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Food-derived bioactive peptides: health benefits, structure–activity relationships, and translational prospects

Key words: Functional foods; Biological compound; In silico prediction; Bioavailability; Oral delivery; Absorption

Research Summary

This review mainly focuses on the translational prospects of food-derived bioactive peptides and summarizes their bioactivity, structure-activity relationships, and existing obstacles for clinical applications in the following aspects:

- **Preventive potential in chronic diseases**
- **Molecular weight, specific amino acid sequence and composition**
- **In silico prediction**
- **Oral delivery**

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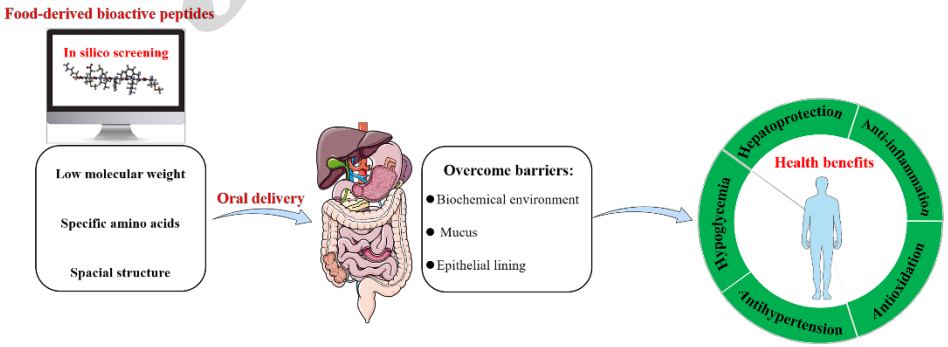

Innovation points

- **Introduction** **of the huge potential of food-derived bioactive peptides for translational applications.**

- **Summary** **of the most updated research progress about structure-activity relationships, *in silico* screening methods, and barriers to oral delivery of food-derived bioactive peptides.**

- **Emphasis** **on the stability, pharmacokinetics, and bioavailability of food-derived bioactive peptides in pharmacological applications.**

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Innovation points

A series of comprehensive figures and tables were generated to summarize the latest knowledge about Food-derived bioactive peptides.

Figure 1 | Illustration of the potential medical applications of food-derived bioactive peptides (FBPs) in various chronic diseases.

Figure 2 | Diagram depicting the biological activities of food-derived bioactive peptides (FBPs) and their therapeutic targets.

Figure 3 | Schematic representation of strategies to enhance the bioavailability of oral food-derived bioactive peptides (FBPs) in the gastrointestinal tract.

Table 1 | Food-derived bioactive peptides with different activities and corresponding mechanisms.

Table 2 | Structural characteristics of food-derived bioactive peptides.

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