no supplements. Cell proliferation was assessed using an MTT assay. MedColl Derma® exposed cells displayed a significantly higher rate of proliferation compared to controls (1.2 – 3.9 fold increase).

**RESULTS and STUDY IMPLICATIONS:** The preliminary results of this study show that the MedColl Derma® supplement increased Collagen 1 levels in dermal fibroblasts. The MedColl® co-treatments lead to increased Collagen 1 production compared to control alone. This increase suggests an increase in collagen 1 production in the human skin.