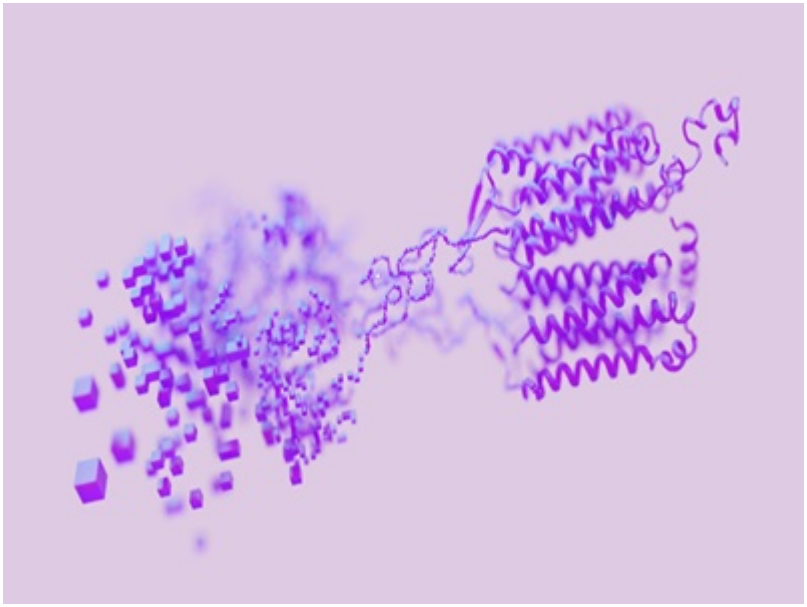
# Mixed Chirality Peptide Macrocycles with Internal Symmetry

**This technology leverages computational design to create mixed chirality peptide macrocycles with internal symmetry, offering a new avenue for therapeutic and nanomaterial design.**



### Technology ID

BDP 8320

### Category

Therapeutics/Platform Technology
Selection of Available Technologies
Therapeutics/Other

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## What is the Problem?

While cyclic symmetry is common in protein and peptide homo-oligomers, it is rarely found within a single chain since it is not compatible with free N- and C-termini. Symmetric protein quaternary structures are composed of identical copies of single protein chains. These structures play key functional roles in biology and serve as building blocks for nanomaterials. As a result, designing macromolecules with internal cyclic symmetries could significantly benefit the development of nanomaterials and therapeutics. However, current computational methods for peptide design are unable to design symmetric molecules. This limitation has hindered the potential applications of peptide macrocycles in various fields, including nanomaterials and therapeutics.

## What is the Solution?

The technology involves the de novo design of polypeptides with a specific amino acid sequence, resulting in mixed chirality peptide macrocycles with internal symmetry. These

structures are created using computational design, which allows for precise control over the resulting structures. Using these computational methods, peptides can be designed with symmetries and structures not found in nature. This technology opens up possibilities for both therapeutic and nanomaterial design that were previously unexplored, thereby filling a significant need in the market.

## What is the Competitive Advantage?

-Novel Design: The technology offers a unique approach to peptide macrocycle design, utilizing mixed chirality to achieve internal symmetry.

-Broad Scope: It broadens the scope of structures accessible for design, going beyond the limitations of natural proteins.

-Precision: The computational design allows for precise control over the resulting structures, enhancing their potential for specific applications.

-Versatility: The technology has potential applications in various fields, including therapeutics and nanomaterials.

## Patent Information:

US20230279054A1

## References

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