

CIRCULAR PEPTIDES IN CANCER TREATMENT

Plant-derived cyclotides suppress growth of anaplastic large cell lymphoma (ALCL) and have anti-tumor effects *in vivo*.

BACKGROUND

ALCL, anaplastic large cell lymphoma, is a heterogenous T-cell lymphocyte malignancy often present as nodal disease but can also affect organs or become systemic. Due to its genetic heterogeneity, treatment of ALCL is rather difficult; especially ALK-negative ALCL which is rare and lacks clear clinical and genetic markers that can be addressed by chemotherapy. Current standard treatment using chemotherapy often lacks clear success and frequently results in relapse.

TECHNOLOGY

Nature-derived peptides are a diverse group of bioactive compounds well known for their emerging role in drug development. In recent years, the library of plant-derived cyclic peptides, called cyclotides, vastly increased in numbers and diversity. Here we present, a new cyclotide isolated from ipecac (*Carapichea ipecacuanha*) having effects on different ALCL cell lines and *in vivo* mouse experiments revealing the promising activity of Caripe peptides on these cancer cells.

These findings open the road for new or improved treatment of ALCL and other T-cell malignancies with cyclotide-based drug treatment of ALCL (in particular of ALK-negative ALCL) patients.

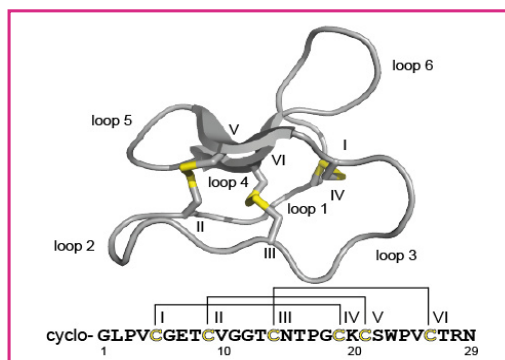


Fig.: Structural cartoon of representative cyclotide

ADVANTAGES

- Cyclotides are naturally-occurring in plants
- stable and extremely resistant to enzymatic, chemical, and thermal degradation, and hence promise oral activity
- can be produced in large quantity by synthetic chemistry, recombinant techniques or in plant suspension cultures
- the cyclotides scaffold serves as a natural combinatorial peptide template

REF: 815.19

APPLICATION:

Cancer, lymphoma treatment

KEYWORDS:

Cancer, cyclotide

DEVELOPMENT

STATUS: Extensive *in vitro* and *in vivo*, proof of concept data

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