Whey Proteins Potential Applications in the Medical Field

*A Strategic Field of Research*

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Over the past few decades, several clinical and mechanistic studies have indicated many relations between nutrition and health, therefore the idea of diet being key environmental factor affecting the incidence of many chronic diseases is consensual. In recent years, milk constituents have become recognized as functional foods, suggesting their use has a direct and measurable effect on health outcomes. Whey, a liquid by-product, once considered a waste product, is now widely accepted to contain many valuable constituents. These include proteins that possess important nutritional and biological properties regarding health promotion and disease prevention. As a result, there is a growing interest by the dairy industry and other food and even pharmaceutical industries to design and formulate products that incorporate specific bioactive components derived from whey. Many biological activities have been reported for whey products, such as anticancer and antimicrobial activity, immune modulation, improved muscle strength and body composition, to prevent cardiovascular disease and osteoporosis. Advances in processing technology, including membrane and chromatographic processes, have resulted in the development of several different finished whey proteins. Current challenges in the exploitation of bioactive components are their maximal recovery from whey, their stability in different food matrices, and their optimal bioavailability in the body in order to deliver the expected health effects. This presentation aims to provide an overview on the whey proteins’ properties, functions, and mechanisms of interaction which could be further exploited in developing its potential therapeutic applications, focusing in lactoferrin as a case study.