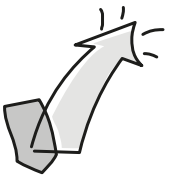
IDK® Vitamin C

Colorimetric microtiter plate assay for the determination of vitamin C in human samples

- Determination without HPLC
- Automation possible
- Suitable for Li-heparin plasma, serum and urine

Distribuito in ITALIA da
Li StarFish S.r.l.
Via Cavour, 35
20063 Cernusco S/N (MI)
telefono 02-92150794
fax 02-92157285
info@listarfish.it
www.listarfish.it



IDK® Vitamin C

Colorimetric microtiter plate assay for the determination of vitamin C (ascorbic acid) in serum, plasma, and urine

Vitamin C (ascorbic acid), being a **part of the antioxidative defense system**, is found in both the cytosol and extracellular spaces. Depending on the concentration and the availability of transitional metals, it has both antioxidative and prooxidative features. The antioxidative effect dominates, especially in extracellular space. Since it acts through formation of semi-dehydro-ascorbate and dehydro-ascorbate respectively, as an electron donor transferring hydrogen to acceptor substances by reversibility, ascorbic acid has strong reducing effects.

Vitamin C makes a contribution to the antioxidative defense system in two different ways. On the one hand, it reacts with the reactive oxygen species (ROS), especially peroxide radicals. On the other hand, ascorbic acid regenerates α-tocopherol(vitamin E). Vitamin C also has a pro-oxidative effect in combination with transition metals. It catalyses the reduction of Fe^{3+} to Fe^{2+}. The created bivalent iron ions react faster with H_2O_2. Therefore, the formation of $OH^{\cdot}$-radicals is supported through the Haber-Weiss-Reaction.

Due to the very small concentration of free transition metals in biological tissues, the antioxidative features are predominant. **As a result of increased oxidative stress, the level of vitamin C is reduced in various syndromes**, e.g. the level of vitamin C in blood from **HIV positive patients** is significantly lower. The content in blood plasma falls from 75.7 µmol/L to 40.7 µmol/L. **Smoking** causes a high consumption of vitamin C in the blood plasma. Protein thiols are oxidised and after the Vitamin C pool has been depleted, lipid peroxidation begins.

In serum and plasma vitamin C is found as ascorbic acid as well as the oxidized form: dehydroascorbate. Both forms are biologically active. **In our vitamin C assay an oxidation is induced prior to the determination of the analyte so that both forms are measured.**

Indications

- Determination of vitamin C status
- Monitoring infusion therapy
- Monitoring of oral vitamin C substitution (checking the individual capacity of gastrointestinal vitamin C resorption)

A dose response curve of the absorbance unit (optical density, OD at 492 nm) vs. concentration is generated, using the values obtained from standard. The concentration of the patient sample is determined using the value obtained from calibrator and the blank value.

Please note: Samples should be kept cool and light-protected. Samples can be measured within 24 hours after blood withdrawal.

***IDK*® Vitamin C**	
Matrix	Li-heparin plasma, serum, urine
Sample volume	200 µL
Test principle	colorimetric
Cat. No.	K 4000

Reference value of vitamin C
(Li-Heparin-Plasma):
4–15 mg/L

CE

US: all products: Research Use Only. Not for use in diagnostic procedures.

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