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Potential of polymeric and Lipid based nanocarriers for oral GLP-1 analogue delivery

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Glucagon-like peptide-1 analogues, liraglutide (Lira) and exenatide (Exn), are currently limited to subcutaneous injections in clinical protocols [1]. Due to several drawbacks accompanied with this invasive route, the development of oral delivery system is likely the most attractive choice. Among the various strategies having been developed to conquer the barriers limiting oral peptide delivery [2], [3], the encapsulation of GLP-1 analogues into nanosystems seem to be very promising strategy. Herein, the aim is to discuss the potential of designing polymeric nanosystem and self-emulsifying drug delivery system (SEDDS) for oral delivery of Lira and Exn. Due to the complexity and nanotoxicological concerns of nanopharmaceuticals in addition to the risks entailed with peptides formulation development, it is critical to focus on quality by design (QbD) application when developing nanocarriers encapsulating peptide aiming to develop a thorough understanding of the target product and process design [4].

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