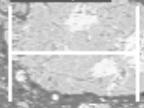


Mikrofossiilid maailma vanimates fosforiitides

100 µm

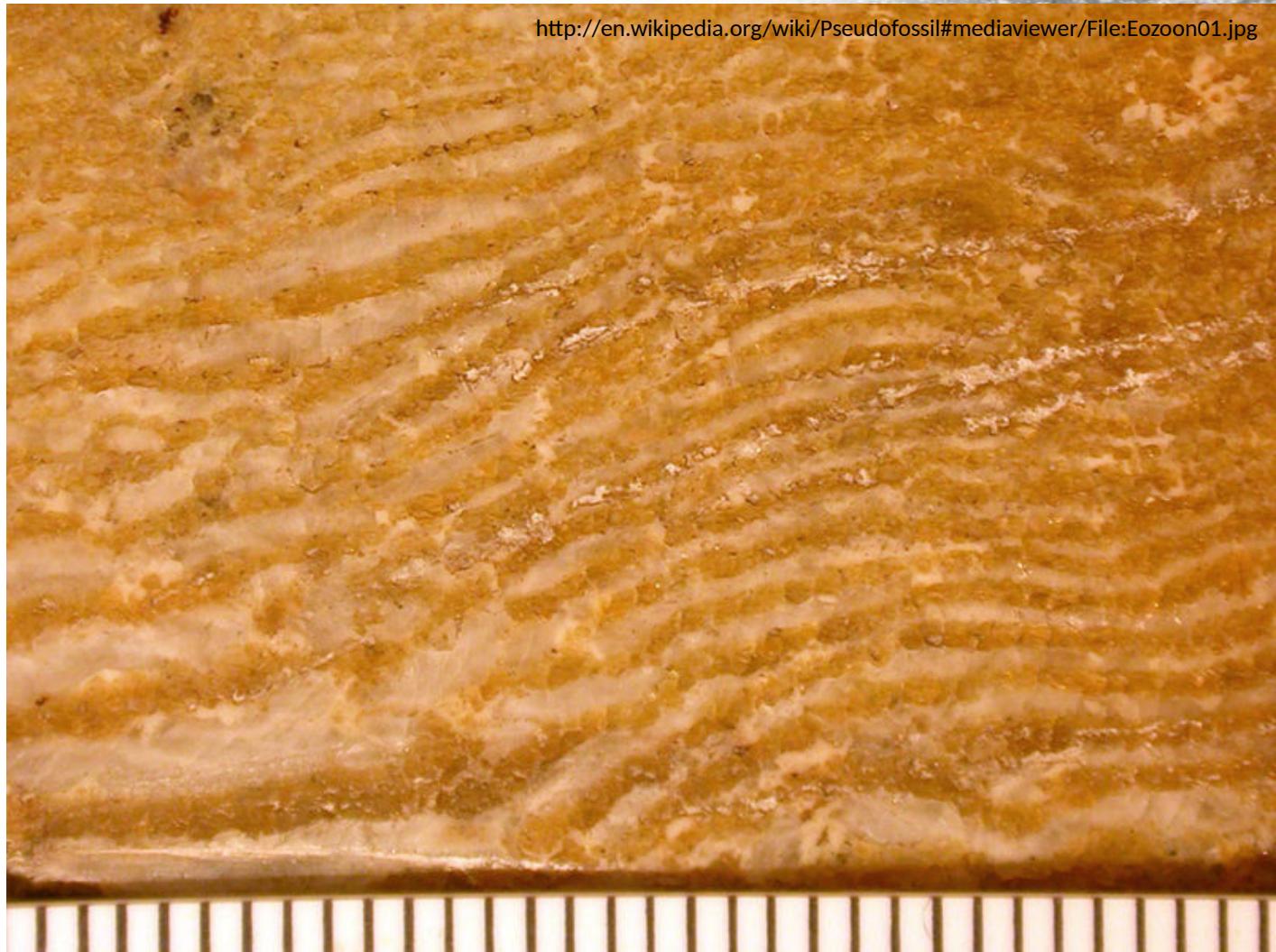


Kaarel Mänd,
TÜ Geoloogia osakond

Biogeensuse probleem

- Eelkambriumi mikrofossiilide uurimisel on ette tulnud mitmeid õnnetuid eksimusit

<http://en.wikipedia.org/wiki/Pseudofossil#mediaviewer/File:Eozoon01.jpg>



Eozoon canadense,
pseudofossiil,
tegelikkuses Srp-Cal
moondekivim

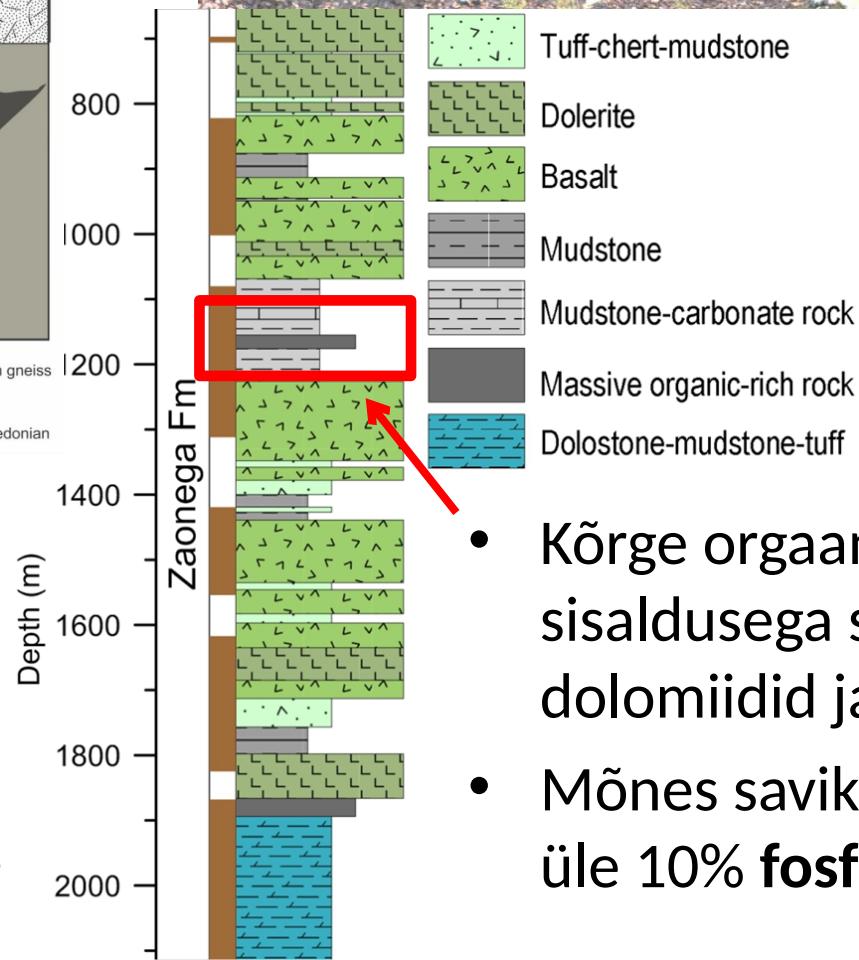
Biogeensuse kriteeriumid

- Usutav tekkekeskkond ja keerukas morfoloogia.
- Esinevad suure populatsioonina ja koos teiste liikidega.
- Meenutavad tänapäevaseid organisme või tundud fossiilseid rühmi.
- Usutav fossiliseerumismehhanism.
- Erinevad, usutavad säilivusvormid.
- Mõõtmed on püsивad ja sarnased tänapäevastele analoogidele.
- Kerge isotoopse koostisega süsinikuliste struktuuride leidumine fossiilis.

Zaonega kihistu

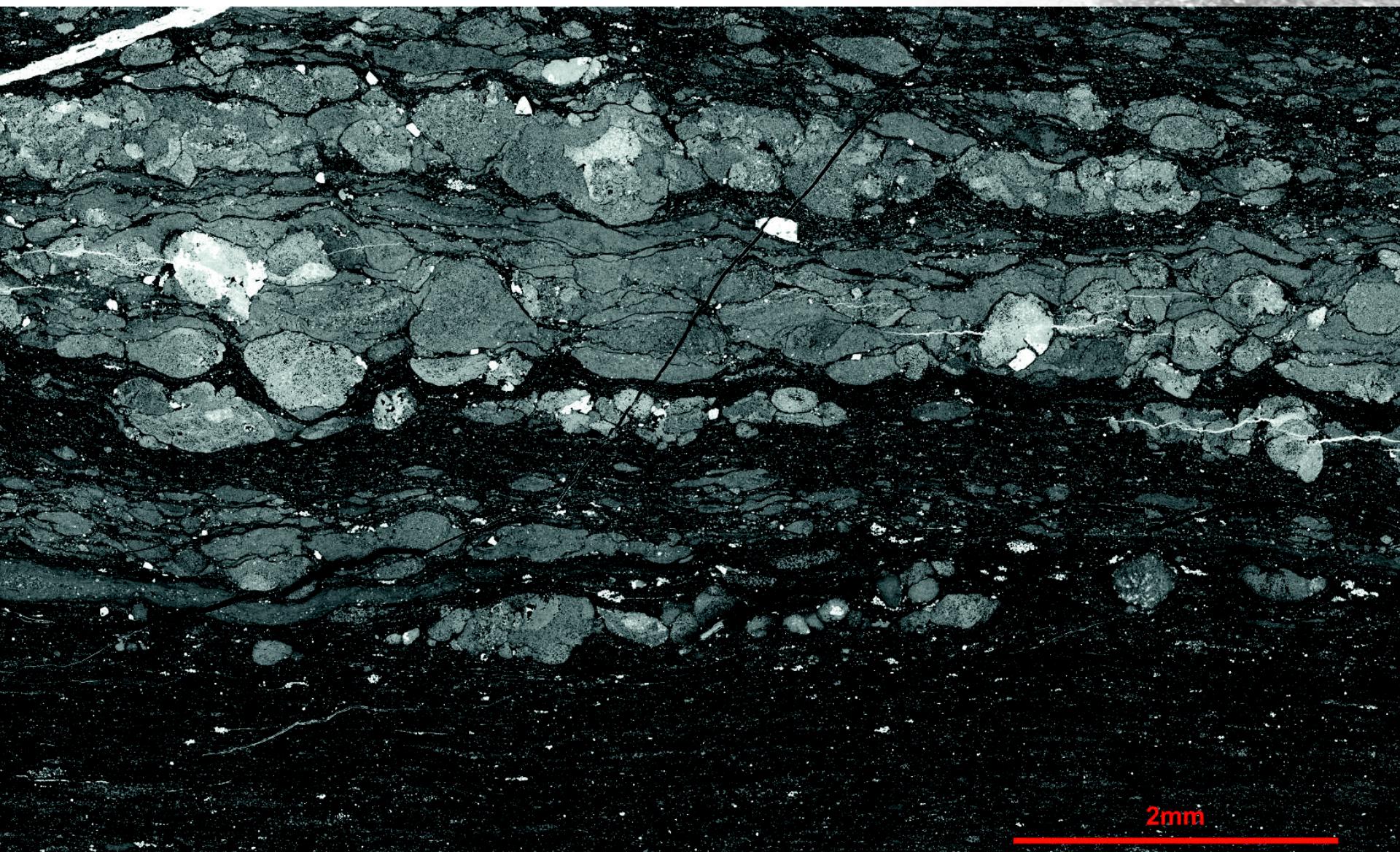


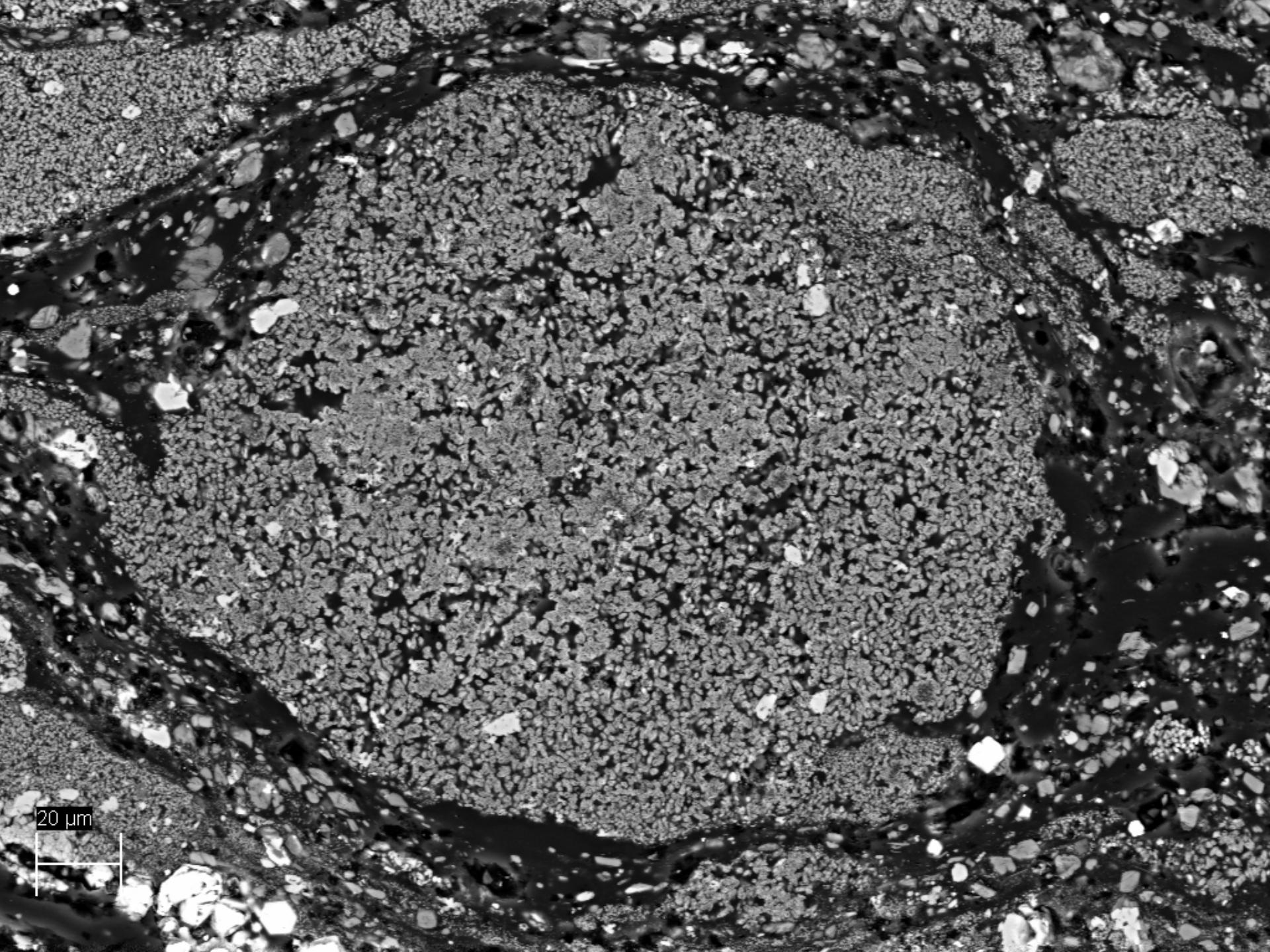
- 2,06 – 1,98 Ga
- Vulkaaniliselt aktiivne - laavad, sillid
- Bituumeni teke ja migratsioon
- Rohekilda moondefaatsies



- Kõrge orgaanika-sisaldusega savikivimid, dolomiidid ja ränikivimid.
- Mõnes savikivimi kihis üle 10% fosfaati.

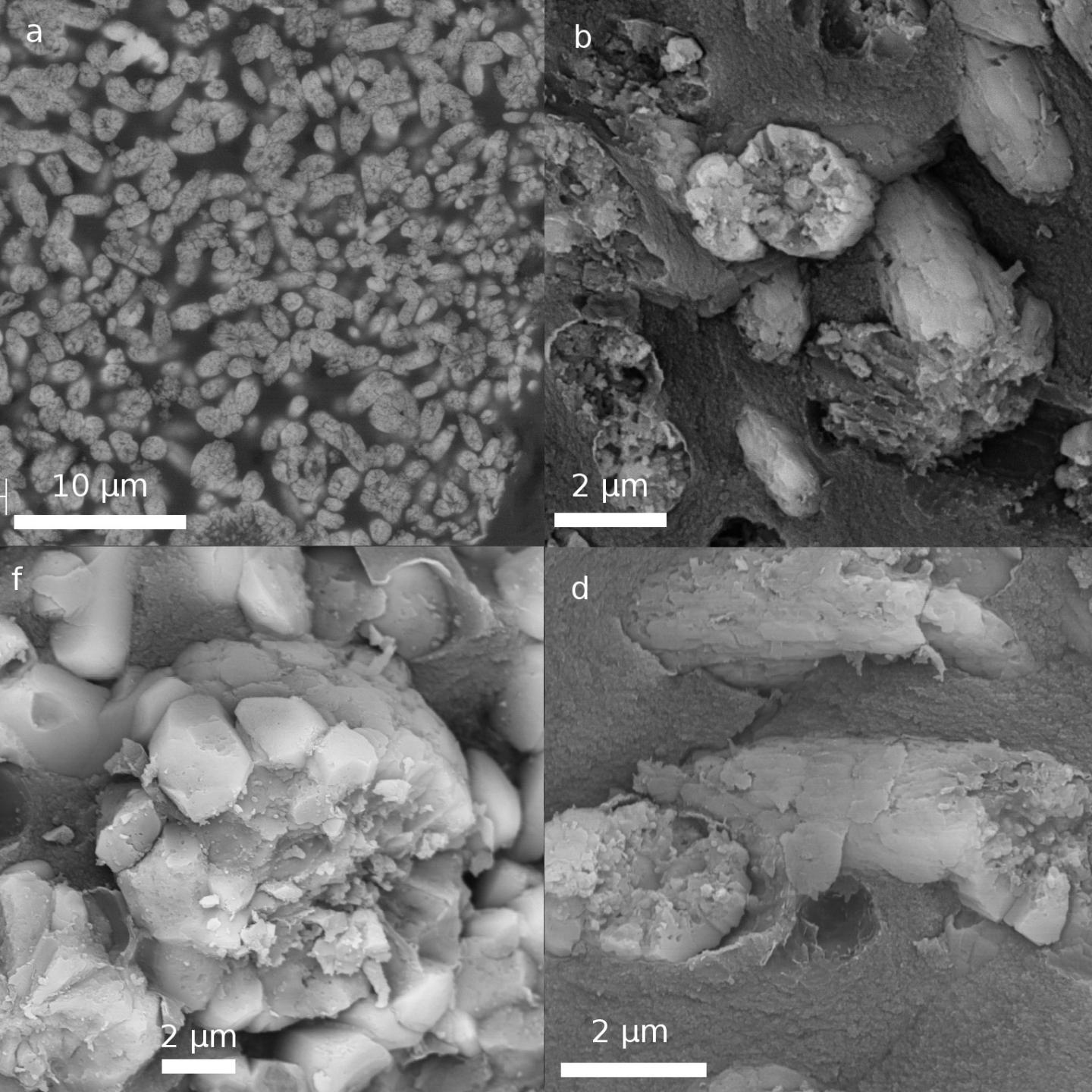
Mikrostruktuur



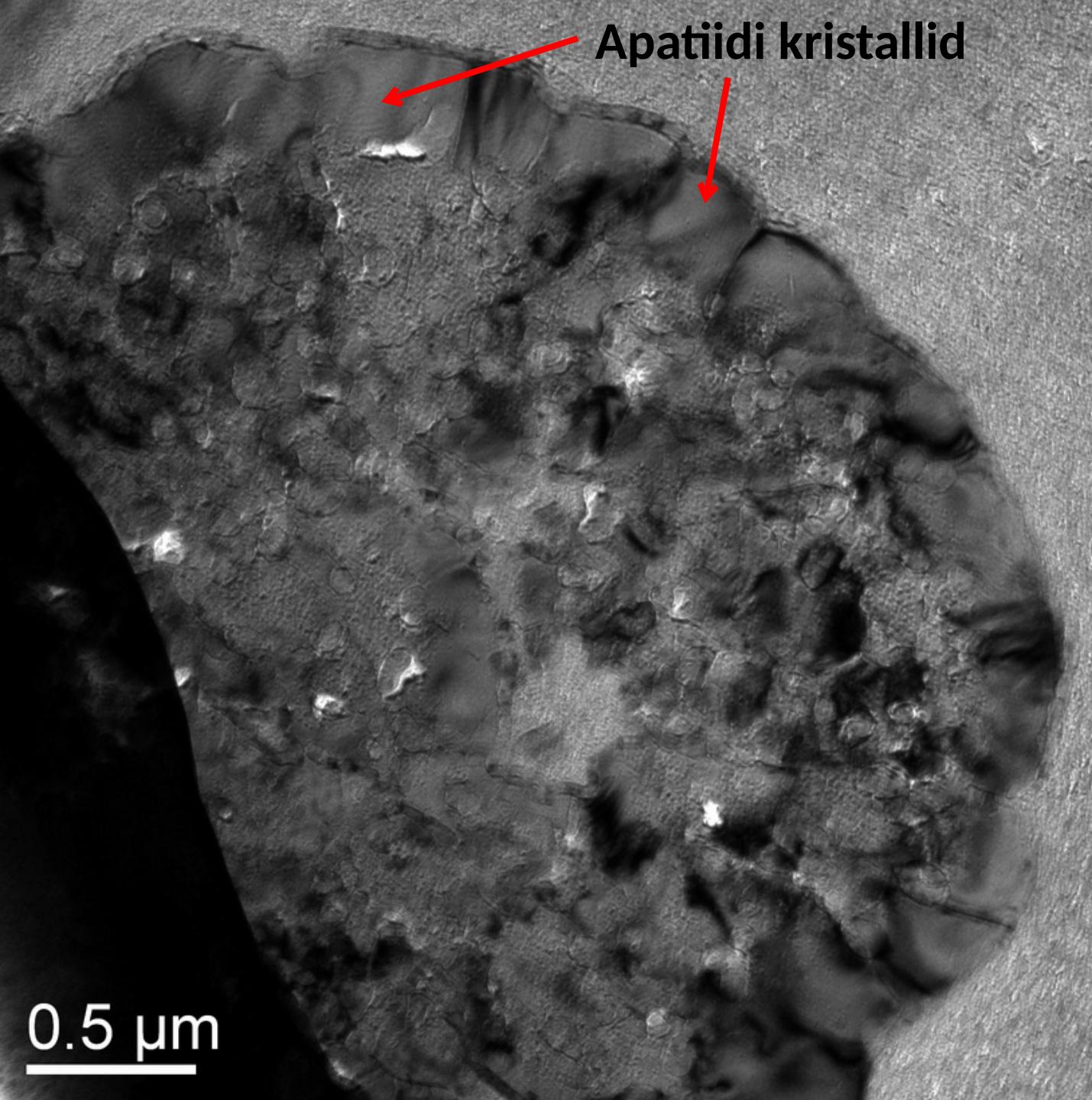


20 µm

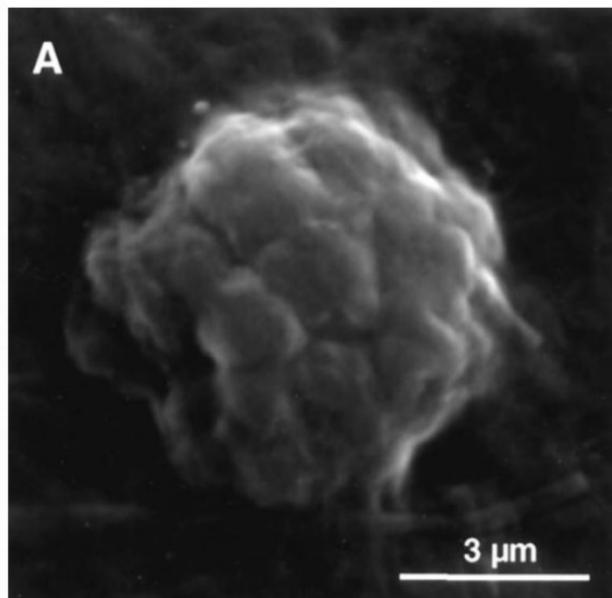
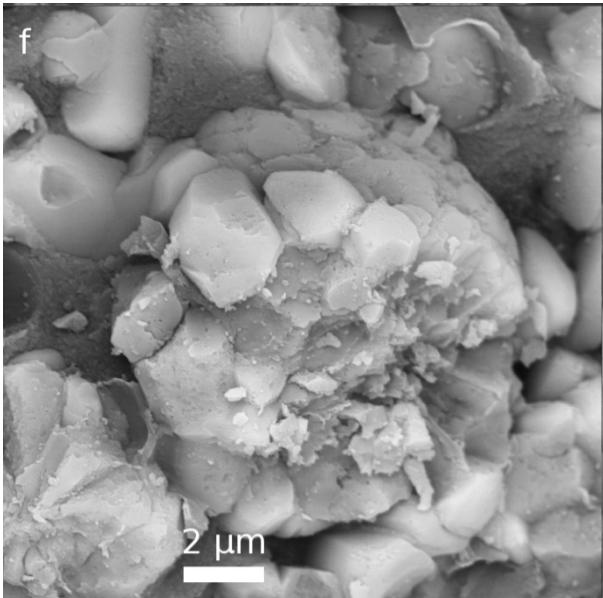
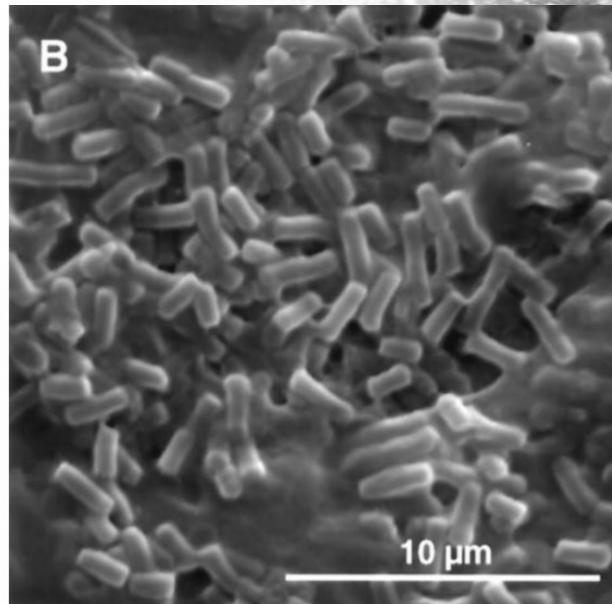
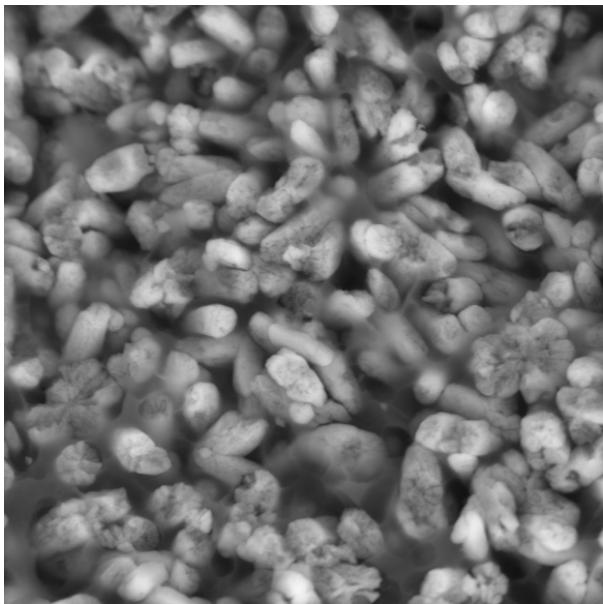
Mikrostruktur...



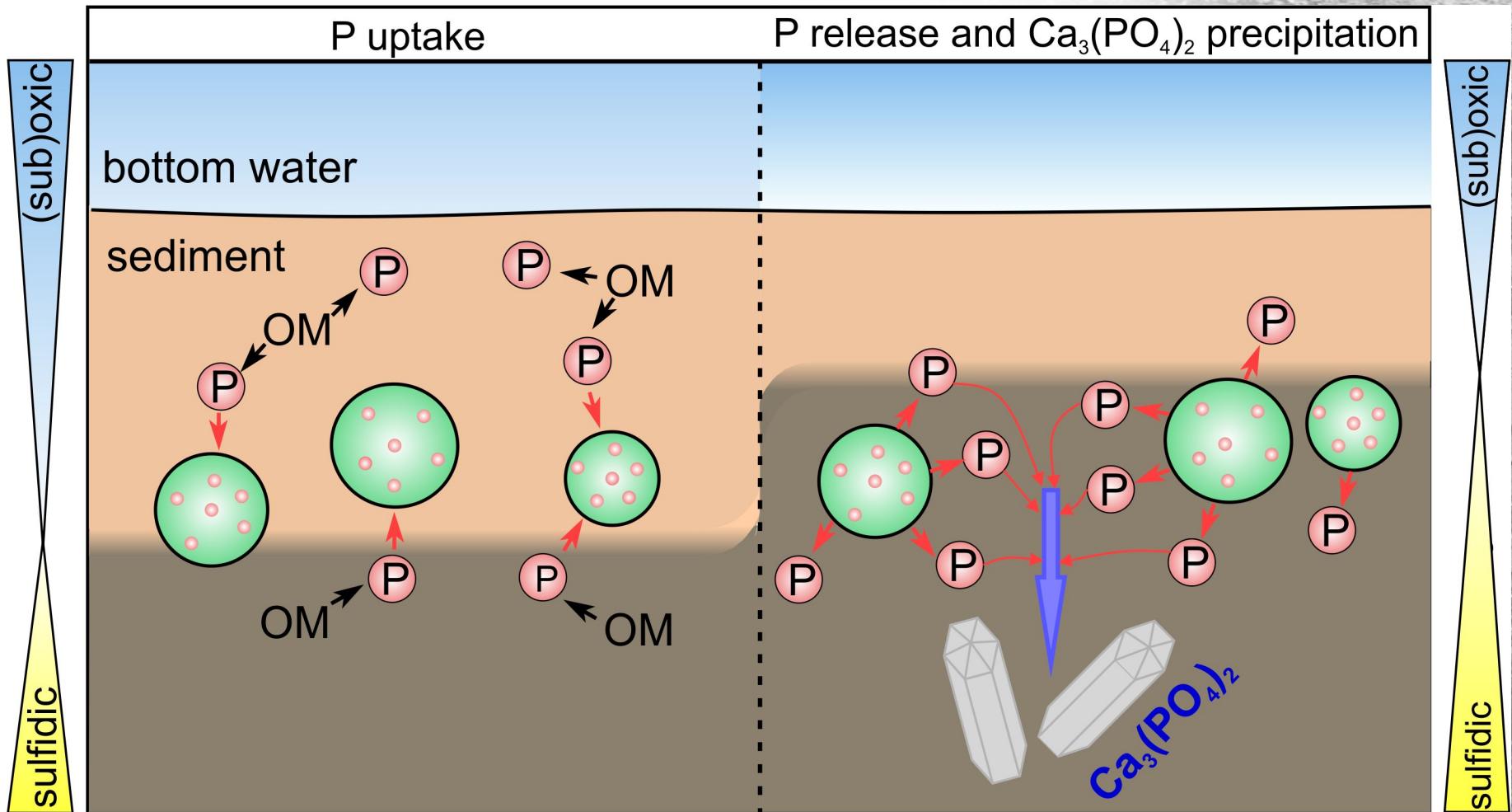
Nanostruktuur



Fossiilsed metanotroofid?

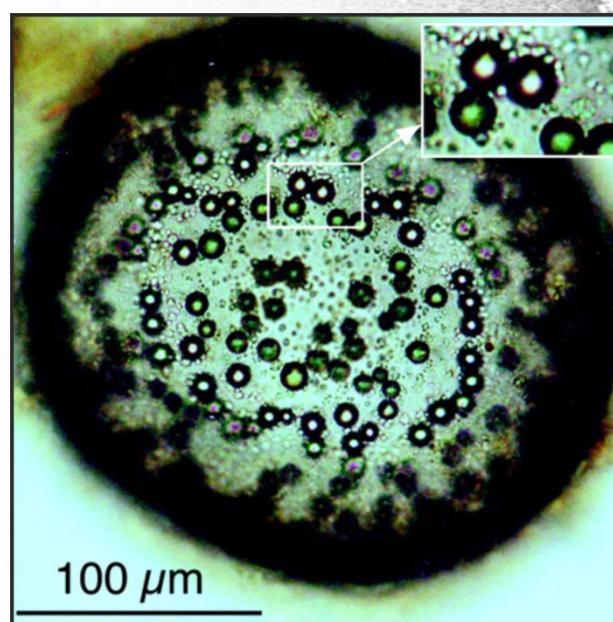
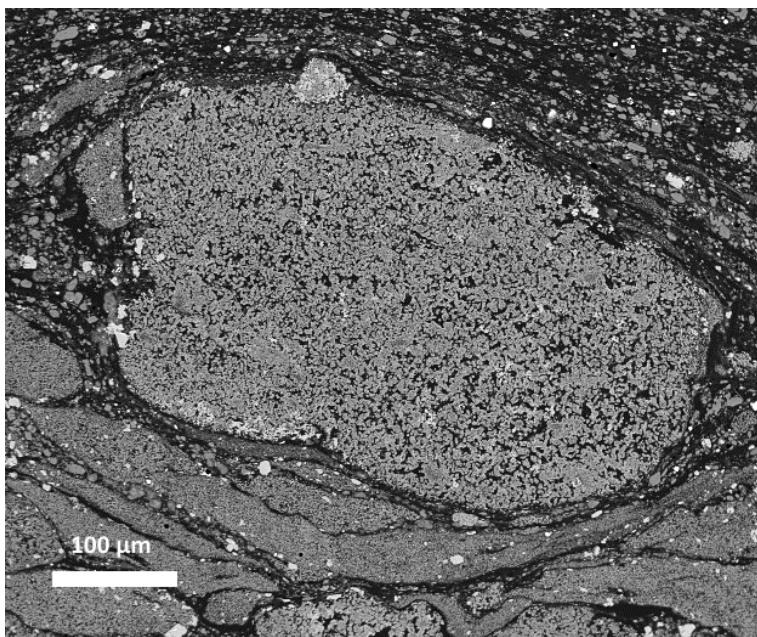
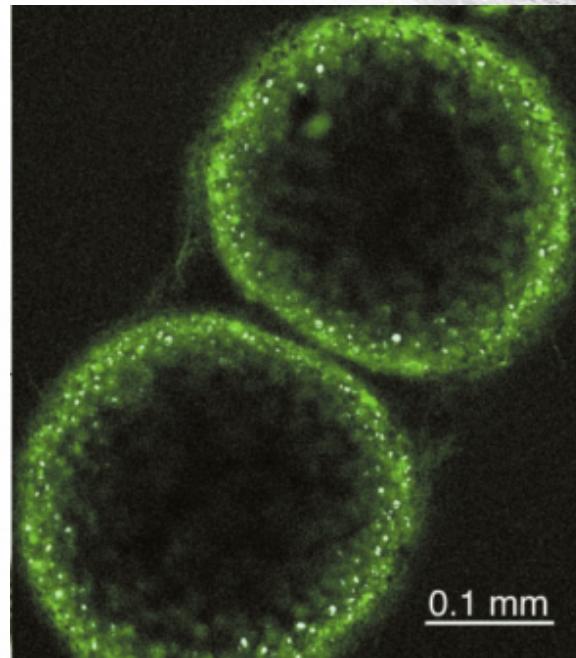
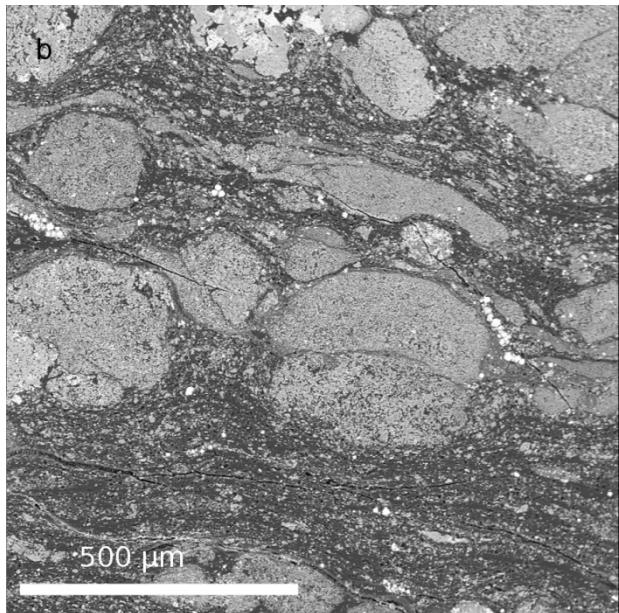


Kust tuli fosfaat?



Muudetud, Brock and Schulz-Vogt (2011)

Thiomargarita?

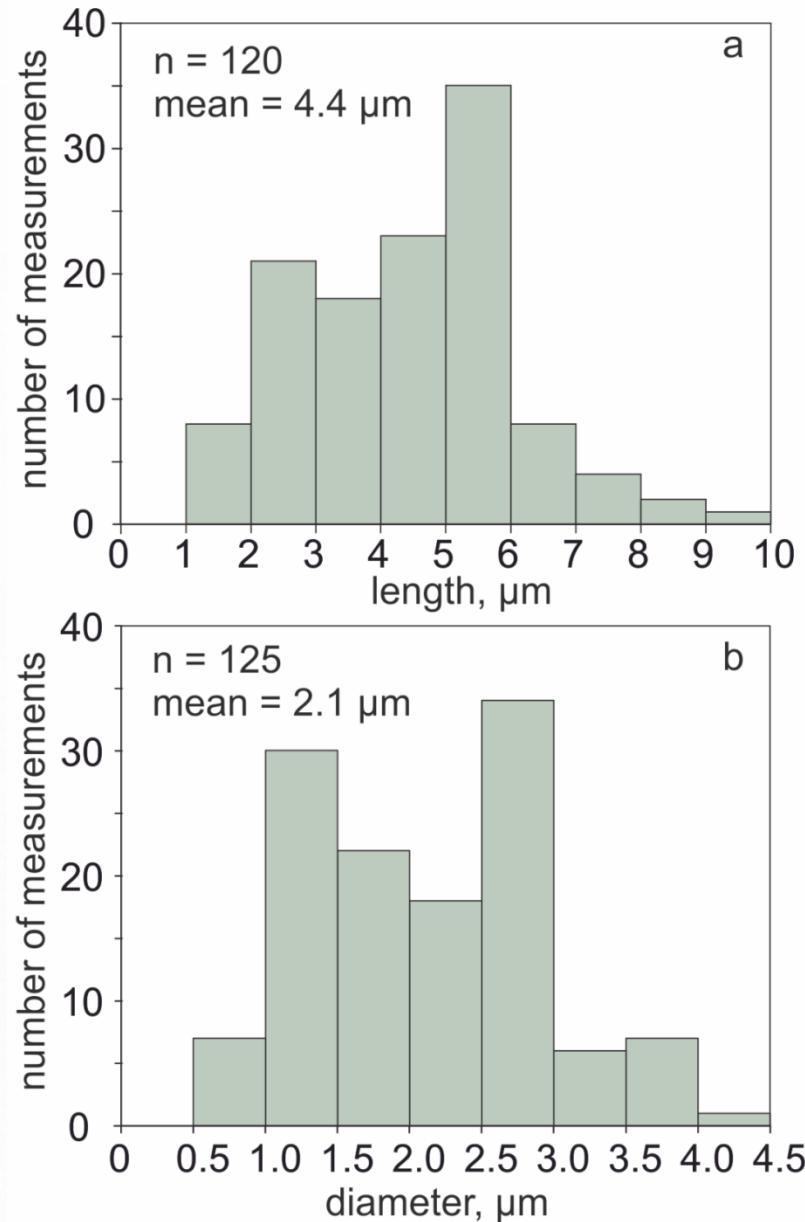
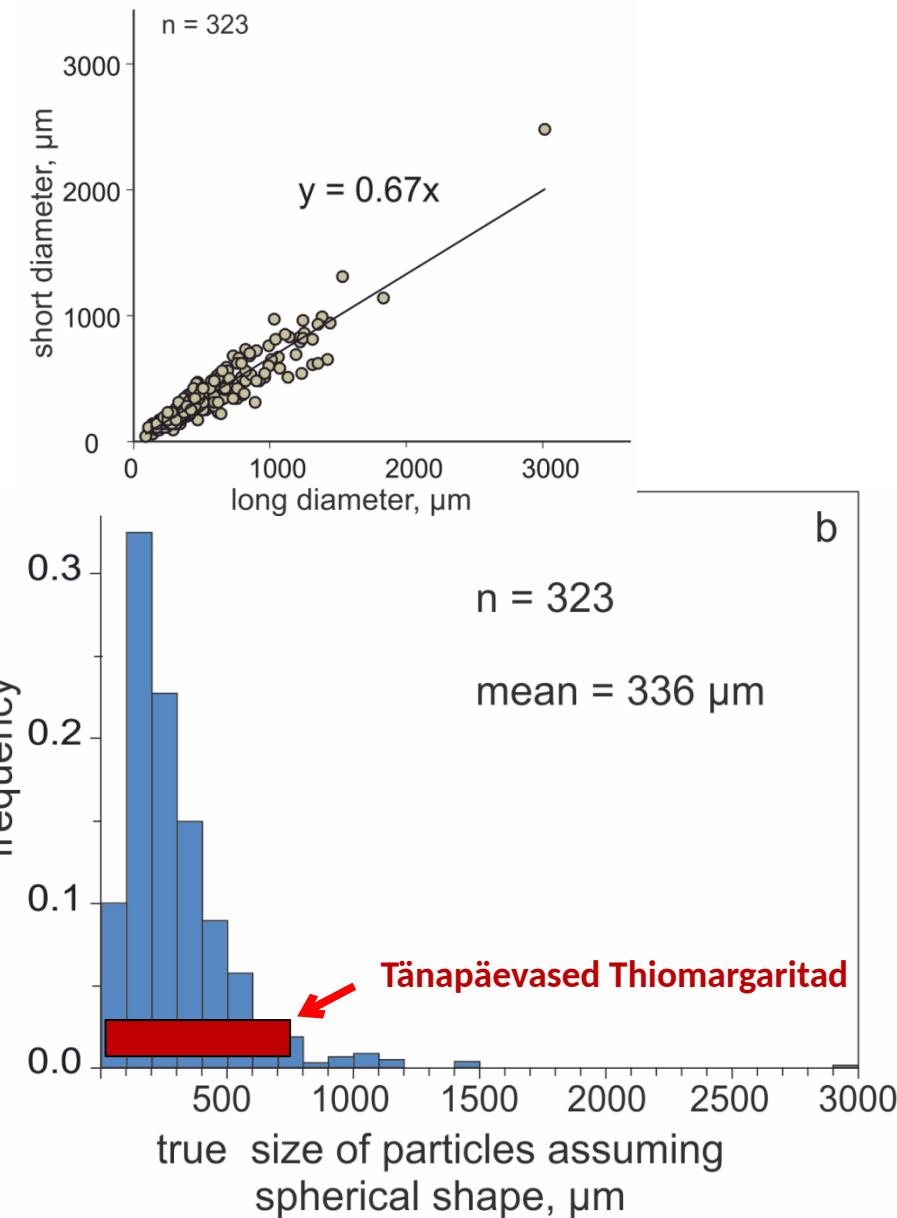


Schulz & Schulz (1999, 2005)

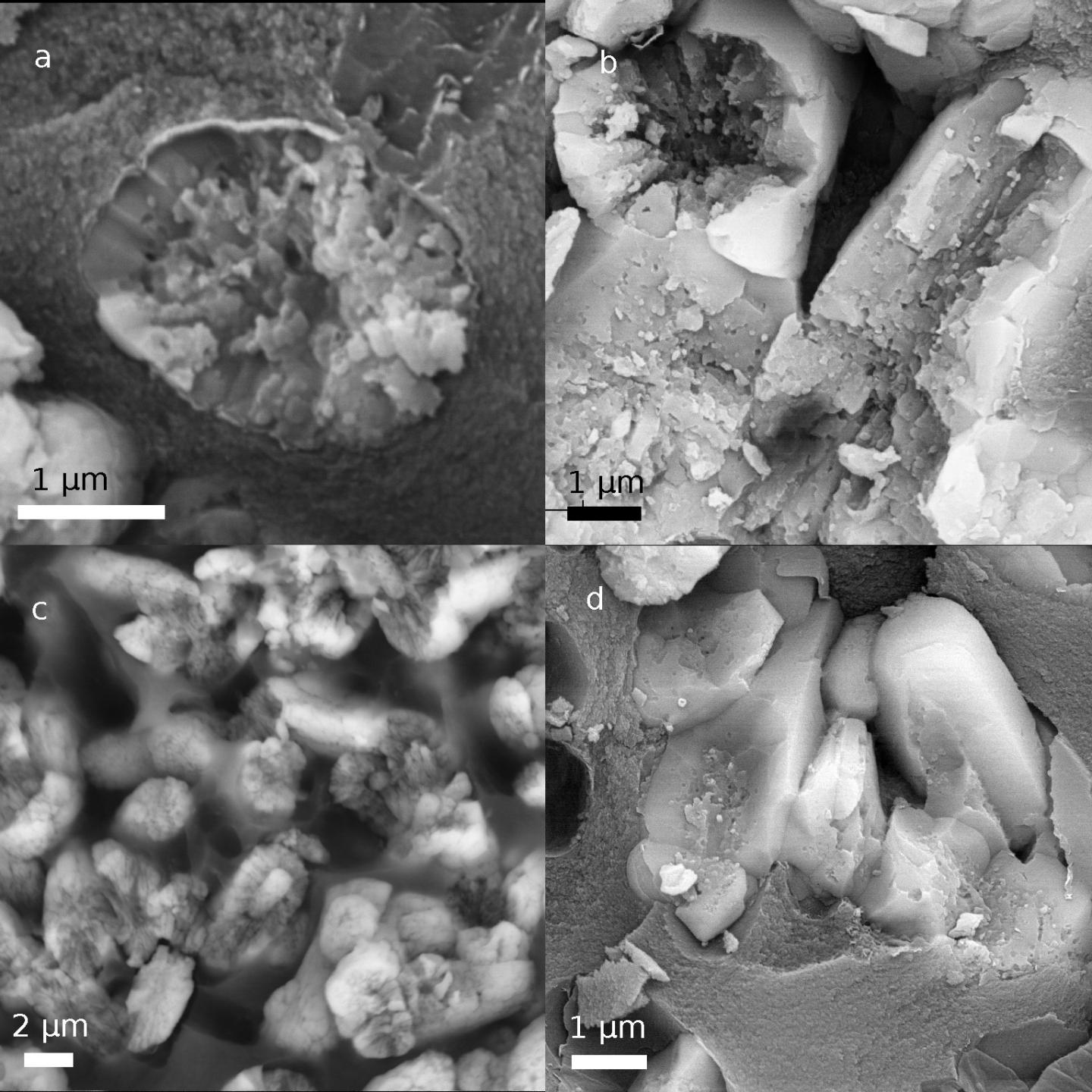
Noodulid

Mõõtmed

Silindrid

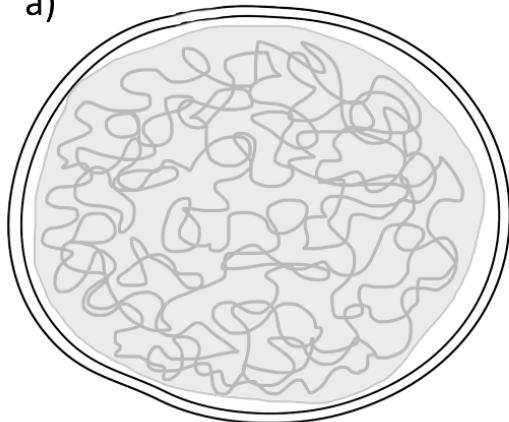


Säiliivussaadiumid?

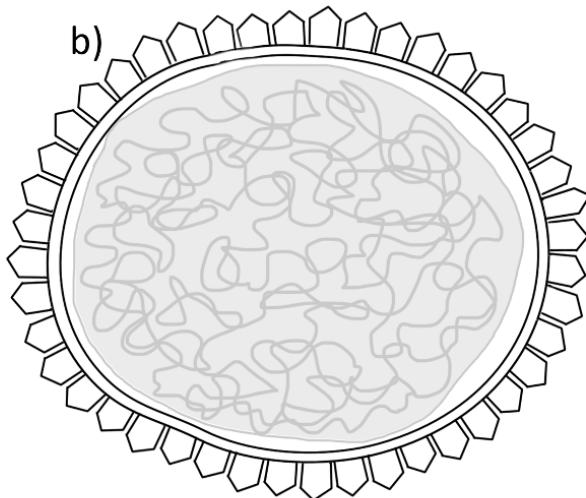


Säilivusstaadiumid?

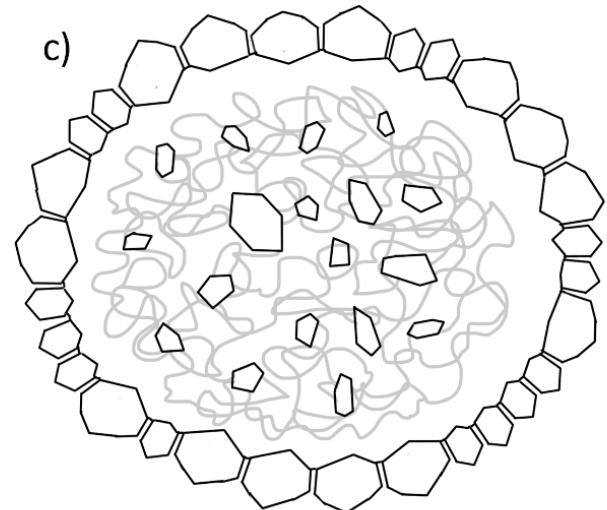
a)



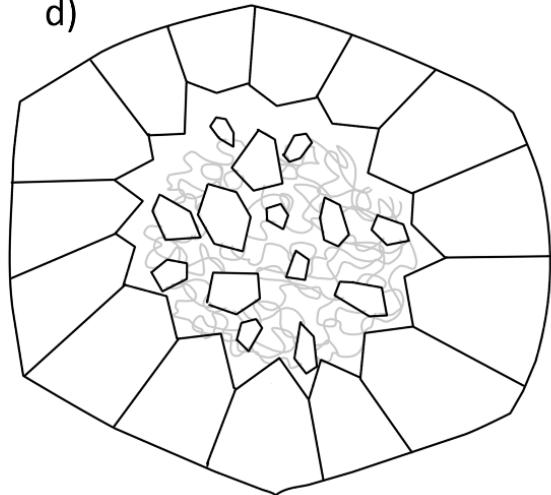
b)



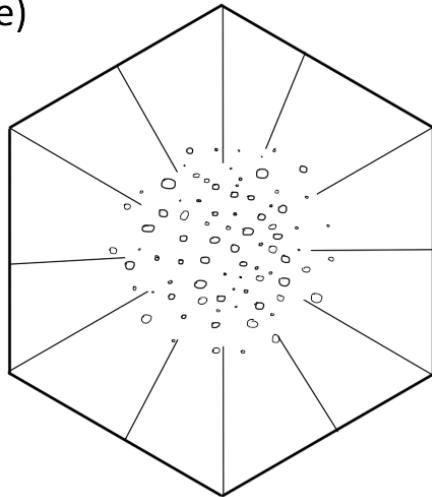
c)



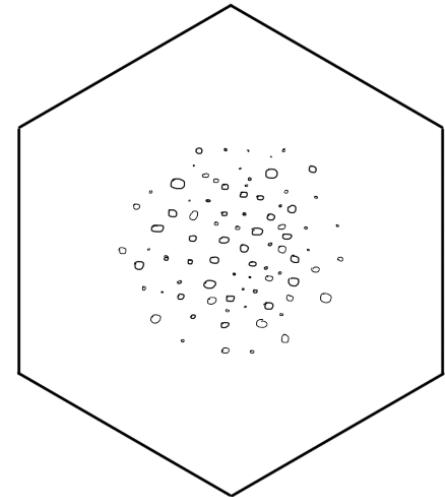
d)



e)



f)



Kriteeriumid?

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- Meenutavad tänapäevaseid organisme või tuntud fossiilseid rühmi.
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- Kerge isotoopse koostisega süsinikuliste struktuuride leidumine fossiilis.

A grayscale micrograph showing a complex, layered geological sample. The sample consists of various minerals and rock types, with prominent dark, elongated veins and lighter-colored, granular areas. Numerous small, bright white spots and clusters of white mineral inclusions are scattered throughout the sample, particularly along the vein boundaries.

Tänan kuulamast!

100 µm

