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A review on lactoferrin as a proton pump inhibitor

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Abstract

Lactoferrin (Lf) is a versatile natural milk-derived protein that exhibits multiple interesting biological activities. Since it is safe for human administration and currently manufactured using low cost and well-established large-scale processes, the Lf scientific community has been devoted at dissecting its mechanisms of action towards its more rational and efficient use for various applications. Emerging literature has identified proton pumping ATPases as molecular targets of Lf in different cellular models linked to distinct activities of this natural protein. Information on this subject has not been systematically analysed before, hence herein we review the current state of art on the effect of Lf on proton pumping ATPases. Though structurally different, we propose that Lf holds a proton pump inhibitor (PPI)-like activity based on the functional resemblance with the classical inhibitors of the stomach H⁺/K⁺-ATPase. The downstream events and outcomes of the PPI-like activity of Lf, as well as its impact for the development of improved Lf applications are also discussed.

Keywords: ATPases; Lactoferrin; Proton pump inhibitors.

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