Searching for Pre-Cambrian Predation in Acritarchs

By: Togo Bat, Benson Li, Damaris Sanchez, Helen Pauly
Mentor: Abby Wyant
Program: SIMS
P.I.: Susannah Porter
Lab: Micropaleontology
Predators vs. Prey

Courtesy of Listverse
Timescale of Earth

- 750: Neoproterozoic Acritarchs
- 4,500: Earth’s Beginning
- 542: Cambrian Explosion
- 0: Present Day

Units in millions of years ago
Modern Evidence of Predation

Courtesy of History of Geology
Morphologically Complex Acritarchs are Organic Decay Resistant
Using Scanning Electron Microscope to Image Acritarchs

- Electron gun
- Electron beam
- Condenser lens
- Objective lens
- Sample
- Detectors
Using Scanning Electron Microscope to Image Acritarchs
The Process of Carbon Coating

Graphite

Samples
The Process of Carbon Coating
Identifying Perforations

![Micrograph with perforations marked with red and green circles]

10 μm

Courtesy of Susannah Porter
Identifying Perforations

10 μm

50 μm
All Within One Standard Deviation

Average diameter = 1.0378 μm
Beveled Perforations Show Early Predation
Beveled Perforations Show Early Predation

10 μm

Courtesy of Susannah Porter
A Predicted Predator

Unknown Predator

Acritarch
Future Research: Different Characteristics of Acritarchs

Courtesy of Susannah Porter
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Preparing Rock Samples for SEM

1. Gathered Sedimentary Rocks
2. Dissolved them in Hydrofluoric acid
3. Strained for organic matter larger than 25 μm
4. Put clumps into an ethanol solution
5. Pipetted onto a stub and let air dry
6. Carbon-coat the samples