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Figure 1: Number of articles published from 1918 to 2016 on bioactive peptides

From the web of science database

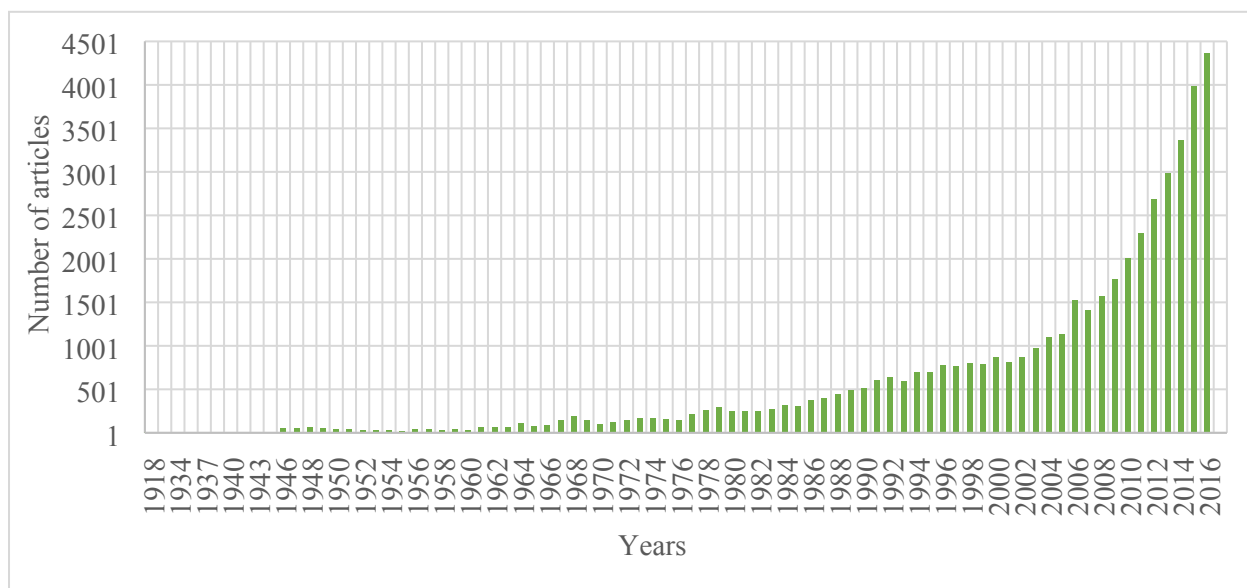
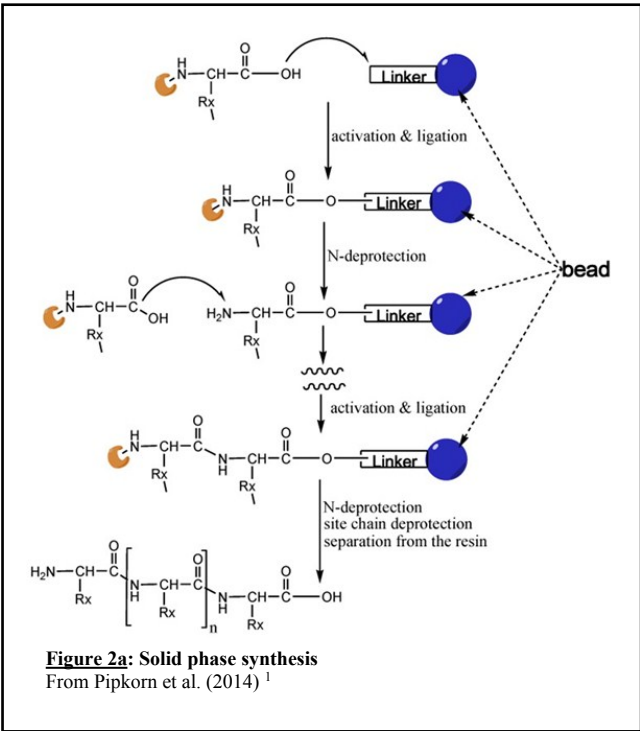


Figure 2: Illustrations of two technological processes for bioactive peptides synthesis

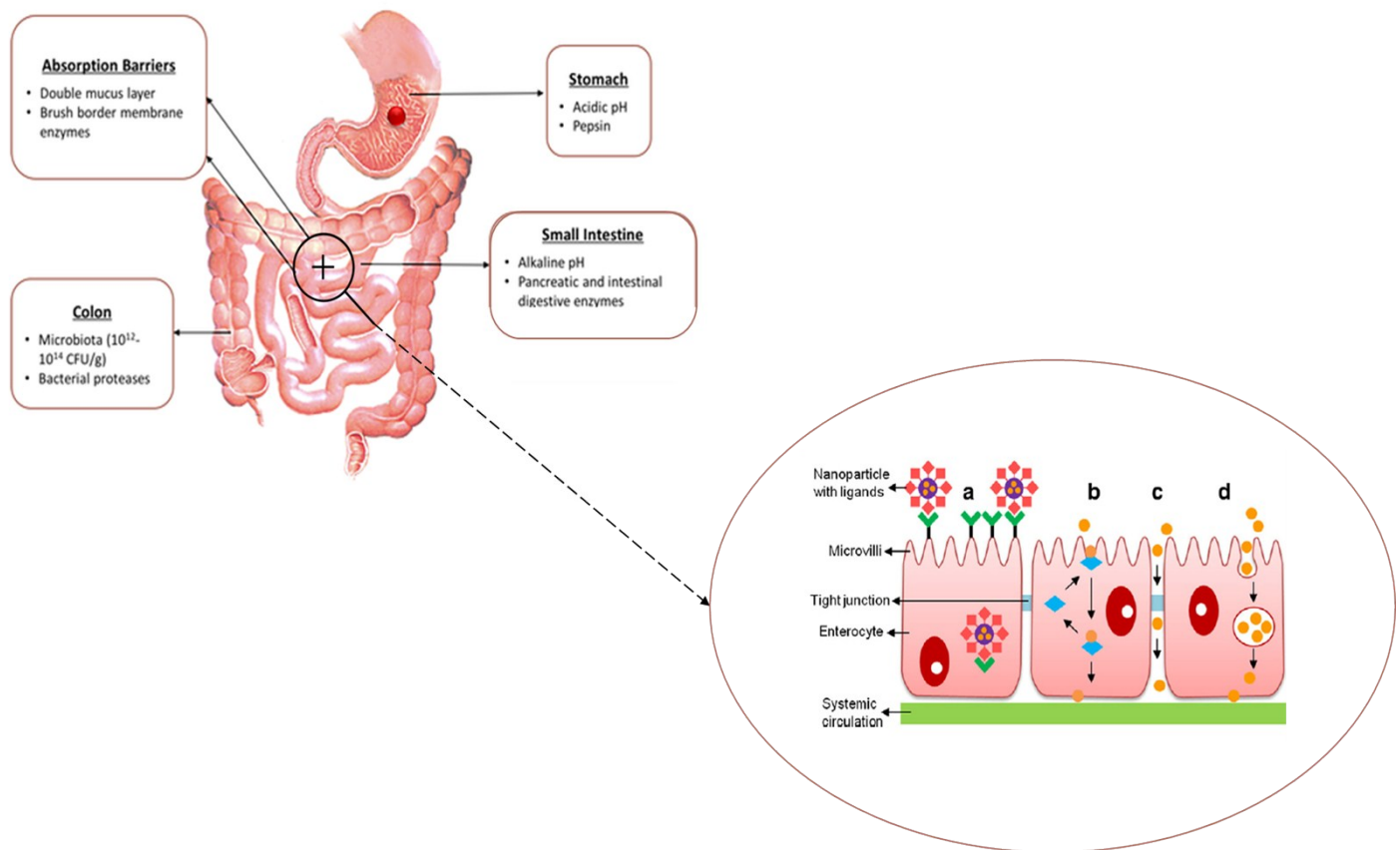


The flowchart details the generation of bioactive peptides through enzymatic hydrolysis:

- In silico studies** lead to the selection of a **Protein Source**.
- Enzymatic hydrolysis** of the protein source produces a **Crude Protein Hydrolysate**.
- The hydrolysate undergoes **Bioassays (ACE inhibition, Antioxidant, etc.)** and **Peptide Purification (UF)**.
- This results in **Size Separated Peptide Fractions < 10 kDa**.
- These fractions undergo **Bioassays, Further Purification (Gel Permeation, HPLC)**.
- An **Isolated Peptide** is obtained.
- The peptide is **Peptide sequenced (MS, Protein Sequencer)**.
- The process continues to **Purification**.
- Finally, **Product Assimilation** is performed, which includes a **Conformational Bioassay**.

Figure 2b: Generation of bioactive peptides via enzymatic hydrolysis
Adapted from Ryan et al. (2011)²

Figure 3: Schematic representation of the different intestinal barriers and possible transport mechanisms of peptides



Adapted from Yun et al. (2013) ³

(a) receptor-mediated transport; (b) carrier-mediated transport; (c) paracellular transport; (d) transcellular transport

1. R. Pipkorn, K. Braun, M. Wiessler, W. Waldeck, H.-H. Schrenk, M. Koch, W. Semmler and D. Komljenovic, A Peptide & Peptide Nucleic Acid Synthesis Technology for Transporter Molecules and Theranostics - The SPPS, *International Journal of Medical Sciences*, 2014, **11**, 697-706.
2. J. T. Ryan, R. P. Ross, D. Bolton, G. F. Fitzgerald and C. Stanton, Bioactive peptides from muscle sources: meat and fish, *Nutrients*, 2011, **3**, 765-791.
3. Y. Yun, Y. W. Cho and K. Park, Nanoparticles for oral delivery: targeted nanoparticles with peptidic ligands for oral protein delivery, *Adv Drug Deliv Rev*, 2013, **65**, 822-832.