

鹿児島県産海洋シアノバクテリア由来新規ポリケチド化合物 Beru' amide の単離と構造決定、及び全合成研究

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Isolation, Structure Determination, and Synthetic Study of Novel Polyketide Compound, Beru'amide, from a Marine Cyanobacterium Collected in Kagoshima (*Faculty of Science and Technology, Keio University*) ○Raimu Taguchi, Arihiro Iwasaki, Kiyotake Suenaga

To discover new natural products with unique structures and biological activities, we investigated secondary metabolites from marine cyanobacteria. As a result, we isolated a novel polyketide compound that possesses a *tert*-butyl group, which is known as a relatively rare functional group in natural products, along with a chloroolefin and an α,β -unsaturated ketone, and named it beru'amide. Although its planar structure was clarified by NMR analyses, determination of the stereochemistry of the two chiral centers, C-4 and C-5, was difficult due to the scarcity of the natural product (< 0.1 mg), and, therefore, we presumed the relative configuration to be *syn* by computational chemistry. To reveal the absolute configuration and to get an enough amount of beru'amide for the evaluation of biological activities, a synthetic study is ongoing. So far, the total synthesis of (4*S*,5*R*)-beru'amide was achieved, and its ^1H NMR spectrum corresponded with that of the natural product. We will determine the absolute configuration and evaluate detailed biological activities of Beru'amide using the synthesized compound.

Keywords : Isolation, Structure determination, Total synthesis, Computational chemistry, Cyanobacteria

特異な構造と生物活性をもつ新規天然物の発見を目的とし、海洋シアノバクテリア由来二次代謝産物の探索研究を行った。その結果、クロロオレフィン、 α,β -不飽和ケトンに加え、天然物としては比較的珍しい*tert*-ブチル基をもつ新規ポリケチド化合物を単離し、Beru'amideと名付けた。 ^1H NMRおよび各種二次元NMRスペクトルの解析により平面構造を決定した。天然物が微量のためC-4およびC-5位の2か所の立体配置の決定は困難であり、計算化学で*syn*体と推定した。絶対立体配置の決定および生物活性評価のための量的供給を目的とし、全合成研究を行っている。現在、(4*S*,5*R*)-体の合成を達成し、天然物と ^1H NMRスペクトルが一致した。今後は絶対立体配置の決定、及び合成品を用いた詳細な生物活性の評価を進める。

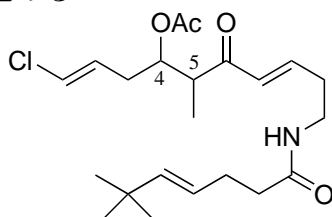
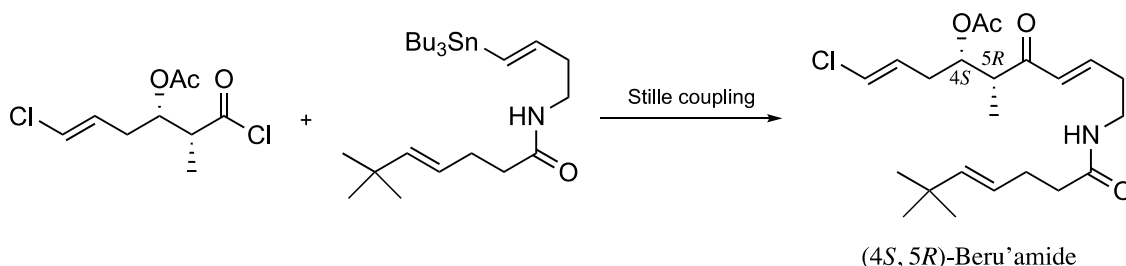


Figure 1. The planner structure of Beru'amide



Scheme 1. Outline of the Beru'amide synthesis