Bacterial Transformation with pBLU Plasmid

Label each plate with a “C” for control and “pBLU” for the experimental treatment. Make predictions about what your plates will look like.

**TABLE 1: PREDICTIONS**

<table>
<thead>
<tr>
<th>LB</th>
<th>LB/amp/X-gal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Justify your predictions:

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Label each plate with a “C” for control and “pBLU” for the experimental treatment. Draw your results and write your observations. If there are too many colonies to count, record “TMTC”.

**TABLE 2: OBSERVATIONS**

<table>
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# of colonies =

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# of colonies =
Concept Questions

1. What is the purpose of the “C” or control tubes?
____________________________________________________________________________

2. What is a plasmid? ____________________________________________________________

3. What does beta-galactosidase normally break down? _____________________________________________________________________

4. What is beta-galactosidase breaking down in this lab? _____________________________________________________________________

5. What color is produced due to the action of beta-galactosidase? ___________________________________________________________________

6. If bacteria “express the ampicillin resistance gene”, what would that mean? __________________________________________________________________
____________________________________________________________________________

Analysis Questions

1. What is the evidence that cells are resistant (or not) to ampicillin? 
____________________________________________________________________________

2. What is the evidence that the cells are producing the pBLU protein? 
____________________________________________________________________________

3. Were the results as you predicted? _______ Explain. 
____________________________________________________________________________

4. Suppose the control bacteria grew on the LB/amp plate.
   a. Write a claim about what could have happened. 
   __________________________________________________________________________

   b. Suggest a possible experiment you could do to test your claim. 
   __________________________________________________________________________

5. What are three factors that might influence the success of this transformation.
   a. ____________________________________________ 
   b. ____________________________________________ 
   c. ____________________________________________ 

6. Why would it be good for a bacterium (and bad for us) to maintain a plasmid that carries resistance to an antibiotic? What if the antibiotic is not in that bacterium’s environment? 
____________________________________________________________________________
____________________________________________________________________________