2024 Bi H1 Q14

Section: Metabolism and Survival

Topic: Environmental Control of Metabolism

Question Summary:

An archaeal cell appears as 1.5 mm on the micrograph. The actual cell length is 3 um. What is the total magnification?

Worked Solution:

- Convert the measured image size to the same units as the actual size.

1.5 mm = 1500 um.

- Magnification = image size / actual size.

M = 1500 um / 3 um = 500.

Therefore, the microscope magnification is 500x.

Final Answer: **C** (500x).

Revision Tips:

- Keep units consistent (mm -> um).

- Magnification is unitless: M = image size / actual size.

- Measurement of microorganisms supports experimental work in environmental control of metabolism.