# Test Definition: A1AF

Alpha-1-Antitrypsin, Random, Feces

## Overview

### Useful For

Diagnosing protein-losing enteropathies, especially when used in conjunction with serum alpha-1-antitrypsin (AAT) levels as a part of AAT clearance studies

### Method Name

Nephelometry

### NY State Available

Yes

## Specimen

### Specimen Type

Fecal

### Ordering Guidance

The preferred test for diagnosing protein-losing enteropathies is A1AFS / Alpha-1-Antitrypsin Clearance, Feces and Serum.

### Specimen Required

**Supplies:**

-Stool container, Small (Random), 4 oz (T288)

-Stool Collection Kit, Random (T635)

**Container/Tube:** Stool container

**Specimen Volume:** 5 g

**Collection Instructions:** Collect a random fecal specimen.

### Specimen Minimum Volume

Homogenized stool: 1 mL

### Reject Due To

| | |
|---|---|
| Collected in any preservative or fixative | Reject |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Fecal | Frozen (preferred) | 14 days | |
| | Ambient | 14 days | |
| | Refrigerated | 14 days | |

## Clinical & Interpretive

### Clinical Information

Alpha-1-antitrypsin (AAT) is a 54-kDa glycoprotein that is resistant to degradation by digestive enzymes and is, therefore, used as an endogenous marker for the presence of blood proteins in the intestinal tract. AAT clearance is reliable for measuring protein loss distal to the pylorus. A serum sample is required to interpret results as a serum deficiency of AAT would make the AAT fecal excretion lower and could invalidate the test utility.

Gastrointestinal protein enteropathy has been associated with regional enteritis, sprue, Whipple intestinal lipodystrophy, gastric carcinoma, allergic gastroenteropathy, intestinal lymphangiectasia, constrictive pericarditis, congenital hypogammaglobulinemia, and iron deficiency anemia associated with intolerance to cow's milk. Increased fecal excretion of AAT can be found in small and large intestine disease and is applicable to adults and children.

### Reference Values

< or =54 mg/dL

### Interpretation

Patients with protein-losing enteropathies generally have alpha-1-antitrypsin fecal concentrations over 100 mg/dL.

Borderline elevations above the normal range are equivocal for protein-losing enteropathies.

### Cautions

The clearance studies using 24-hour fecal specimens and serum determinations are preferred as it normalizes the large range of serum alpha-1-antitrypsin (AAT) concentrations and the variability in random fecal AAT concentrations. In the absence of either a 24-hour fecal collection or a contemporary serum specimen, the fecal concentration of AAT can be used as a surrogate marker.

When gastric loss of AAT is suspected (eg, Menetrier disease), AAT clearance is not a reliable indicator of protein loss as AAT is sensitive to pH less than 3 and is rapidly destroyed. When gastric protein loss is suspected and the AAT clearance is normal, the recommendation is to repeat testing after starting an acid suppressive medication regime.

Urine contamination from patients with kidney failure and increased total protein may adversely affect fecal AAT concentration. Suggest catheterizing patient prior to collection if clinically indicated.

### Clinical Reference

1. Florent C, L'Hirondel C, Desmazures C, Aymes C, Bernier JJ. Intestinal clearance of alpha 1-antitrypsin. A sensitive method for the detection of protein losing enteropathy. Gastroenterology. 1981;81(4):777-780
2. Crossley JR, Elliott RB. Simple method for diagnosing protein-losing enteropathies. Br Med J. 1977;1(6058):428-429
3. Perrault J, Markowitz H. Protein-losing gastroenteropathy and the intestinal clearance of serum alpha-1-antitrypsin. Mayo Clin Proc. 1984;59(4):278-279

4. Levitt DG, Levitt MD: Protein losing enteropathy: comprehensive review of the mechanistic association with clinical and subclinical disease states. Clin Exp Gastroenterol. 2017;10:147-168
5. Murray FR, Morell B, Biedermann L, Schreiner P. Protein-losing enteropathy as precursor of inflammatory bowel disease: A review of the literature. BMJ Case Rep. 2021;14(1):e238802

## Performance

### Method Description
Immunonephelometry quantitates the alpha-1-antitrypsin (AAT) contained in a fecal specimen. In the absence of a timed fecal collection, an AAT fecal concentration will be reported.(Instruction manual: Siemens Nephelometer II Operations. Siemens, Inc; Version 2.4, 07/2019)

### PDF Report
No

### Day(s) Performed
Monday through Friday

### Report Available
1 to 3 days

### Specimen Retention Time
14 days; supernatant aliquot only, the feces are discarded after processing

### Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

## Fees & Codes

### Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

### Test Classification
This test has been modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

### CPT Code Information
82103

### LOINC® Information

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| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| A1AF | Alpha-1-Antitrypsin, Random, F | 9407-8 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| AAT_F | Alpha-1-Antitrypsin, Random, F | 9407-8 |