

# TEST UPDATE

## Apixaban Testing

### UVMMMC

Effective 1/21/25, the Thrombosis and Hemostasis Laboratory at UVMMMC will offer a quantitative apixaban level to measure levels of oral apixaban (Eliquis®) anticoagulation in plasma.

While apixaban therapy does not require routine therapeutic monitoring, an apixaban measurement may be needed in select clinical situations including (and not limited to):

- Assessment of compliance
- Periprocedural measurement of drug concentration
- Renal insufficiency
- Suspected overdose
- Advanced age
- Extremes of body weight

#### Specimen Collection

Please note, the whole blood specimen is stable for 2 hours. Whole blood specimen is drawn in a sodium citrate (blue top) tube filled to indicator line, free of clots, maintained at room temperature until processed; platelet poor plasma must be generated within 2 hours of specimen collection. Spin plasma in a swing bucket centrifuge to produce platelet poor plasma. Plasma samples are stable up to 24 hours at 15-25°C and up to 7 days at 2-8°C. Freeze plasma (<-20°C) for longer storage with a maximum of 2 freeze thaw cycles. The collect time must be accurate to ensure the specimen is suitable for testing. As the assay detects any source of anti-Xa activity, proper specimen collection (e.g., flushing heparinized lines) is critical.

#### Test Build Information:

New Orderable	Epic Code	Atlas Code	Mayo Test ID	Order LOINC	CPT Code(s)
Apixaban	LAB17717	LAB17717	FAH6202	74214-8	80299
Result Component(s):	Epic Code	Atlas Code	Mayo Test ID	Result LOINC	Notes
Apixaban	12301020433	12301020433	FAH6203	74214-8	
Specimen Requirements:					
Container	Specimen	Temperature	Collect Vol	Submit Vol	Stability
Blue Top	PLT-poor plasma	*Ambient	fill to line	1 mL	*
Collection Information:					
Specimen should be collected 2 to 4 hours (peak) after dose or just prior (trough) to the next dose for apixaban concentrations.					
*Keep at room temp until processed. Freeze plasma within 4 hours of collection if not tested immediately.					
Platelet poor plasma must be generated within 2 hours of specimen collection					

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#### Limitations

This chromogenic anti-Xa assay calibrated with an apixaban standard can accurately determine apixaban concentration in plasma; however, the APIX Test is not specific for apixaban and will detect any anti-Xa anticoagulant medications, including unfractionated heparin, low molecular weight heparin, fondaparinux, rivaroxaban, and edoxaban. In patients transitioning between apixaban and heparin medications, the APIX Test is **unable** to provide specific anticoagulant drug levels.

As a result of Factor Xa inhibition, apixaban may prolong clotting tests such as the prothrombin time (PT)/ INR and the activated partial thromboplastin time (aPTT). Changes observed in these clotting tests are subject to a high degree of variability and **not** useful in monitoring the anticoagulation effect of apixaban.

#### On-Therapy Apixaban Concentrations

Therapeutic ranges have not been established, yet peak and trough drug concentrations observed from clinical trials are as follows:

#### **Predicted Apixaban Steady-State Exposure Concentrations**

<b>Dosage</b>	<b>Apixaban C-min (ng/mL) trough plasma concentration (10 – 12 hours post-dose)</b>	<b>Apixaban C-max (ng/mL) peak plasma concentration (2 – 4) hours post-dose)</b>
<b>Prevention of stroke and systemic embolism: Non-Valvular A-Fib</b>		
2.5 mg twice daily	79 (34-162)	123 (69-221)
5 mg twice daily	103 (41-230)	171 (91-321)
<b>Treatment of DVT, treatment of PE and prevention of recurrent DVT and PE (VTE)</b>		
2.5 mg twice daily	32 (11-90)	67 (30-153)
5 mg twice daily	63 (22-177)	132 (59-302)
10 mg twice daily	120 (41-335)	251 (111-572)

**NOTE:** Apixaban concentration may be affected by

1. Drug interactions (e.g., P-gp and/or CYP3A4 inhibitor medication);
2. Liver or renal disease

Reportable range for this APIX Test is <20 ng/mL to >1000 ng/mL.

If you have any questions, please contact any of the following:

- Kristin E. Lundy, MHA, CLS, Coagulation Technical Specialist
- Dr. Andy Goodwin, Coagulation Medical Director
- Dr. Marian Rollins-Raval, Division Chief for Hematopathology and Coagulation

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#### Reference

1. Eliquis (apixaban). Package insert. Bristol-Meyers Squibb Company; Revised 04/2021.
2. Agnelli G, Buller HR, Cohen A, et al. Oral apixaban for the treatment of acute venous thromboembolism. *N Engl J Med*. 2013 Aug 29; 369(9):799-808.
3. Avezum A, Lopes RD, Schulte PJ, et al. Apixaban in comparison with warfarin in patients with atrial fibrillation and valvular heart disease: Findings from the Apixaban for reduction in stroke and other thromboembolic events in atrial fibrillation (ARISTOLE) trial. 2015 Aug 25; 132(8):624-632. *Circulation*. 2015 Aug 25; 132(8):624-632.
4. HemosIL Liquid Anti-Xa -0020303600 package insert revision 05/2024