

How to read primary scientific literature

A. First read the attached document about antibiotics and antibiotic resistance

B. Do a quick research about MRSA (Methicillin-Resistant *Staphylococcus aureus*) and answer the following questions

1. Where is *Staphylococcus aureus* normally found in the human body?
2. What type of infections does *Staphylococcus aureus* produce?
3. Why is resistance to antibiotics a problem for *S. aureus* infections?
4. What is the mechanism of action of Methicillin and other beta-lactams?

C. Now listen to the radio lab podcast: Staph Retreat

D. Read the attached paper once in its entirety (Freya et. al, 2015)

5. What are the different sections of a primary article?
6. Can you relate each section to a step in the scientific method?

E. Work of figures:

7. Answer the following questions for each panel in figures 2 through 5

What variable is in the x-axis? What are the units?

What variable is in the y-axis? What are the units?

Describe the data in the plot in simple words (example: In Fig2A., the black curve corresponds to a control where pure water was added to a culture of *S. aureus* in a fluid that mimics a wound. As time progresses, the average optical density of the fluid increases with a sigmoidal shape, slowly saturating after 12 hours of incubation. In comparison, the red curve, that corresponds to)

Try to interpret the data based on your description (Example: Fig 2A shows that the addition of water does not stop the replication of *S. aureus* in a fluid that mimics a wound, as measured by the increased turbidity of the culture fluid and the corresponding rise in optical density (OD). In comparison,)

NOTE: We will discuss this paper (and others) in class. The point of this activity is to familiarize you with the structure and reading of primary literature (plus, this is a really cool story I think). Also, we have started working on making graphs, reading graphs and interpreting graphs during class. As you see, this is an important skill to be able to read science critically. Do your best in this assignment and submit your answers even if they are imperfect.