

Pet Microbe Final Report

Your report should include the following sections. See the next page for tips on writing the lab report.

1) a pure culture of the pet microbe - a plate with your pet that has isolated colonies and no contaminants

2) a description of the pet microbe - In this section, report your results from the various experiments that you performed over the course of the semester. For the different categories, describe what question is tested by the experiment, report your data and explain what you have concluded about your pet's ability to grow under different conditions from your results.

This section should include:

- a) a description of the colony morphology and appearance, cell morphology, and Gram status (positive or negative)
- b) the preferred growth medium and growth conditions (TSA vs NA, salt dependence, temperature dependence)
- c) anaerobic vs aerobic growth
- d) ability to ferment different sugars
- e) motility (or lack thereof)
- f) antibiotic resistance
- g) other relevant observations
- h) effect of pet microbe on fruits/vegetables (if tested)

3) a classification of the pet microbe - domain, phylum, class, order, family, genus, species

4) a list of students who have the same pet

5) a list of references cited

If you are looking for resources to find information about your pet, some options are listed below.

- Search the scientific literature using the NIH resource PUBMED- <http://www.ncbi.nlm.nih.gov/pubmed>
- Bergey's Manual of Systematic Bacteriology - available online via the library
- Search the web - look for sites from educational institutions or scientific societies/institutions
- Use the google image search if to find pictures of cells and/or colonies. Go to the actual web pages to verify that the pictures are indeed of the microbe.
- Search microbewiki - <http://microbewiki.kenyon.edu/index.php/MicrobeWiki>

You can also share ideas and compare data with others that have a similar pet.

Tips for Writing Your Lab Report

Here are some tips on presenting your results and conclusions in your Pet Microbe Lab Report.

- Present your data clearly, including controls where applicable.
- Explain why you reached a particular conclusion.
- Discuss experiments that used different methods to ask the same question together.
- Explain how you decided what your pet's species is.
- Include references for any information that you found by doing research. Citations should be included in the text as a number (1) or author, year (Smith, J. et al., 2004). Full citations should be listed in the reference section.

Examples:

Lactose Fermentation

		MacConkey	EMB	Phenol Red Lactose
pet	experiment	dark red	metallic green	yellow (gas in Durham tube)
<i>E. coli</i>	control- strong fermenter	dark red	metallic green	yellow
<i>E. aerogenes</i>	control- weak fermenter	light red	purple	not done
<i>E. coli</i> (lac mutant)	control- nonfermenter	white	uncolored	red

Three assays were used to determine whether my pet could ferment lactose: colony color on MacConkey agar, colony color on EMB agar, and culture color in phenol red-lactose broth. In each case I compared my pet to control bacteria that were either (1) known to ferment lactose, (2) be weak fermenters of lactose, and (3) not to ferment lactose. In each of the assays, my pet had characteristics similar to the control bacteria that could ferment lactose- red colonies on MacConkey agar, metallic green colonies on EMB, and yellow color in the phenol red broth assay. Therefore, my pet can ferment lactose. In addition, gas collected in the durham tube indicating that my pet releases CO₂ when it ferments lactose.

Morphology

My pet is a Gram-positive bacillus. Using the Gram stain, the cells were purple. My pet also did not grow on MacConkey or EMB agar and Gram-positive bacteria do not grow on these growth media. The bile salts in MacConkey agar and the dyes in EMB agar are toxic to Gram-positive bacteria because they don't have an outer membrane.