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Introduction:

Cyclobutastellettide B was originally isolated from a *Stelletta* sp. sponge (3.0 mg/1.3 kg) by Stonik et al. in 2019.

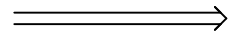
It could significantly increase the reactive oxygen species level in murine peritoneal macrophages and be a potential lead for the development of immunomodulatory agents.

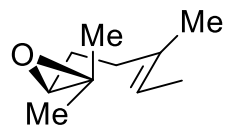
It has an unusual 6/6/4-fused tricyclic core with six stereocenters.

Among them, three are contiguous quaternary stereocenters.

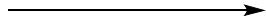
The first enantioselective total synthesis of (+)-cyclobutastellettide B in 13 steps with a total yield of 31.5%.

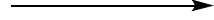
Retro-synthetic route

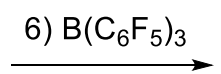




4)





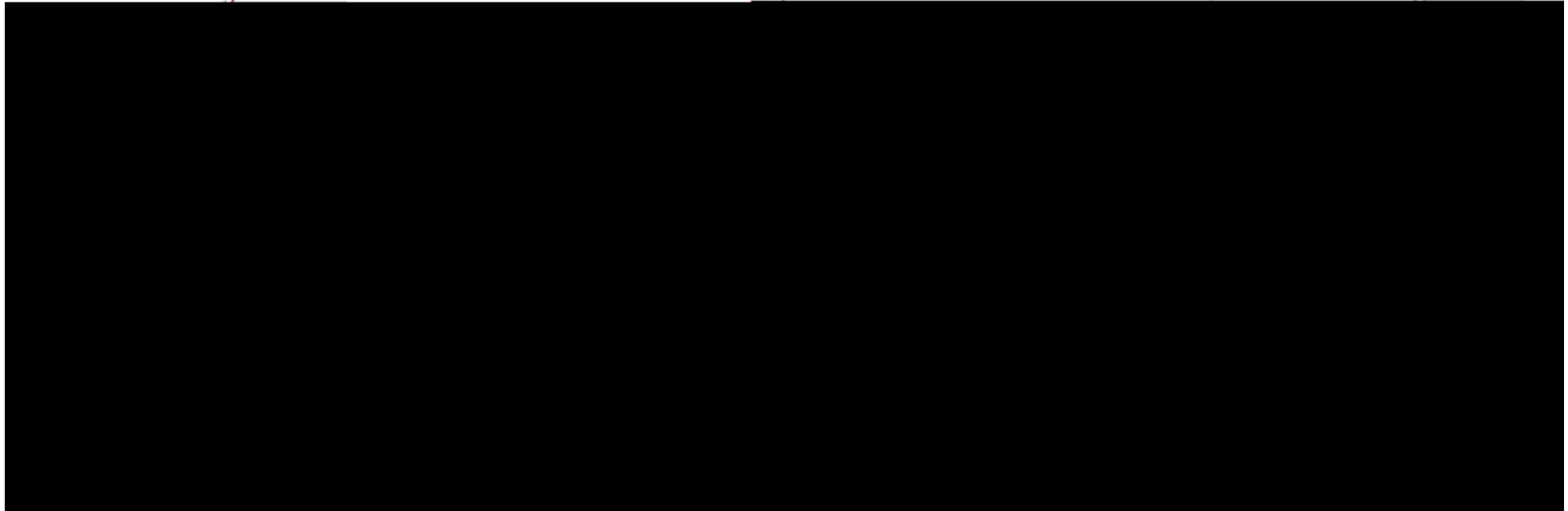


Lewis acid









Thanks for your attention

(CH₂Br₂ versus AlBr₃) in the cyclization. In order to know about the source of the bromine atom
 were used as solvent in the cyclization of 1. The results are shown in Table 1. The cyclization of 1 in
 solvents. As shown in these experiments with AlBr₃ as promoter and dichloromethane or iodomethane as
 solvent, the bromine atom in the product always comes from the solvent. This suggests that the formation of the
 carbocation intermediate is not the rate-determining step in the cyclization of 1. The bromine atom in the
 product always comes from the solvent.

Solvent	Yield (%)
CH ₂ Br ₂	83%
CH ₂ I ₂	83%
CH ₂ Cl ₂	83%
CH ₂ F ₂	83%
CH ₂ Br	83%
CH ₂ I	83%
CH ₂ Cl	83%
CH ₂ F	83%