Research Tool

VCU Innovation Gateway
Office of Research and Innovation

New Synthetic Method for Simultaneously Cyclizing and Labeling Peptides

The technology

Researchers at Virginia Commonwealth University have developed a novel two-step process for producing cyclic peptides with labels that can be applied as therapeutic agents. By implementing a method using dibromoxylene to synthesize peptide linkers, peptides can be simultaneously cyclized and labeled. The figure below displays the process for the synthesis of such peptides mentioned above.

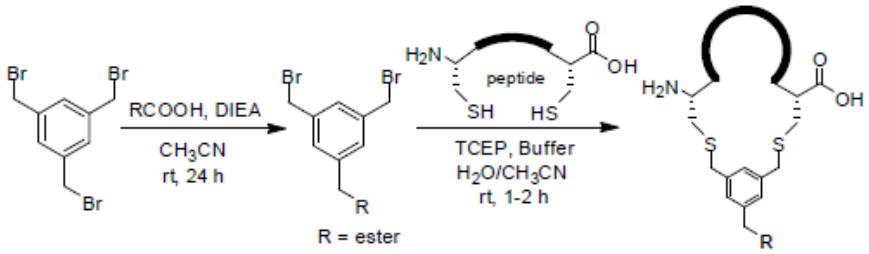

Figure 1. *Tribromomethyl benzene is added to a carboxylic acid or phenol. The resulting ester or ether dibromo products are then added to a peptide containing two cysteines. Finally, the resulting peptide becomes cyclized and labeled simultaneously.*

Benefits

- Simplifies the synthesis of peptides with two step process
- Couples peptide cyclization with attachment of a label, therefore possessing advantages of cyclization and labeling

Applications

- Two step method for simultaneous cyclization and labeling of peptides
- Some applications include:
  - Creation of a library of cyclization linkers, altered by the labeling groups, for enhanced cell permeability
  - New method used for biotin/streptavidin targeting on surfaces
  - Cell-targeted peptides used as a vehicle for drug delivery
  - Method for developing fluorescent cyclic peptides as cellular labels

License status:
This technology is available for licensing to industry for further development and commercialization.

Category:
Research Tool

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External Resources:
Dewkar et. al. (2009)

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