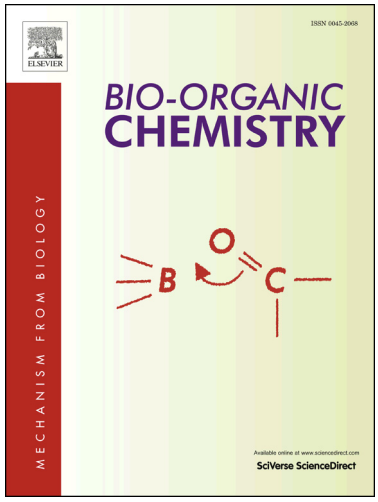

Recent advances in synthetic analogues of lantibiotics: what can we learn from these?

Alethea B Tabor

PII: S0045-2068(14)00028-5
DOI: http://dx.doi.org/10.1016/j.bioorg.2014.04.004
Reference: YBIOO 1715

To appear in: *Bioorganic Chemistry*

Please cite this article as: A.B. Tabor, Recent advances in synthetic analogues of lantibiotics: what can we learn from these?, *Bioorganic Chemistry* (2014), doi: http://dx.doi.org/10.1016/j.bioorg.2014.04.004

Recent advances in synthetic analogues of lantibiotics: what can we learn from these?

Alethea B Tabor

UCL Department of Chemistry, 20, Gordon Street, London WC1H 0AJ, UK

Tel: +44 020 7679 4695 Fax: +44 020 7679 7463

a.b.tabor@ucl.ac.uk

Abstract

The lantibiotics are a family of antibacterial cyclic peptides distinguished by one or more thioether linkages between amino acid side chains, and by unique modes of action. Recent developments in the chemical synthesis, mutagenesis and mutasynthesis of these peptides are providing insights into the structural requirements for antibacterial activity and into the mode of action, as well as having the potential to produce analogues with greater stability, potency and bioavailability. This Review provides a survey of these recent advances.

Keywords

lantibiotic
antibacterial
peptide

Table of Contents

1. Introduction

The lantibiotics are a family of highly constrained cyclic peptides with unique structural and biological properties [1]. The defining structural feature of these peptides is that they contain one or more thioether linkage between amino acid side chains, arising from the incorporation of one of two bis-amino acids, either lanthionine (Lan) or threo-βmethyl lanthionine (MeLan) (Figure 1). Other non-natural amino acids, such as dehydroalanine (Dha), dehydrobutyrine (Dhb), *S*-[(*Z*)-2-aminovinyl]-(*3S*)-3-methyl-D-cysteine (AviMeCys) and labionin (Lab) may also be present.