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NUTRITIONAL SOLUTIONS TO PROMOTE TRAINED IMMUNITY

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SUMMARY

INTRODUCTION: Recent evidence shows that the innate immune system can develop a non-specific memory after primary infections, a phenomenon termed “trained immunity”. The training effect is evidenced as an enhance innate immune response after heterologous secondary challenges. More recently, it has been demonstrated that diet components can also induce trained immunity.

OBJECTIVE: To investigate whether bovine immunoglobulin G (blgG) and compound X, alone or in combination, can induce trained immunity in human monocytes.

MATERIALS AND METHODS: Human monocytes were exposed to blgG and compound X, both alone and in combination. After 24 hours, the training agents were removed, and the cells were rested in media for 5 days. Next, the cells were stimulated with different microbiological ligands. The trained immunity effect was measured 24 hours later in cell supernatant as an increase in the production of IL-6 and TNF- α compared to non-trained cells.

RESULTS: The cells trained with blgG and compound X, both alone and in combination, displayed an increased in the production of trained immunity cytokines, compared to non-trained cells.

CONCLUSIONS: The nutritional combination of blgG and compound X seems to be superior to the use of each compound alone in the induction of trained immunity, although the screening of more donors is necessary to confirm the effect. The application of the concept in babies’ formulas could have important implications in terms of supporting the immune system.

KEY WORDS: trained immunity, bovine IgG, human monocytes, innate immune memory, immunometabolism.