

Title: Good Bacteria Gone Rogue: Investigating the antimicrobial effects of *Lactobacillus* Metabolites against *Staphylococcus epidermidis*
- Logbook

Name: Ravneek Brar - Grade: 10 - Renert School

DATE	ACTION	RESOURCES USED	OTHER NOTES
September 24, 2025	Looked through different websites for ideas until chose one.	Science Buddies - Not helpful Google	Title: Clocked out: Does circadian rhythm disruption inhibit <i>Lactobacillus</i> growth?
September 29, 2025	Started to gather background research on the topic.	Notebook Pencil	Note the noted on the
October 3, 2025	Worked on background research	Docs and google	
October 6, 2025	Background Research Met with mentor and discussed the project	Docs and google	
October 8, 2025	Worked on the proposal for the projects	Canva and references	

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October 9, 2025	Discussed alternatives projects and methods with mentor to ensure best experiment		
October 9, 2025	Submitted 1st draft of proposal into schoology		
October 14, 2025	Met with mentor to go over the draft and any other ideas		Some additional parts to procedure and research were added
October 16, 2025	Final edits on proposal and submitted it		Practice presenting
October 17, 2025	Practiced presenting in front of Ms. Fauzia and received feedback		

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October 16-17, 2025	Worked on the proposal speech for Friday	Docs, previous research	
October 19, 2025	Finalizing the script and practicing		
October 22, 2025	Meeting with Ms. Rachel at lunch to go over the script		Accidentally forgot and met later on
October 24, 2025	Presented proposal to judges for selection and made a schedule for next 4 weeks		DO THE WORK NEEDED BEFORE ENTERING THE LAB
November 17, 2025	Started the research paper and worked on hypothesis and variables	Docs	Due date for the paper is February 2

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November 19, 2025	Emailed mentor to meet and discuss further steps for project. Worked on hypothesis and variables.		Discuss dates with mentor due to conflict
November 24, 2025	Met with mentor and order the bacteria to use.	Amazon and other science website	
November 25, 2025	Watched and learned how to create agar plate with Synbio Team at lunch. Also a CYSF info session.		
November 28, 2025	Went over the variables and hypothesis with Ms. Rachel for errors	Docs	Done in Class
Dec 3, 2025	Watched the videos Ms. Rachel provided in order to get an idea for lab skills	Youtube	

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Dec 5, 2025	Learned how to make LB and LB agar, as well as how to pipette tiny amounts	School Synbio Lab and supplies in it	Edit Procedure by Dec 7
Dec 8, 2025	Placed the <i>Lactobacillus acidophilus</i> in 5:5 ratio of sterile water and LB broth. Learned how to use the incubator.	Pipette, falcon tubes, <i>L. acidophilus</i> , fume hood, paraffin wax	
Dec 9, 2025	Learned how to do OD600 of the bacteria (look in lab book). Learned how to do a serial dilution. Learned how to plate bacteria.		
Dec 10, 2025	Saw the bacteria growing!!! Inoculated one colony from the 1:10 agar plate to see if it would grow. Broth in at 4:30 pm at 37 degrees celsius and 250 rpm for 15 h.	Synbio lab	
Dec 11, 2025	Made 1:4 dilution ratio with 750 microL culture and 2260 microL LB. OD600 was 0.2, so original culture is 0.8 (would like to keep at 0.4 - 0/5)		

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Dec 12, 2025	Looked over the procedure with Ms. Rachel to update it		
Dec 15-16, 2025	Edited the procedure and sent to Ms. Rachel to look over for errors or additional steps		
Dec 19, 2025	Restreaked the L Acidophilus on plate so that it stays healthy	Agar plate, pipette tip, the previous culture	
December 20 - January 4	Work on the paper and background research	Docs, websites listed in references	
January 7, 2026	Created LB agar and plated. Inoculated one colony in LB to spread later on. Discussed worst case scenario as the bacteria isn't here	Plates, agar powder, distilled water.	

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January 8, 2026	Spread the inoculated L acidophilus from the previous day onto an agar plate	Plate Spreader	
January 9, 2025	Checked on the bacteria. Presented the information currently occupied.		
Jan 13, 2026	Created more plates and LB broth. Grew E coli and inoculated the L acidophilus		
Jan 14, 2026	Did OD600 of the two cultures and set up the first trial in incubator. Learnt how to centrifuge		$c_1v_1 = c_2v_2$ Centrifuge for 15 min at 8000 rpm (balance the machine)
Jan 15, 2026	Did serial dilution (500 ul) and OD600 of the tests (details in lab book). Plated the dilutions.		

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Jan 16, 2026	Rehydrated the <i>S. epidermidis</i> . Planned out the next week for the actual trials.	The kit provided	Keep instructions in case smth happens
Jan 19, 2026	Strelized tube and tips. Made and plated agar (60 nm plates instead or 100 nm). Inoculated both cultures.	Tips, tubes, sterilization bags, pipette, pressure cooker, incubator, water bath, plates.	Ms. Rachel came on Saturday to plate the <i>s. epidermidis</i> .
Jan 20, 2026	Did OD600 of the cultures and diluted to the same ratio. Set up trials (centrifuge and new steps)	OD600 supplies, centrifusion supplies, tubes, pipette, tips, cultures from yesterday p5-6	
Jan 21, 2026	Took the tubes out. Did 5 dilutions of each of the tubes (20 total) and plated all of them. Did OD600 of each tube (4 total)	Tubes, plates, sharpie, pipettes, tips, rack, cultures, OD600 supplies	OD600 on phone
Jan 22, 2026	Counted the colonies (of 1:100000 dilutions)	C1 = 605 C2 = 820 T1 = 337 T2 = 377	

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Jan 23, 2026	Calculated the original culture values and planned for the next week (1 trial for sure, maybe 2). Plates and broth	Docs, Video link provided	
Jan 26 - 30, 2026	Worked on paper (background to variables, and have rough idea for materials and protocol)		
Feb 2, 2026	Inoculated the bacteria @ 12:01 pm		
Feb 3, 2026	Did initial OD600 and took tubes out @ 11:52 pm and put in trial tubes @ 12:27 pm		Also wrote the results, conclusion, and application + future research
Feb 4, 2026	Serial Dilution (10^5 and 10^6).		Did some math with it

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Feb 5, 2026	Finished the first draft of the paper and submitted it. Also counted the plates		Almost 100% sure I mixed up the plates
Feb 9, 2026	Made more LB broth as we were running out. Also autoclaved pipette tips.	Trytone, NaCl, yeast, media bottles, distilled water, autoclaves	
Feb 10 - 13, 2026	Worked on the paper edits		
Feb 18, 2026	Inoculated the culture for trial 3!!! Finished background research.		Tubes in at 11:09 am.
Feb 19, 2026	Took OD600 and set up the trial tubes		

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Feb 20, 2026	Did serial dilutions of the 4 tubes and plated them. Also did the OD600 of the tubes to see growth		Control had more OD600. Control and test were both more cloudy than in trials 1 and 2
Feb 21, 2026	Counted colonies. Counted by dividing the plate into 4 sections (too many colonies)		One control plate seemed cloudy but not contaminated
Feb 24 - 28, 2026	Worked and completed the paper. Also learnt new stats (that work in our favour hehehehe)	Docs	
Feb 28, 2026	Planned the video and zoomed with mentor to clarify things.	Zoom	
March 1, 2026	Recorded the first draft of video and started to submit everything to the platform	Zoom and Canva	

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March 2, 2026	Uploaded all pictures and video to the platform!!! Also did final edits and made header and picture for project.		Yay!!!