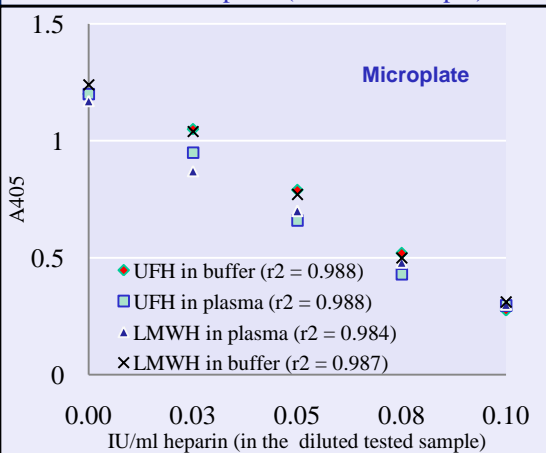
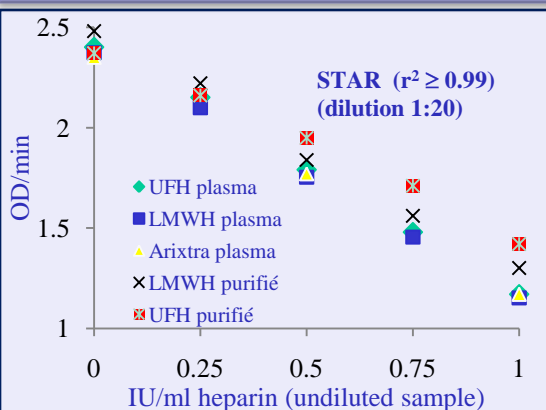


## Intended use and applications

☑ **RUO:** Determination of heparin anti-Xa activity in human citrated plasma or purified solutions, using a 2 stages chromogenic method, manual or automated, in compliance with USP/FDA guidelines and adjustable for EP.

Heparin + AT → [AT Hep.]  
 [AT Hep.] + [FXa (excess)] → [FXa-AT-Hep.] + [residual FXa]  
 [FXa (residual)] + Substrate → Peptide + pNA

## Calibration curve (STAR and microplate)



## Related products

1. Biophen Heparin (#A221003/A221006)
2. Biophen Heparin anti-IIa (2 stages) (#A221025)
3. Biophen Heparin anti-IIa (kinetics) (#A221020)
4. Biophen Heparin Calibrators and controls for UFH or LMWH

## Characteristics and advantages

- **User friendly protocol in compliance with USP recommendations; and adjustable for use with the EP protocol.**
- **Simple and rapid:** lyophilised and ready to use reagents; total assay time < 3 min.
- Easy to use on major **coagulation analyzers, microplate or with basic equipment** (~100 (STAR) to 250 (microplate) tests / kit).
- **Associated plasma calibrators and controls** validated against the International Standard for UFH and LMWH (NIBSC).
- Dynamic range ~ **0.005 – 0.1 IU/ml** in the tested dilution (**ie 0 to 1 IU/ml in plasmas using the 1:10 dilution**); flexible working dilution for different assay ranges
- Detection threshold: ~ **0.005 IU/ml** in the tested dilution
- Highly **specific, sensitive, reproducible** (Intra or Inter assay CV 3-6 % or SD 0.015-0.04)
- **Highly stable** ( 2 weeks at 2-8 C , 7 days at RT(18-25 C), or frozen).
- **Safe, optimized, standardized:** highly purified human or bovine factors, checked for viral safety.
- **No significant interference of hirudin** < 2 µg/ml added to plasma.

## Summary of Comparison with USP guidelines (proposed IRA for Heparin anti-Xa activity assay)

	~ Kit A221010	~ USP
<b>R1: Human Antithrombin</b>	~ 1 IU/ml in R4 buffer	1 IU/ml in buffer
<b>R2: Bovine FXa</b>	~ 8 µg/ml (about 18 nkat/ml) in R4 buffer	~3 nkat/ml in buffer indicative, to be adjusted depending on manufacturer and OD
<b>R3: FXa substrate</b>	CS11-65 (Z-D-Arg-Gly-Arg-PNA) at 0.8mg/ml (~1.2 mM.)	1 mM. FXa specific substrate
<b>R4: Buffer</b>	Tris 0.05M, NaCl 0.175M, EDTA 0.0075M, PEG 0.1%, pH8.40	Tris 0.05M, NaCl 0.175M, EDTA 0.0075M, PEG 0.1% , pH8.40
<b>Dynamic range</b>	~0.005 to 0.100 IU/ml (or 0.02 to 0.5 IU/ml, then diluted in the test)	0.03 to 0.375 USP U/ml (ie 0.006 to 0.075 USP U/ml after dilution in the test)
<b>Protocol (microplate)</b>	<p><b>Microplate</b></p> 40µl* specimen (***) 40µl* R1 2 min at 37°C 40µl* R2 2 min 37°C 40µl* R3 2 min 37°C 80µl** citric acid 2% (or kinetics) (or <b>variant 2:</b> 50µl* and 100µl** if preferred)	<p><b>Test tube</b></p> 200µl specimen 200µl R1 2 min at 37°C 200µl R2 2 min at 37°C 200µl R3 2 min at 37°C 400µl citric acid (or kinetics) 150µl acetic acid 20%
<b>Results</b>	Lin-lin curve Calculate IU/ml. (Deduce IU/mg).	Log(A405)- lin (conc) curve Regression best fit and slope calculation; anti-Xa/anti-IIa ratio, Calculate USP U/mg

**Note:** For Biophen kit, the volumes have been harmonized in order to render the assay easier to practice and more reproducible, especially when automated, but concentrations in the final reactive mixture comply with USP recommendations. (\*\*\*) alternatively, the specimen can be used more concentrated (range 0.02 to 0.5 IU/ml) by pipetting a five fold lower volume (as per USP protocol) and completing with R4 buffer (ie 10µl specimen and 40µl buffer for variant 2). Incubation times (especially after R2 addition) are critical and must be strictly adhered to, for optimal performance of the assay.