

## Overview

### Useful For

Determining whether a poor therapeutic response is attributable to noncompliance or lack of drug effectiveness

Monitoring changes in serum concentrations resulting from interactions with coadministered drugs such as barbiturates and phenytoin

### Method Name

Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

### NY State Available

Yes

## Specimen

### Specimen Type

Serum

### Specimen Required

#### Container/Tube:

**Preferred:** Red top

**Acceptable:** Serum gel

**Submission Container/Tube:** Plastic vial

**Specimen Volume:** 1 mL

#### Collection Instructions:

1. Draw blood immediately before next scheduled dose.
2. Centrifuge and aliquot serum into plastic vial within 2 hours of collection.

### Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:

-[Neurology Specialty Testing Client Test Request](#) (T732)

-[Therapeutics Test Request](#) (T831)

### Specimen Minimum Volume

0.5 mL

### Reject Due To

Gross hemolysis	OK
Gross lipemia	OK

Gross icterus	OK
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### Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Ambient	28 days	
	Frozen	28 days	

### Clinical & Interpretive

#### Clinical Information

Felbamate is an anticonvulsant drug approved for treatment of partial seizures with or without secondary generalization in persons 14 years of age and older. It is also approved for Lennox-Gastout syndrome in children 2 years of age and older. Felbamate is well absorbed (>90%) and is metabolized by the hepatic cytochrome P450 system. Metabolites lack anticonvulsant activity. The elimination half-life of felbamate ranges from 13 to 23 hours.

Optimal response to felbamate is seen with serum concentrations between 30 mcg/mL to 80 mcg/mL. Patients who are older adults or have kidney dysfunction may require reduced dosing; felbamate should not be given to individuals with hepatic disease. Toxicity can be severe, including life-threatening aplastic anemia or liver failure; toxic concentration has been established at concentrations greater than 100 mcg/mL.

Coadministration of felbamate increases the concentration of phenytoin and valproic acid, decreases carbamazepine concentration, and increases carbamazepine-10,11-epoxide (its active metabolite). Conversely, coadministration of phenytoin or carbamazepine causes a decrease in felbamate concentration.

#### Reference Values

30.0-80.0 mcg/mL

#### Interpretation

Optimal response to felbamate is associated with serum concentrations of 30 mcg/mL to 80 mcg/mL.

Toxic serum concentrations for felbamate have been established at concentrations greater than 100 mcg/mL.

#### Cautions

No significant cautionary statements

#### Clinical Reference

- Johannessen SI, Tomson T: Pharmacokinetic variability of newer antiepileptic drugs: when is monitoring needed? Clin Pharmacokinet. 2006;45(11):1061-1075
- Schmidt D: Felbamate: successful development of a new compound for the treatment of epilepsy. Epilepsia. 1996;34(Suppl 7):S30-S33
- Patsalos PN: Antiepileptic drugs-best practice guidelines for therapeutic drug monitoring: a position paper by the subcommission on therapeutic drug monitoring, ILAE Commission on Therapeutic Strategies. Epilepsia. 2008

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4. Rifai N, Horwath AR, Wittwer CT, eds: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018

5. Hiemke C, Bergemann N, Clement HW, et al: Consensus guidelines for therapeutic drug monitoring in neuropsychopharmacology: Update 2017. Pharmacopsychiatry. 2018 Jan;51(1-02):9-62

## Performance

### Method Description

Samples are diluted and extracted online by high turbulence liquid chromatography with detection by tandem mass spectrometry.(Unpublished Mayo method)

### PDF Report

No

### Day(s) Performed

Monday, Wednesday, Friday

### Report Available

Same day/1 to 3 days

### Specimen Retention Time

14 days

### Performing Laboratory Location

Rochester

## 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 was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

### CPT Code Information

80167

### LOINC® Information

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Test ID	Test Order Name	Order LOINC® Value
FELBA	Felbamate (Felbatol), S	6899-9

Result ID	Test Result Name	Result LOINC® Value
80782	Felbamate (Felbatol), S	6899-9