Names: ___________________ & ____________________

Characterization of Semester Unknown – Part I

Each group should prepare 2 identical copies of this characterization. Keep one copy of Part I for your group record and turn in one copy with your Cytology lab results.

You will be expected to show that you have maintained this same organism as a pure culture at the end of the semester. **Turn in a slide with a good Gram stain of your unknown.**

**What was the source of your unknown:** _____________________________

**Colony characteristics:**

<table>
<thead>
<tr>
<th>Pigmentation:</th>
<th>Make LARGE drawings to illustrate typical colony features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape:</td>
<td>Shape</td>
</tr>
</tbody>
</table>

  make drawing to illustrate shape of colony:

What is average diameter of the colonies? _____ mm

<table>
<thead>
<tr>
<th>Margin:</th>
<th>Detail of Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draw edge of colony showing detail of margin:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surface:</th>
<th>Elevation</th>
</tr>
</thead>
</table>

  Draw colony from a side view:

Identify any other distinctive characteristics of the appearance of the colonies:
Cell characteristics:

Make a LARGE drawing to illustrate shape and arrangement of cells

Gram reaction: ___________

Shape: ___________

Arrangement: ___________

Size
Avg width: _____ μm

Avg length: _____ μm (N/A if a coccus)

Does it produce endospores?

_____ (y/n): if so, make a large drawing showing shape & size relative to a normal cell:

Is it motile? _____ (y/n)

Grading of Semester Unknowns

1) With the Results of the Cytology lab, each group will turn in a copy of the ‘Characterization of Bacterial Unknowns I’ pages.

2) At the end of the semester each group will turn in:
   (10 pts) Copy of both the ‘Characterization of Bacterial Unknowns I and II’ sheets. These will be graded for neatness, completeness, and reasonableness of unknown identification.
   (10 pts) Two streak plates and Gram stains (one by each student). Grading is based upon evidence that organism is the same one originally isolated and a pure culture.
   – each student should turn in a good quality Gram stain of your unknown
   – each student should turn in a good quality streak plate of your semester unknown.

Names: ___________________ & ____________________
Characterization of Semester Unknown – Part II

Fill out this sheet as you perform tests during lab exercises as a record of your semester unknown. When you have finished all characterizations of your unknown, your group will turn in this sheet, two Gram stains of your unknown and two streak plates showing isolated colonies.

Log of semester unknown maintenance
(records dates, “✓” for maintenance done, and any notes, such as of contamination)

<table>
<thead>
<tr>
<th>Date</th>
<th>New slant</th>
<th>Streak plate</th>
<th>Gram stain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Notes:</td>
<td></td>
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<tr>
<td>Notes:</td>
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</tr>
</tbody>
</table>

Properties of Unknown

Indicate/explain where any of your results are contradictory or inconsistent with your expectations

Media lab
- NH₃ as sole N source   + / –
- NO₃ as sole N source   + / –
- Mannitol as sole C source   + / –
- Galactose as sole C source   + / –
- Oxygen requirements   ________________________
- MacConkey agar   growth + / – ; lactose ferm + / –

Metabolism lab
- Oxidase   + / –
- Starch hydrolysis   + / –
- IMVIC
  - Indole production   + / –
  - Butanediol fermentation   + / –
  - Mixed acid fermentation   + / –
  - Citrate metabolism   + / –

Kligler Iron
Lactose fermentation + / – / † (acid & gas)
Glucose fermentation + / – / †
H₂S production + / –

**Purple broth**
Lactose fermentation + / – / † (acid & gas)
Glucose fermentation + / – / †
Sucrose fermentation + / – / †

**Indigenous Bacteria lab**
Catalase + / –
Coagulase + / –
Esculin metabolism + / –
Hemolysis ______________ type or –

**Control lab**
Temperature requirements ________________________
Antibiotic sensitivities ________________________

**End of semester characterization:**
1. Gram reaction of unknown: _______________
2. Shape and arrangement: _______________
3. Colony description (requires a good streak plate)
   shape: _______________
   surface: _______________
   margin: _______________
   elevation: _______________
   pigmentation: _______________
4. Is your unknown different than what you originally isolated? _______ (yes / no)
5. Does your streak plate show contamination? _______ (yes / no)
6. Does your Gram stain show contamination? _______ (yes / no)
7. If your answer to 4, 5 or 6 is ‘yes’, explain: