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Recent insights in the use of nanocarriers for the oral delivery of bioactive proteins and peptides

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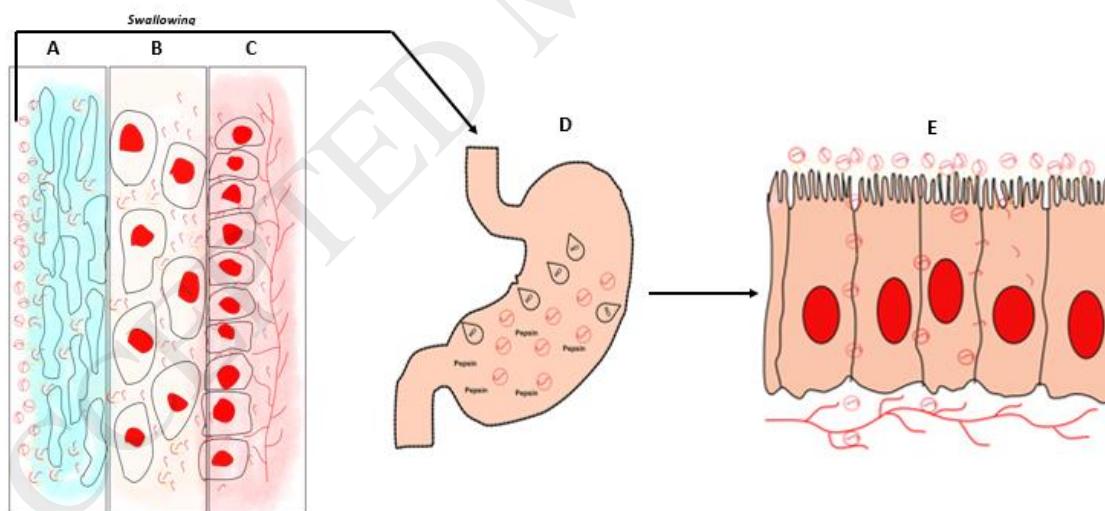
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Graphical abstract



For buccal administration of proteins and peptides with therapeutic interest, formulations must be mucoadhesive and present one or more permeability enhancers as nanoparticles to cross the mucus layer (A) and permeate the epithelia (B) to finally reach the blood stream (C). A portion of carried proteins/peptides will be swallowed. Nanoparticles will protect the integrity of carried proteins and peptides while in contact with acidic pH and proteases secreted in the stomach (D), allowing the carried molecules to permeate the intestinal epithelia (E) to reach the bloodstream.

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