

Accepted Manuscript

Note

Synthesis of 26-methyl cholestane and identification of cryostanes in mid-Neoproterozoic sediments

Pierre Adam, Philippe Schaeffer, Jochen J. Brocks

PII: S0146-6380(17)30403-5

DOI: <https://doi.org/10.1016/j.orggeochem.2017.11.006>

Reference: OG 3644

To appear in: *Organic Geochemistry*

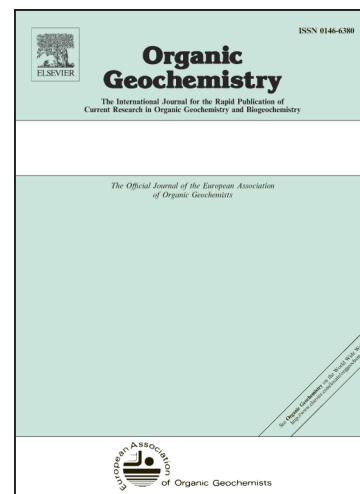
Received Date: 18 August 2017

Revised Date: 19 October 2017

Accepted Date: 4 November 2017

Please cite this article as: Adam, P., Schaeffer, P., Brocks, J.J., Synthesis of 26-methyl cholestane and identification of cryostanes in mid-Neoproterozoic sediments, *Organic Geochemistry* (2017), doi: <https://doi.org/10.1016/j.orggeochem.2017.11.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Synthesis of 26-methyl cholestane and identification of cryostanes in mid-Neoproterozoic sediments

Pierre Adam,^{a*} Philippe Schaeffer,^a Jochen J. Brocks^b

^a *Université de Strasbourg, CNRS, Institut de Chimie de Strasbourg UMR 7177, F-67000 Strasbourg, France*

^b *Research School of Earth Sciences, The Australian National University, Canberra ACT 2601, Australia*

* Corresponding author: Tel: +33 (0)3 68 85 28 04.

E-mail address: padam@unistra.fr (Pierre Adam).

ABSTRACT

The biomarker distributions of mid-Neoproterozoic sediments (800 and 717 million yr, Ma) from various locations are characterized by the occurrence, besides cholestane isomers, of a novel series of C₂₈ steranes, whereas classical C-24 alkylated steranes are absent. These unusual C₂₈ steranes, termed cryostanes, seem to be restricted to pre-Snowball Earth sediments. We report their conclusive identification as 26-methyl cholestanes based on comparison of gas chromatographic (GC) behavior and mass spectrum of the last eluting cryostane isomer with those of a 26-methyl 5 α (H),14 α (H),17 α (H),20*R*-cholestane standard obtained by way of synthesis. Sterols methylated at C-26 seem to be restricted to some demosponges and, based on molecular clock estimates, demosponges may have emerged in the time interval 800 to 700 Ma. A sponge origin of cryostanes is thereby conceivable, making cryostanes the oldest molecular markers for animals. However, other biological sources need to be explored, including the wide variety of eukaryotic protists.

Download English Version:

<https://daneshyari.com/en/article/7817101>

Download Persian Version:

<https://daneshyari.com/article/7817101>

[Daneshyari.com](https://daneshyari.com)