

# CASEIN HYDROLYSIS

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The enzyme caseinase is secreted out of the cells (an [exoenzyme](#)) into the surrounding media, catalyzing the breakdown of milk protein, called casein, into small peptides and individual amino acids which are then taken up by the organism for energy use or as building material. The hydrolysis reaction causes the milk agar, normally the opacity of real milk, to clear around the growth area as the casein protein is converted into soluble and transparent end products—small chains of amino acids, dipeptides, and polypeptides.

## OBJECTIVES:

Identify the reactions associated with growth on skim milk agar.

## MATERIALS NEEDED:

1 skim milk agar plate per table

## THE PROCEDURE:

1. Run this test using your unknown bacterium.
2. Inoculate the organism on the plate either a straight line or a zig-zag.
3. Incubate at 25 or 37 degrees C.
4. Record the results of your bacterial unknown in your journal.

## INTERPRETATION:

Hold the plate up to the light to see the zones. Positive reactions may be recorded as strong + or weak + reactions.

There is no reagent or indicator in the agar. A zone of **clearing** around the growth area identifies the presence of the enzyme caseinase.



weak reaction

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**QUESTIONS:**

1. What is the difference in a weak + and a strong + reaction on the agar plate?
  2. The substrate for this enzyme is \_\_\_\_\_.
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