Isolation and analysis of moenomycin and its biosynthetic intermediates from Streptomyces ghanaensis (ATCC 14672) wildtype and selected mutants.

- Subramaniam-Niehaus B
- Schneider T
- Metzger JW
- Wohlleben W

Universitat Bielefeld, Lehrstuhl fur Genetik, Germany.

Streptomyces ghanaensis (ATCC 14672) produces the phosphoglycolipid antibiotic moenomycin consisting of several components. A solid phase extraction procedure was developed which allowed a rapid isolation of both moenomycin and its biosynthetic intermediates from culture filtrates. Semi-preparative high performance liquid chromatography followed by high performance liquid chromatography-mass spectrometry provided structural data on the different moenomycin components. In order to obtain initial information on the biosynthetic pathway, moenomycin non-producing mutants were isolated. They were shown to release intermediates with shorter lipid chains suggesting that the lipid chain synthesis probably takes place at a later stage of the moenomycin biosynthesis. Based on the biological activity and the analytical data, we assume that a modification and in particular a shorter lipid portion drastically influences the inhibitory activity of this antibiotic.

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