

# Urinary 11-dehydrothromboxane B<sub>2</sub> Test

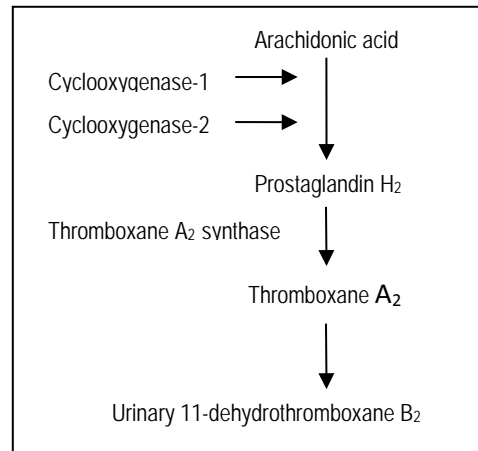
## Literature Support

### Thromboxane A<sub>2</sub> pathway – Chronic diseases

The thromboxane A<sub>2</sub> pathway through its end product thromboxane A<sub>2</sub> is implicated in the development and progression of many chronic diseases.

There is clear clinical and/or experimental evidence platelet thromboxane A<sub>2</sub> release is greatly enhanced in a number of chronic diseases. Frequently in these diseases, the balance between thromboxane A<sub>2</sub> and prostacyclin is significantly altered, resulting in excessive vasoconstriction and disorders of hemostasis.

Levels of urinary 11-dehydrothromboxane B<sub>2</sub> reflect activity of components of the thromboxane A<sub>2</sub> pathway resulting in thromboxane A<sub>2</sub> generation.



Peer reviewed publications citing the thromboxane A<sub>2</sub> pathway and urinary 11-dehydrothromboxane B<sub>2</sub> (11-DHTXB<sub>2</sub>)

Date • Journal • Report Type • Human/Animal • Subject # • 11-DHTXB<sub>2</sub> Test cited

#### Alzheimers

1. [Determinants of platelet activation in Alzheimer's disease.](#)

2005 • Elsevier • Clinical Review • Human • 11-DHTXB<sub>2</sub>

*"Urinary 11-dehydroTXB<sub>2</sub> and 8-iso-PGF<sub>2α</sub> were significantly higher in Alzheimer patients than in controls"*

*"No difference was found in CRP, TNF-α and IL-6 levels between the two groups."*

*"Platelet activation is persistently enhanced in Alzheimer's disease."*

#### Asthma

1. [Correlation between the clinical effects of seratrodist and the level of 11-dehydrothromboxane B<sub>2</sub> in urine/sputum in bronchial asthma patients.](#)

2001 • Chi • Clinical Study • Human • 4 Patients • 11-DHTXB<sub>2</sub>

*"These results suggested that **bronchial asthma** patients with high urinary 11-DHTXB<sub>2</sub> levels could markedly respond to **Seratrodast** treatment."*

2. [11-dehydro-thromboxane b<sub>2</sub>, a stable thromboxane metabolite, is a full agonist of chemoattractant receptor-homologous molecule expressed on TH2 cells \(CRTH2\) in human eosinophils and basophils.](#)

2003 • J Bio Chem • Clinical Research • Human • 11-DHTXB2

*"In addition to TXA<sub>2</sub>, which is capable of causing bronchoconstriction, lasma extravasation, and chemokine expression, its stable metabolite 11-dehydro-TXB<sub>2</sub> might also be directly involved in the recruitment of eosinophils, basophils and presumably TH2 lymphocytes to sites of inflammation."*

## Atherosclerosis

1. [Relation between atherosclerosis risk factors and aspirin resistance in a primary prevention population.](#)

2006 • Am J Cardiol • Clinical Review • Human • 11-DHTXB2

*"Aspirin resistance by platelet function analyzer-100 was associated only with increased von Willebrand factor levels and not with atherosclerotic risk profile."*

2. [Prostanoid and TP-receptors in atherothrombosis: Is there a role for their antagonism?](#)

2010 • Thromb Hemost • Clinical Review • Human

*"Dysfunctional endothelium, characterized by increased COX-activity, releases prostanoids that promote endothelial exposure to adhesion molecules and induce smooth muscle cell contraction."*

3. [Mechanisms of atherothrombosis in chronic obstructive pulmonary disease.](#)

2008 • Int J Chron Obstruct Pulmon Dis • Clinical Review

*"CPR upregulates the production of pro-inflammatory cytokines and tissue factor by monocytes, increases the uptake of low-density lipoproteins (LDL by macrophages with foam cells formation and directly induces expression of adhesion molecules by human endothelial cells."*

4. [Inflammation and platelet activation in peripheral arterial occlusive disease.](#)

2007 • Int J Angiol • Clinical Research • Human • 11-DHXTB2

*"A positive correlation between 11-DHTXB2 and CRP was found in the study population."*

## Chronic Obstructive Pulmonary Disease

1. [Enhanced thromboxane biosynthesis in patients with chronic obstructive pulmonary disease](#)

1997 • Am J Resp Crit Care Med • Clinical Research • Human • 11-DHTXB2

"The urinary excretion of 11-dehydro-TxB2 was significantly higher in patients with COPD than in control subjects. Moreover, 11-dehydro-TxB2 excretion was inversely related with arterial oxygen tension."

2. [\[Changes of thromboxane A2 \(TXA2\) and prostacyclin \(PGI2\) in COPD patients with pulmonary hypertension\].](#)

1991 • Chin J Integr Med • Clinical Research • Humans • 30 Patients/10 Subjects

*"The results showed that the level of TXA2 increased significantly in COPD patients with dominant and latent pulmonary hypertension when compared with that in normal subjects."*

## Diabetes

1. [Acute, short-term hyperglycemia enhances shear stress-induced platelet activation in patients with type II diabetes mellitus.](#)

2003 • Am J Cardiol • Clinical Research • Human • 12 Patients • 11-DHXTB2

*"Compared with non-diabetics, patients with Type II diabetes mellitus (T2Dm) have a two- to four-fold increased risk of ischemic cardiovascular disease, a risk largely independent of concomitant hypertension, hypercholesterolemia, and smoking."*

3. [Thromboxane biosynthesis and platelet function in type II diabetes mellitus.](#)

1990 • N Engl J Med • Clinical Research • Human • 50 Subjects • 11-DHXTB2

*"Tight metabolic control achieved with insulin therapy reduced the levels of 11-dehydro-thromboxane B<sub>2</sub> by approximately 50 percent."*

*"Aspirin in low doses (50 mg per day for seven days) reduced urinary excretion of the metabolite by approximately 80 percent in four patients."*

4. [The effect of aspirin dosing on platelet function in diabetic and nondiabetic patients.](#)

2007 • ADA • Clinical Research • Human • 120 Subjects • 11-DHXTB2

*"Diabetic patients with CAD treated with 81 mg aspirin exhibit a higher prevalence of aspirin resistance and have significantly higher ADP- and collagen-induced platelet aggregation, 11-DHXTB2 levels, and aspirin reaction units measured by Verify Now than nondiabetic patients."*

5. [Thromboxane-dependent CD40 ligand release in type II diabetes mellitus.](#)

2006 • Am J Cardiol • Clinical Research • Human • 114 Subjects • 11-DHXTB2

*"This study provides several lines of evidence for the dependence of sCD40L release on TXA<sub>2</sub>-dependent platelet activation in T2DM and provides novel mechanistic insight into the amplification loops of persistent platelet activation in this setting."*

6. [Urinary 11-dehydro thromboxane B<sub>2</sub> levels in type 2 diabetic patients before and during aspirin intake.](#)

2011 • CCA • Clinical Research • Human • 81 Subjects • 11-DHTXB2

*"Most patients enrolled in the present study also presented a reduced or minimal response to low-dose aspirin therapy, thereby indicating a clear variability related to aspirin effectiveness."*

7. [Platelet thromboxane \(11-dehydro-thromboxane B<sub>2</sub>\) and aspirin response in patients with diabetes and coronary artery disease.](#)

2014 • World J Diabetes • Clinical Review • Human • 11-DHTXB2

*"Patients with DM and CAD have significantly higher mean baseline levels of urinary 11-DHTXB2 than healthy controls likely indicating a higher platelet activation and risk for CVD."*

## Erectile Dysfunction

1. [The change of urinary 11-dehydro-thromboxane B<sub>2</sub> and 2,3-dinor-6-keto-prostaglandin F<sub>1</sub> alpha in arteriogenic impotence.](#)

1992 • NCBI • Clinical Research • Human • 60 Subjects • 11-DHTXB2

*"Our findings suggest that urinary 11-dehydro-thromboxane B<sub>2</sub> may have an important role in the diagnosis and treatment of arteriogenic impotence."*

## HIV

1. [Sex differences in urinary biomarkers of vascular and endothelial function in HIV-infected persons receiving antiretroviral therapy.](#)

2012 • IMP • Clinical Research • Human • 107 Subjects • 11-DHTXB2

*"There were sex-specific differences in urinary eicosanoids, with females having more risk-associated parameters despite a low Framingham score."*

## Hypertension

1. [An imbalance between the excretion of thromboxane and prostacyclin metabolites in pulmonary hypertension.](#)

1992 • N Engl J Med • Clinical Research • Human • 20 Subjects • 11-DHTXB2

*"An increase in the release of the vasoconstrictor thromboxane A<sub>2</sub>, suggesting the activation of platelets, occurs in both the primary and secondary forms of pulmonary hypertension."*

## Obesity

1. [Platelet activation in obese women, role of inflammation and oxidant stress.](#)

2002 • JAMA • Clinical Research • Human • 93 Subjects • 11-DHTXB2

*"Android obesity is associated with enhanced lipid peroxidation and persistent platelet activation."*

## Peripheral Arterial Disease

1. [Inflammation and platelet activation in peripheral arterial occlusive disease.](#)

2007 • Int J Angiol • Clinical Research • 26 Subjects • 11-DHTXB2

*"Platelet activation, assessed by measuring urinary excretion of 11-DHTXB2, is related to the presence and severity of PAOD and to inflammation."*

2. [Diabetes mellitus, hypercholesterolemia, and hypertension but not vascular disease per se are associated with persistent platelet activation in vivo. Evidence derived from the study of peripheral arterial disease.](#)

1997 • NCBI • Clinical Research • Human • 64 Subjects • 11-DHTXB2

"Urinary 11-dehydro-TXB2 was significantly (P = .0001) higher in patients with peripheral arterial disease than in control subjects."

*"The rate of TXA2 biosynthesis appears to reflect the influence of coexisting disorders such as diabetes mellitus, hypercholesterolemia, and hypertension of platelet biochemistry and function."*

## Stroke

1. [Urinary 11-dehydro-thromboxane B<sub>2</sub> and coagulation activation markers measured within 24 h of human acute ischemic stroke.](#)

2001 • Elsevier • Clinical Research • Human • 25 Subjects • 11-DHXTB2

*"Marker levels in patients with ischemic stroke were compared with those in 19 age-matched controls who had not taken aspirin for at least 2 weeks before sampling and 25 healthy controls."*

## [Thromboxane A<sub>2</sub> pathway schematics](#)