

**City Colleges of Chicago
Olive-Harvey College
Department of Natural Sciences
MICROBIOLOGY 233: General Microbiology**

Species Profile for GRAM-NEGATIVE SPECIES

Last Name:
First Name:
Section:

Scientific Binomial (*Genus species*):

Use your textbook and/or internet images to look at the similarities and differences between Gram-positive and Gram-negative cell walls.

What does your Gram-negative species cell wall have in common with a Gram-positive cell wall? In other words, how are the cell walls similar?

How does the cell wall of your Gram-negative species differ from that of your Gram-positive species? In other words, what is unique about a Gram-negative cell wall?

Refer to the lab manual Case Study Exercise on “Identification of Bacterial Unknowns”. Towards the end of this exercise, you should see a series of flowcharts (separation outlines).

Look at the separation outlines in Section I: Gram-Positive Bacilli, Section II: Gram-Positive Cocci, and Section III: Gram-Negative Bacilli and Cocci. Locate your unknown’s genus and species in these outlines.

Below, list out the smallest number of tests that would be necessary to identify your unknown if you were to follow these outlines and the results usually observed for those tests. If you want to get some extra points, also indicate the type of medium that could be used for each test (use the index of your lab manual).

Is your species part of normal human flora?

Species Profile for GRAM-NEGATIVE SPECIES

To research this question, use at least three of the references listed on Blackboard. Make sure to indicate your references below. Do not use websites that are trying to sell products.

Reference 1:

Is your species part of normal human flora?

YES

NO

If YES, describe location(s) =

Reference 2:

Is your species part of normal human flora?

YES

NO

If YES, describe location(s) =

Reference 3:

Is your species part of normal human flora?

YES

NO

If YES, describe location(s) =

Is your species considered a true pathogen?

Species Profile for GRAM-NEGATIVE SPECIES

To research this question, use at least three of the references listed on the Blackboard. Make sure to indicate your references below. Do not use websites that are trying to sell products.

Reference 1:

Is your species a true pathogen?	YES	NO
----------------------------------	-----	----

Reference 2:

Is your species a true pathogen?	YES	NO
----------------------------------	-----	----

Reference 3:

Is your species a true pathogen?	YES	NO
----------------------------------	-----	----

Is your species considered an opportunistic pathogen?

To research this question, use at least three of the references listed on the Blackboard. Make sure to indicate your references below. Do not use websites that are trying to sell products.

Reference 1:

Is your species an opportunistic pathogen?	YES	NO
--	-----	----

Reference 2:

Is your species an opportunistic pathogen?	YES	NO
--	-----	----

Reference 3:

Is your species an opportunistic pathogen?	YES	NO
--	-----	----

Is your species considered a nosocomial pathogen?

To research this question, use at least three of the references listed on the Blackboard. Make sure to indicate your references below. Do not use websites that are trying to sell products.

Reference 1:

Is your species a nosocomial pathogen?	YES	NO
--	-----	----

Reference 2:

Is your species a nosocomial pathogen?	YES	NO
--	-----	----

Reference 3:

Is your species a nosocomial pathogen?	YES	NO
--	-----	----

To answer the following questions, you should use these references: GIDEON search, Bad Bug Book (FDA), CDC, Merck Manual, Medscape, and/or WHO. You can access all of these researches by using Google

Species Profile for GRAM-NEGATIVE SPECIES

searches. You can focus on the genus of your organism if it is difficult to get species-specific information. If you are planning to work in a health care field, you should be familiar with all of these references and how to use them.

The Chain of Infection

Type of Infectious Agent:

Reservoir(s):

Portal(s) of Exit:

Mode(s) of Transmission:

Portal(s) of Entry:

Host Susceptibility:

Epidemiology

In the United States, who is most likely to become infected with your pathogen?

U.S. Morbidity Rate:

U.S. Mortality Rate:

Time and Place of Last Recorded Outbreak (search CDC MMWR):

Outside of the United States, who is most likely to become infected with your pathogen?

Disease

Infectious Dose (ID):

Typical Incubation Period or Onset:

Type of Disease(s):

Signs and Symptoms:

To answer the following questions, use PubMed by the US National Library of Medicine and National Institutes of Health (<http://pubmed.gov>) and do a search for “*Genus species* antibiotic resistance” where

Species Profile for GRAM-NEGATIVE SPECIES

“Genus species” is the scientific binomial of your unknown organism. PubMed is an online database that is commonly used by health care professionals and by life science researchers.

For your search, how many total search results does PubMed generate? _____

For your search, how many free full-text articles are available in PubMed Central? _____

If you are curious, do a PubMed search for “Krueger JM Illinois”. If you are not curious, don’t do it. Note that this work is from my previous life as a researcher in psychiatric neuroscience (1997-2001). Most of the images that you see in this publication were made by me from experiments that I performed in 2000-2001. If you are interested in including any kind of research as part of your career, please consider talking to me during office hours (now or in the future). I can help you look for suitable internship programs. You can get my contact and office hours information from <http://ccc.edu/directory>.

To answer the following questions, use GIDEON search, Bad Bug Book, Physician’s Desk Reference Online, and/or your textbook as references.

What are three drugs that are effective against your species?

Choose three different types of drugs. Note the following common drug types: beta lactam, fluoroquinolone, aminoglycoside, etc. To understand antibiotic mechanisms, you can use your textbook, the antibiotics handout given to you in class or the Physician’s Desk Reference Online.

Drug Name:

Type of Drug:

Mechanism of Action: Describe in your own words.

Drug Name:

Type of Drug:

Mechanism of Action: Describe in your own words.

Drug Name:

Type of Drug:

Mechanism of Action: Describe in your own words.

The following questions are optional but recommended. Your answers to these questions may help to compensate for mistakes made on the previous pages. Use your brain, not the internet.

Species Profile for GRAM-NEGATIVE SPECIES

If your species was isolated from a stool specimen, would this be an indication of infection?

YES NO MAYBE

Justify your answer above.

If your species was isolated from a urine specimen, would this be an indication of infection?

YES NO MAYBE

Justify your answer above.

If your species was isolated from a blood specimen, would this be an indication of infection?

YES NO MAYBE

Justify your answer above.

If your species was isolated from a sputum specimen, would this be an indication of infection?

YES NO MAYBE

Justify your answer above.

If your species was isolated from a cerebrospinal fluid specimen, would this be an indication of infection?

YES NO MAYBE

Justify your answer above.