

TEST UPDATE

Apixaban Testing

UVMMC

Effective 1/21/25, the Thrombosis and Hemostasis Laboratory at UVMMC 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

Dosage	Apixaban C-min (ng/mL) trough plasma concentration (10 – 12 hours post-dose)	Apixaban C-max (ng/mL) peak plasma concentration (2 – 4) hours post-dose)
Prevention of stroke and systemic embolism: Non-Valvular A-Fib		
2.5 mg twice daily	79 (34-162)	123 (69-221)
5 mg twice daily	103 (41-230)	171 (91-321)
Treatment of DVT, treatment of PE and prevention of recurrent DVT and PE (VTE)		
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