

AspirinWorks®

CPT Code 84431/82570 Order Code C922
Sample Type Urine Tube Type Yellow Top and
Cherry Red/Yellow Top



platelet function

Increased thromboxane production may lead to increased risk for:

- Heart attack
- Stroke

Causes for aspirin ineffectiveness:

- Insufficient dose
- Poor compliance
- Use of ibuprofen/NSAIDs
- Elevated cholesterol
- Pre-diabetes/diabetes

Description

AspirinWorks® is an enzyme-linked immunoassay (ELISA) to determine levels of 11-dehydrothromboxane B₂ (11-dhTXB₂) in urine which aids in the quantitative detection of aspirin effect in apparently healthy individuals post-ingestion.

Clinical Use

The AspirinWorks® test may be used to assess clotting risk in individuals on aspirin therapy.

Clinical Significance

- The effectiveness of aspirin therapy varies from individual to individual. Aspirin-insensitive individuals are twice as likely to have a cardiovascular event¹.
- High levels of 11-dhTXB₂ are associated with increased risk of heart attack and cardiac death in aspirin-treated patients¹.
- Hyperlipidemia and diabetes are associated with a diminished response to aspirin²⁻⁴.
- 11-dhTXB₂ levels demonstrate a dose-related effect of aspirin treatment and have been shown to correlate with a Framingham Risk Score^{5,6}.

Testing Frequency

The frequency of testing is determined by an individual's medical history, but may be performed regularly if the patient is on aspirin therapy to monitor efficacy. The AspirinWorks® test may be performed at the same time as other tests related to thrombosis, such as CYP2C19 genotyping.

Sample Type

The AspirinWorks® test should be performed on a urine sample collected in a yellow top tube (without preservative) and a cherry yellow top tube.

Commercial Insurance or Medicare Coverage

Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination), have not been established or posted by CMS (Medicare & Medicaid). We have reviewed the larger Carriers (Aetna, United HealthCare, Cigna, Blues) and information has not been posted or is limited. Medical necessity and specificity of diagnosis should be provided when ordering this test.

Understanding Medical Necessity

The following ICD-10 codes for AspirinWorks® are listed as a convenience for the ordering physician. The ordering physician should report the diagnosis code that best describes the reason for performing the test.

Diagnosis	Diagnosis Code
Type 2 Diabetes Mellitus with Hyperglycemia	E11.65
Type 2 Diabetes Mellitus without Complications	E11.9
Other Specified Diabetes Mellitus without Complications	E13.9
Pure Hypercholesterolemia, Unspecified	E78.00
Familial Hypercholesterolemia	E78.01
Pure Hyperglyceridemia	E78.1
Mixed Hyperlipidemia	E78.2
Other Hyperlipidemia	E78.4
Hyperlipidemia, Unspecified	E78.5
Essential (primary) Hypertension	I10
Atherosclerotic Heart Disease of Native Coronary Artery without Angina Pectoris	I25.10
Long Term (current) Use of Hormonal Contraceptives	Z79.3



REFERENCE RANGE

Status of Aspirin Effect

11-dhTXB₂
(pg/mg creatinine)

≤1500 Low

>1500 High

Treatment Considerations

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

- ✓ **If not at goal, confirm that aspirin was ingested and/or patient compliance.**
- ✓ **Assess concomitant ibuprofen or NSAID use, LDL-C levels, and risk for pre-diabetes/diabetes.**
 - These can reduce the effectiveness of aspirin therapy.
- ✓ **If not at goal, and all of the aforementioned have been addressed, consider adjusting aspirin dosage and retest in 2-3 weeks.**
 - If not at goal following retest, consider clopidogrel therapy as the patient may be non-responsive to aspirin therapy.

References

1. Eikelboom JW et al. Aspirin-resistant thromboxane biosynthesis and the risk of myocardial infarction, stroke, or cardiovascular death in patients at high risk for cardiovascular events. *Circulation*. 2002; 105: 1650-1655.
2. Friend M et al. Platelet responsiveness to aspirin in patients with hyperlipidaemia. *BMJ*. 2003; 326: 82-83.
3. Markuszewski L et al. Reduced blood platelet sensitivity to aspirin in coronary artery disease: Are dyslipidaemia and inflammatory states possible factors predisposing to sub-optimal platelet response to aspirin? *Basic & Clin Pharmacol Toxicol*. 2006; 98: 503-509.
4. Gurbel P et al. Evaluation of dose-related effects of aspirin on platelet function: Results from the Aspirin-Induced Platelet Effect (ASPECT) Study. *Circulation*. 2007; 115: 3156-3164.
5. DiChiara J et al. The effect of aspirin dosing on platelet function in diabetic and non-diabetic patients: An analysis from the Aspirin-Induced Platelet Effect Study (ASPECT) Study. *Diabetes*. 2007; 56: 3014-3019.
6. Faraday N et al. Relation between atherosclerosis risk factors and aspirin resistance in primary prevention population. *Am J Cardiol*. 2006; 98: 774-779.

