## Uric Acid

Uric acid is a product of the metabolic breakdown of **purine bases** with the formula C5H4N4O3. It forms ions and salts known as **urates** and acid urates.

In the liver, purines are metabolized into hypoxanthine, then to **xanthine**, and finally converted into uric acid by the enzyme **xanthine oxidase**. Once formed, uric acid is transported to the kidney and it is a normal component of urine.

## Urea

**Amino acids** can be oxidized by the body as an alternative source of energy. Conversion of amino acids into metabolic waste in the liver produces **ammonia** (NH3). If allowed to accumulate, it would raise the pH in cells to toxic levels. Therefore, many organisms convert ammonia to urea, even though this synthesis has a net energy cost. Urea, is an organic compound with chemical formula CO(NH2)2. Being practically neutral and highly soluble in water, urea is a safe vehicle for the body to transport and excrete excess nitrogen..
Urea also plays a role in the exchange system of the nephrons. Urea is reabsorbed in the **inner medullary collecting ducts**, thus raising the osmolarity in the **medullary interstitium**, which makes the thin descending limb of the loop of Henle reabsorb water.

The **blood urea nitrogen** (**BUN**) is a measure of the amount of nitrogen in the blood that comes from urea. It is used as a marker of renal function, though it is inferior to other markers such as creatinine because blood urea levels are influenced by other factors such as diet, dehydration, and liver function.

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