

## 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

**Supplies:** Sarstedt Aliquot Tube 5 mL (T914)

**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. Within 2 hours of collection, centrifuge the specimen.
3. For red-top tubes, immediately aliquot serum into a plastic vial.
4. For serum-gel tubes, aliquot serum into a plastic vial within 24 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

**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 and older. It is also approved for Lennox-Gastout syndrome in children 2 years 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 16 to 22 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.

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1996;34(Suppl 7):S30-S33

3. 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;49(7):1239-1276

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;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

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80167

**LOINC® Information**

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