

What is the problem?

-Until the 1940s, infections were the leading cause of human death. **"Antibiotics"** changed this. Today, antibiotics are commonplace.

-Microbes are building defenses against antibiotics, called **Antimicrobial Resistance (AMR)**. This situation is **"The Antibiotic Crisis."**

What are we doing about it?

-Researchers around the world are isolating new antimicrobial compounds. **Finding new antimicrobials offers hope**, as AMR infection rates rise.

Experimental Approach

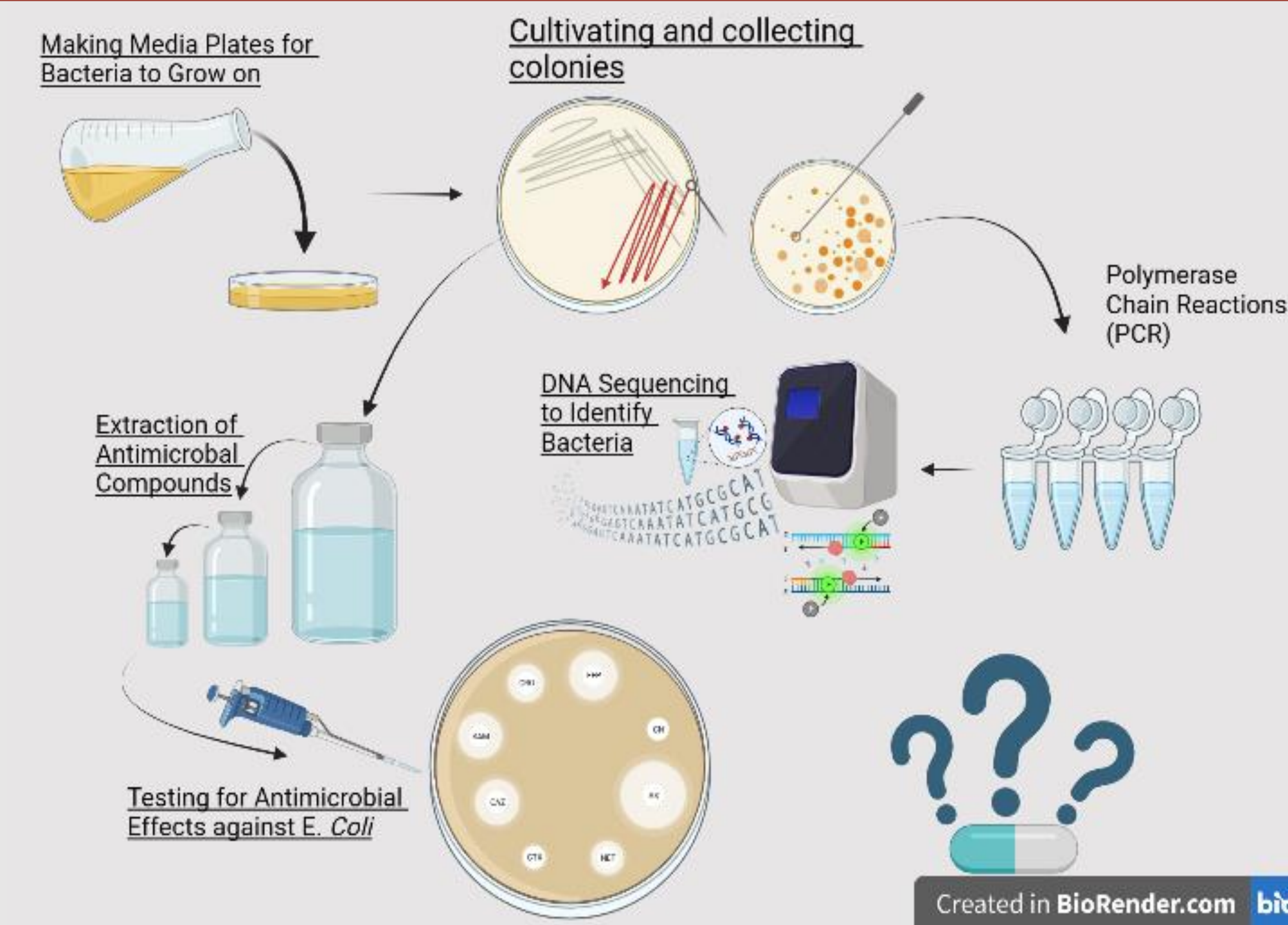
-We cultivated isolated soil bacteria gathered and isolated by previous researchers.

-We grew our colonies on LB media and put them through PCR and 16s Analysis.

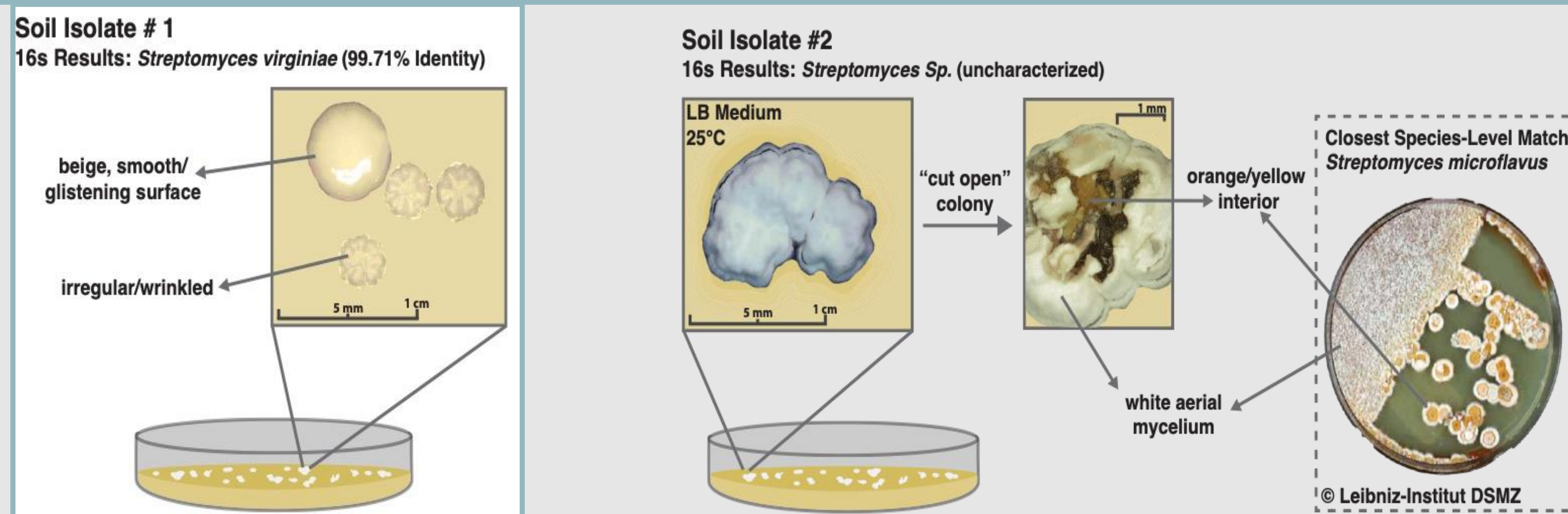
-From our cultivated colonies, we extracted metabolites produced using a Methanol extraction process.

-We tested our extracted metabolites against a non-pathogenic strain of *E. Coli*.

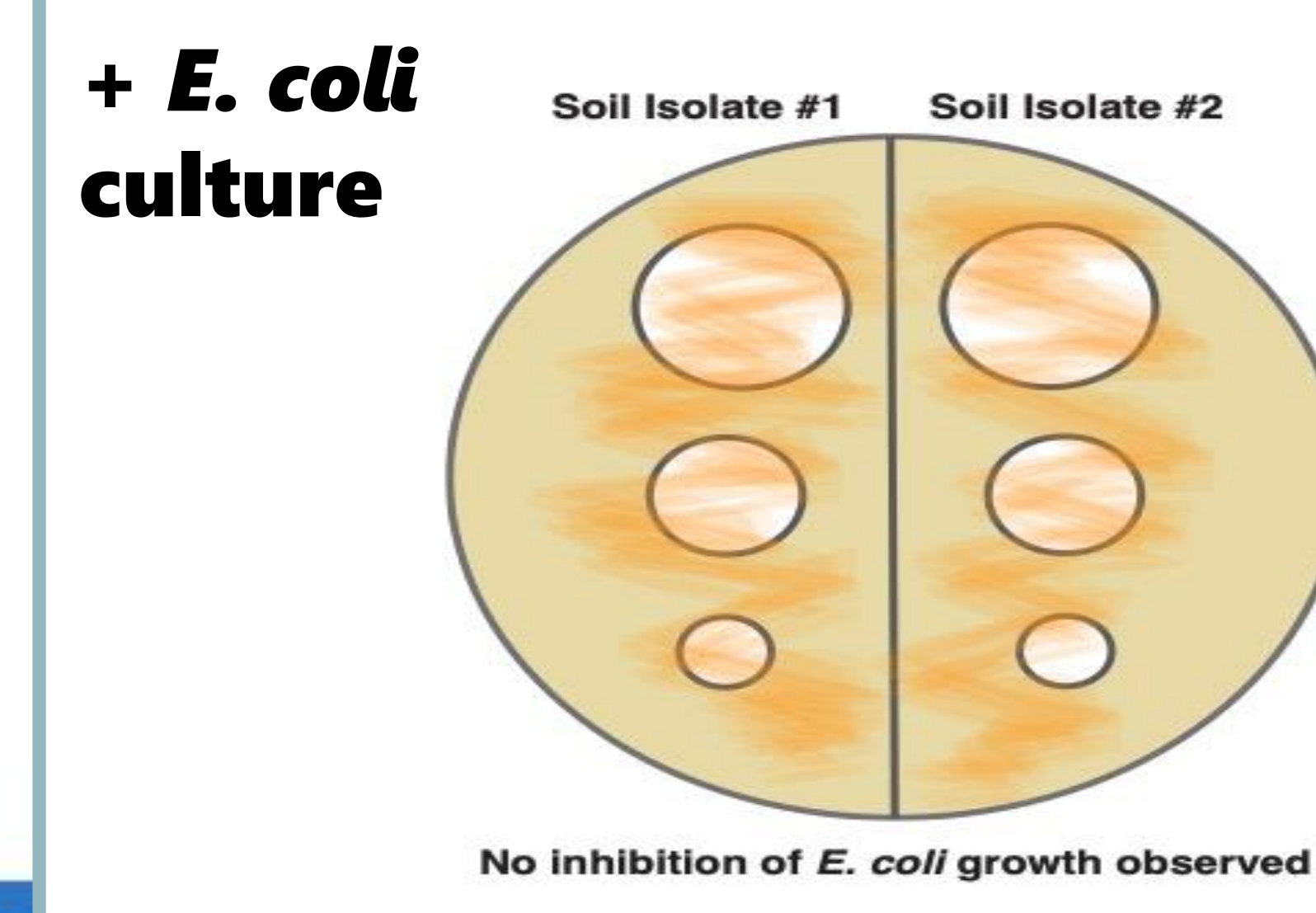
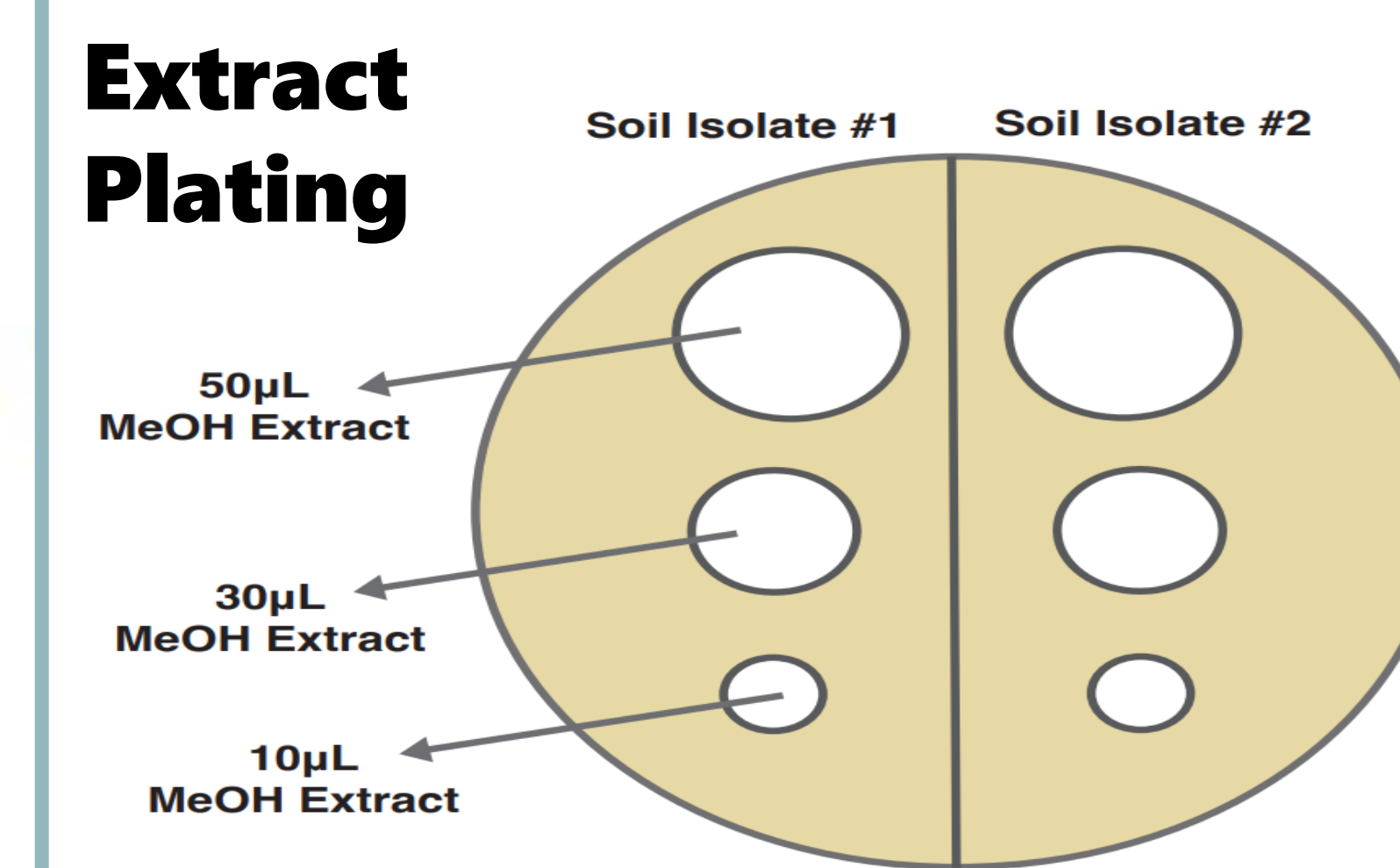
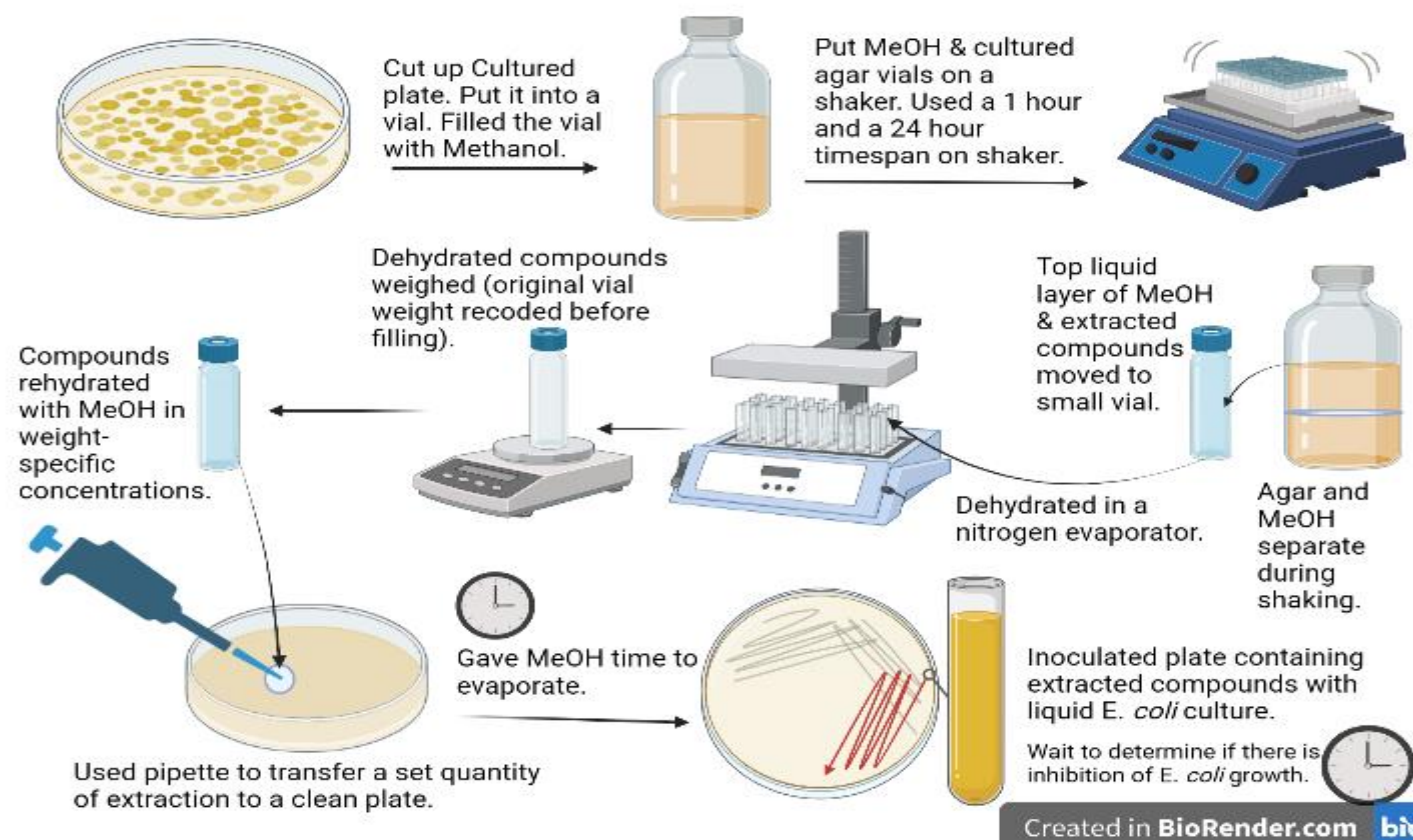
How do We Identify Antimicrobial Compounds?



Cultures Identified in this Study:



Antimicrobial Compound Extracting & Testing:



Conclusions & Future Directions

-Our culturing conditions may not have stimulated antibiotic production due to the growth medium used or the lack of "microbial competition" laboratory culturing.

-Follow-up extractions with different organic solvents may be more efficient.

-Any positive results will need to be tested against yeast, to determine risks from damage to eukaryotic human cells.

References & Acknowledgements



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 Research Experience for Community College Students (RECCS)
www.cires.colorado.edu/outreach/programs/reccs

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 Hernandez, S., Tsang, T., Bascom-Slack, C., & Handelsman, J. (2016). *N. Broderick, & E. Kurt, (Eds.) Small world initiative: Research protocols.* (4th ed.). Small World Initiative Press.