

# Genova VITAMIN K (serum)

*Vitamin K is a fat-soluble vitamin that functions as a cofactor in the production of blood coagulation factors (in the liver), osteocalcin (in bone), and matrix Gla-proteins (in cartilage and vessel walls), each resulting in the deposition of ionic calcium.*

*Monitoring vitamin K can help reduce risk of osteoporotic bone fractures, cardiovascular disease, and possibly some cancers by identifying individuals who may have a vitamin K deficiency. Since current dietary recommendations of vitamin K are based on saturation of the coagulation system, those recommendations may be insufficient to maintain vascular and bone health, since individual functions are independent of each other.*

## Direct vs. functional measurement of vitamin K

The Genova Diagnostics Vitamin K Assay measures a functional marker, undercarboxylated osteocalcin (ucOC). Very little vitamin K is stored in the body so direct measurement is not ideal.

Osteocalcin (OC) is almost exclusively a product of mature, active osteoblasts and is a vitamin K-dependent, Ca<sup>2+</sup> binding protein. A vitamin K deficiency is indicated by an ucOC increase in circulating blood and urine. Therefore, high ucOC indicates low vitamin K status.

## Vitamin K status is especially important in individuals:

- With cardiovascular disease or those with a family history of arteriosclerosis
- At high risk of bone loss, such as pre- and post- menopausal women or those with a family history of osteoporosis
- On certain drug therapies, particularly blood thinners, such as warfarin or aspirin
- On restricted diets
- On long-term antibiotic therapies

### SYMPTOMS & CONDITIONS RELATED TO VITAMIN K DEFICIENCY

Bruising	Epistaxis
Fractures	Gastrointestinal bleeding
Menorrhagia	Haematuria
Nosebleeds	Anaemia
Osteopaenia and Osteoporosis	Calcification of soft tissue, esp. heart valves
Cardiovascular disease	Malabsorption syndromes

## Increasing vitamin K

There are two natural forms of vitamin K, which differ based on their phytyl group - phylloquinone (vitamin K1) synthesised from plants, and menaquinone (vitamin K2) from bacteria in the large intestines.

- Vitamin K1 is highest in green leafy vegetables such as kale, broccoli, collard greens and lettuce.
- Vitamin K2 is found in fermented foods such as cheese, meats and dairy products.

## Genova VITAMIN K ASSAY (blood) [4043]

- Undercarboxylated Osteocalcin (ucOC)

## Other fat soluble vitamin tests available

- **Genova Fat Soluble Vitamins Profile (blood) [4042]:** 25OH Vitamin D,  $\beta$ -Carotene,  $\gamma$ -Tocopherol, Retinol,  $\alpha$ -Tocopherol, Coenzyme Q10, undercarboxylated Osteocalcin (Vit K)
- **Genova ION Profile (blood & urine) [4046]:** Organic Acids profile, Amino Acids profile, 8OHdG, Fatty acid profile, Homocysteine, CoQ10, Vitamin A,  $\beta$ -carotene, 25OH Vit D3 & Vit D2,  $\alpha$ -tocopherol,  $\gamma$ -tocopherol, Mg, K, Zn, Cu, Se, Ca, Al, As, Cd, Pb, Hg
- **Genova CardiolON Profile (blood & urine) [4047]:** Organic Acids profile, Amino Acids profile, 8OHdG, Fatty acid profile, Homocysteine, CoQ10, Vitamin A,  $\beta$ -carotene, 25OH Vit D3 & Vit D2,  $\alpha$ -tocopherol,  $\gamma$ -tocopherol, Mg, K, Zn, Cu, Se, Ca, Al, As, Cd, Pb, Hg; Cholesterol, Triglycerides, HDL, LDL, ratios, Ferritin, Fibrinogen, hsCRP, Insulin, Testosterone, SHBG, FAI
- **Genova NutrEval Profile (blood & urine) [4049]:** Organic Acids profile, Amino acids profile, 8OHdG, Fatty acid profile; Vitamin A, Vitamin C, Vit E, ALA, CoQ10, GSH, B1, B2, B3, B5, B6, B7, B9, B12; Mg, K, Zn, Cu, Se, Mn; Sb, Sn, As, Cd, Pb, Hg
- **Antioxidant Factors (blood) [5005]:** Coenzyme Q10, Ascorbic acid, Retinol,  $\beta$ -Carotene,  $\alpha$ -Carotene, Lutein, Zeaxanthine, Lycopene, Cryptoxanthine,  $\alpha$ -Tocopherol,  $\gamma$ -Tocopherol

## How to order a test kit:

To order a test kit simply request the test name or test code on a NutriPATH request form and have the patient phone **NutriPATH Customer Service** on **1300 688 522**.

