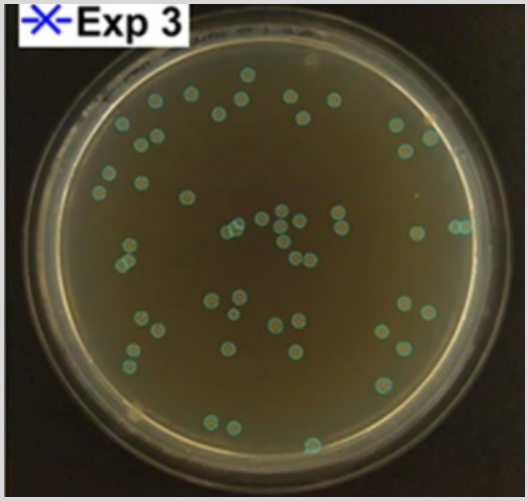
# Colony Forming Units

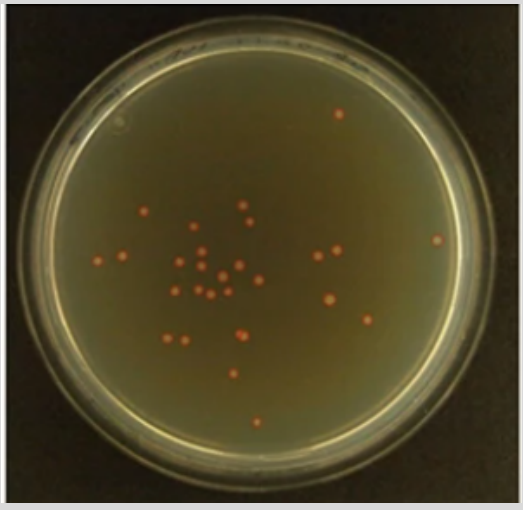
**Witten + MCQ questions:**

- How many viable cells does a CFU originate from? (select one)
  - 10
  - 1
  - 100
  - 30,000
- Which of these is **NOT** commonly used to measure the number of viable bacteria in a lab sample? (select one)
  - CFU
  - DNA sequencing
  - Biomass/ dry weight
  - Optical density
- What do we call a plate that has too many bacteria?
- What is an example of a type of margin a colony can have? (hint: see slide 20 🙂 )

**Counting CFUs!!!:**




- How many CFUs are seen on this plate?



- How many CFUs are seen on this plate?

Images of plates from: Khan, A.u.M., Torelli, A., Wolf, I. et al. AutoCellSeg: robust automatic colony forming unit (CFU)/cell analysis using adaptive image segmentation and easy-to-use post-editing techniques. Sci Rep 8, 7302 (2018). https://doi.org/10.1038/s41598-018-24916-9

# Zone of inhibition

**Witten + MCQ questions:**

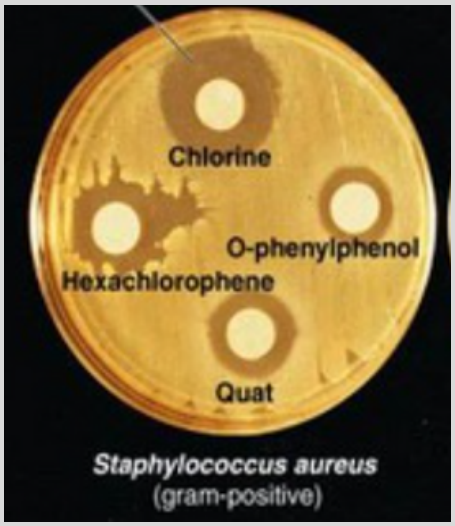
- What does it mean if there is no zone of inhibition around an antibiotic disc?

- How can antibiotic resistance genes found in bacteria be used in synthetic biology?

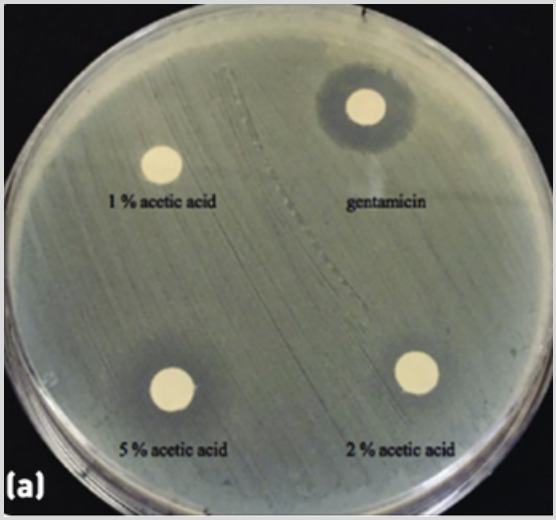
- If the zone of inhibition is large, what does that mean? (select one)
  - The bacteria are resistant to the antibiotic
  - The bacteria are sensitive to the antibiotic
  - The antibiotic has expired
  - The bacteria are growing faster than normal

**Measuring zones of inhibition!**

In the plates shown below, circle the antibiotic that does the best job of inhibiting bacterial growth




Microbiology Lab Practical #3 Flashcards. (2016). Quizlet. https://quizlet.com/134390120/microbiology-lab-practical-3-flash-cards/




Singer Instruments. (2025b). Zone of Inhibition explained -. Singer Instruments. https://www.singerinstruments.com/resource/zone-of-inhibition-explained/

**Synthesis question:**

You swabbed bacteria onto an agar plate and counted 100 CFU. You placed an antibiotic disc on the plate. The next day, you saw a big zone of inhibition around the disc.

- Question: What does the CFU count tell you, and what does the zone of inhibition tell you about the bacteria?