

# Legal's exam

Legal's test is used to detect ketone bodies in the urine.

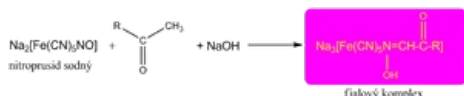
Ketones in urine:

- acetone
- acetic acid
- 3-hydroxybutyric acid

**⚠ 3-Hydroxybutyric acid (β-hydroxybutyric acid, hydroxybutyrate), which is often classified as a ketone body, is not actually a ketone body and therefore cannot be demonstrated by the Legal reaction.**

## The principle of the test

The principle is the reaction of ketone bodies (acetic acid and acetone) with sodium nitroprusside in a strongly alkaline environment of sodium hydroxide. The result is a purple colored product.



Detection of ketone bodies in the urine

This principle has a number of modifications, mainly when securing an alkaline environment, and all work procedures use it, both in the form of diagnostic strips and in the form of a powder reagent.<sup>[1]</sup>

### False negativity:

3-hydroxybutyric acid is the most abundant in ketoacidosis, which means that even a negative result does not completely rule out ketoacidosis.

### False positivity:

Urine containing pigments or metabolites of levodopa (dihydroxyphenylalanine) may give false positive results.<sup>[2]</sup>

## Links

- ws: Legalova zkouška

## related articles

- Ketone bodies in the urine
- Urine ketone bodies/determination

## List of literature

1. ČERMÁKOVÁ, Marta a Irena ŠTĚPÁNOVÁ. Klinická biochemie. 1. vyd. Brno: IDVPZ, 2003, 120 s. ISBN 80-7013-372-4
2. ŠTERN, Petr. Obecná a klinická biochemie: pro bakalářské obory studia. 2., upr. vyd. Praha: Univerzita Karlova, 2011, 269 s. ISBN 978-80-246-1979-8