Urease Testing

- The urease reaction is used to identify the rapid urease producers *Proteus* and *Morganella species*, as well as slower urease producers *Klebsiella* and some species of *Enterobacter*.

The Urease Reaction

- Principle: Urease is an enzyme that splits urea into alkaline end products of ammonia, carbon dioxide, and water. The ammonia reacts in solution to form ammonium carbonate resulting in a lower pH of the broth. This causes the indicator to change from a buff color to pink-red (fuchsia).

The Urease Reaction

- Purpose: identification of *Proteus, Morganella, Klebsiella*, and some species of *Enterobacter*.

The Urease Reaction

- Procedure:
  - Place one single isolated colony into the urea broth with an inoculating loop. The colony should be 18 to 24 hours old.
  - Replace the cap loosely on the broth or use parafilm over the opening.
  - Incubate at 35C for 18 to 24 hours.
  - Tubes may be placed in the refrigerator after incubation until they can be interpreted by the student.
  - Record observations:
  - Positive: Pink-red color broth
  - Negative: Buff color broth

Quality control

- Positive: *Proteus vulgaris*
- Negative: *Escherichia coli*