



## Catalogue



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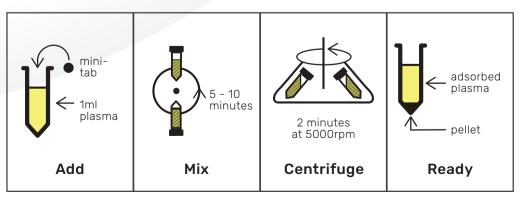
#### Neutralizing Agents DOAC-Stop<sup>™</sup> 3 HRRS 4 Lupus Anticoagulant (LA) Testing Reagents Intrinsin LS & LR - APTT Reagents 5 dRVTLS&LR 6 SACT-II 7 DOAC Measurement and Testing **DOAC-Test** 8 **Inhibitor Tubes** 9 Phospholipids Synthetic Procoagulant Phospholipids (I) & (II) 10 Special Orders Collagen, Solcoll, Alumina Gel Adsorbent, Ellagic Acid 11 References 12-13



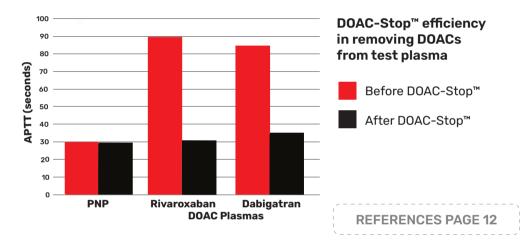
## DOAC-Stop™

The original DOAC eliminator

- Eliminates all DOAC types from test plasma
- Has no effect on Heparin, Lupus anticoagulants (LA), Warfarin, or Clotting factors
- Storage at room temperature
- Shelf life of 3 years



**DOAC-Stop™** is first of its kind to extract all types of new Direct Oral Anti-Coagulants (DOACs) including dabigatran, edoxaban, betrixaban, rivaroxaban, apixaban and argatroban from test plasmas with minimal effect on plasma proteins involved in the clotting mechanism. It absorbs up to an estimated 2,000ng/ml of any DOAC in less than 10 minutes. There is negligible interference with vitamin K antagonists or heparinoid anticoagulants. Plasmas treated with DOAC-Stop™ can be used for valid factor assays and in testing for thrombotic risk. In particular it can prevent false LA positive results due to DOACs or other agents in testing for LA.



REF	SIZE	STATUS
HX9904-50	50 mini-tabs	CE Marked
HX9904-100	100 mini-tabs	CE Marked
X9904-50(AE)	50 mini-tabs	IVD (ARTG Listed)
X9904-100(AE)	100 mini-tabs	IVD (ARTG Listed)
X9904-50	50 mini-tabs	RUO
X9904-100	100 mini-tabs	RUO

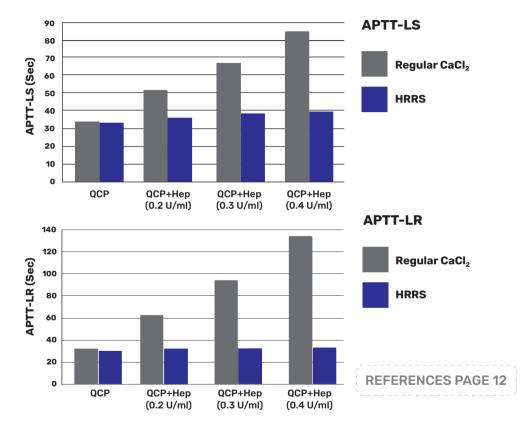


## HRRS

HRRS is a heparin neutralising agent used in the recalcifying step of the APTT, surface activated clotting tests (ie: SACT-II, KCT) and other tests.

- Simple, easier and faster solution used to identify and neutralize heparin
- Traditional method of using thrombin time (Screen) and reptilase (Confirm) requires 2 additional tests
- HRRS replaces traditional methods and provides a baseline APTT free of heparin effect
- Ready to use (no reconstitution required)
- Stability: 5 years at 2-8°C

**HRRS** (Heparin Resistant Recalcifying Solution) can be substituted for the usual M/40 calcium chloride solution in APTT and KCT tests to virtually eliminate the effect of unfractionated heparin concentrations up to 1 u/ml in normal plasma. Heparins are widely used in hospitals as anticoagulants. Unfractionated heparin is usually monitored using APTT and thrombin time tests. Often plasma samples are not identified as containing heparin and it may be present as an unexpected contaminant. Thus the reason for prolonged APTT or KCT tests may not be apparent and laboratory diagnosis may not be simple. Laboratories may find it useful to have a simple method for confirming the presence of heparin before going on to other investigations as may be required.



REF	SIZE	STATUS
HX9107-CE	5×10 ml	CE Marked
X9107-AE	12x5 ml	IVD- ARTG Listed
Х9107-НХ	5×10 ml	RUO



## Intrinsin LS & LR

APTT Reagents

A highly sensitive silicate-based Lupus Anticoagulant (LA) sensitive (Intrinsin-LS or "screen") and resistant (Intrinsin-LR or "confirm") reagent pair.

The activated partial thromboplastin (APTT) test can be used to detect factor deficiencies, monitor anticoagulants such as heparin and anti-thrombin agents, to assess resistance to activated protein C and detect antibodies against clotting factors in mixing tests. It can also be used to detect lupus inhibitors which interfere with the low, rate-limiting level of phospholipid in the Intrinsin-LS reagent. Intrinsin-LR contains excess phospholipid and is therefore more resistant to these agents.

#### Intrinsin-LS / screen

- Super sensitive to LA
- Heparin insensitive (if used with HRRS)
- Colloidal silicate as contact activator
- Ready to use (no reconstitution needed)
- Stability: 2 years at 2-8°C

#### Intrinsin-LR / confirm

- Resistant to LA
- Highly sensitive to heparin
- Reliable factor assay results
- Colloidal silicate as contact activator
- Ready to use (no reconstitution needed)
- Stability: 2 years at 2-8°C

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#### **TEST DETAILS:**

Abnormality	Intrin	sin-LS	Intrinsin-LR		
	neat 1:1 mix		neat	1:1 mix	
Nil (normal)	Ν	N	N	N	
Factor deficiency	Abn	N	Abn	N	
LA	Abn	Abn	N	N	
LA + defect	Abn	Abn	Abn	N	
Heparin	Ν	N	Abn	Abn	

PRODUCT	REF	SIZE	STATUS		
Intrinsin-LS	X9801	5x10ml	RUO		
Intrinsin-LR	X9811	5x10ml	RUO		

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## dRVT LS & LR

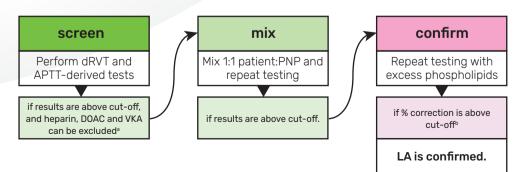
Liquid stable dRVT reagents are mainly for Lupus anticoagulant (LA) testing

The **dRVT** (dilute Russells viper venom clotting test) using a low phospholipid concentration is a common screening test for LA but is also affected by other defects in the "common" pathway. The LA resistant (dRVT-LR) reagent contains a higher phospholipid concentration which makes it insensitive to LA, but it remains sensitive to the other defects. The Haematex dRVT-LS/LR shows fewer false positive results on samples from warfarin patients or those containing DOACs.

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#### LA Testing Guidelines:



#### dRVT-LS / screen

- Specific to LA testing
- Low sensitivity to other coagulation defect
- Improved liquid stable reagent
- Ready to use, no reconstitution required
- Stability: 2 years at 2-8°C

#### dRVT-LR / confirm

- Improved liquid stable reagent
- Ready to use, no reconstitution required
- Stability: 2 years at 2-8°C

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#### **Test Details:**

Abnormality	dRV	T-LS	dRVT-LR		
	neat 1:1 mix		neat	1:1 mix	
Nil (normal)	Ν	N	N	N	
Factor deficiency	Abn	N	Abn	N	
LA	Abn	Abn	N	N	
LA + defect	Abn	Abn	Abn	Ν	

PRODUCT	REF	SIZE	STATUS		
dRVT-LS	X9701-10	10ml	RUO		
dRVT-LR	X9702-10	10ml	RUO		



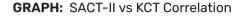
## SACT-II

A simple, inexpensive screening method for the detection of circulating Lupus anticoagulants (LA)

- Clearer reagent, clotting can be tested in any photoelectric clotting devices
- KCT and SACT-II results on various LA plasmas is extremely good with a correlation of 0.99
- Stability: 2 years at 2-8°C

Surface Activated Clotting Time-II (SACT-II) reagent is a clear, stable, phospholipid-free suspension of an aluminosilicate mineral which activates contact factors similarly to kaolin or silica. The SACT-II reagent can thus be used as a substitute for kaolin suspension in kaolin clotting time (KCT) or silica clotting time tests as a screening

test for LA, running in regular APTT mode on automated clotting instruments. Abnormal results need to be followed up mixing tests with normal plasma, use of HRRS (if heparin is suspected) and factor assays.



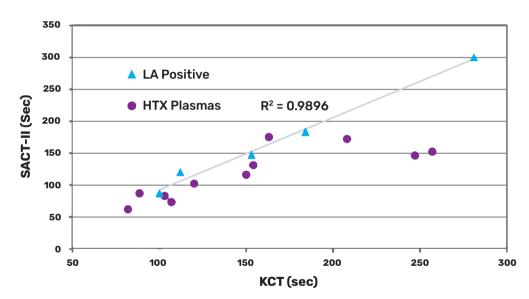


Figure shows the correlation between SACT-II and KCT results on LA (A) and other plasmas (
)

PRODUCT	REF	SIZE	STATUS
SACT-II	X9601	5×10 ml	RUO

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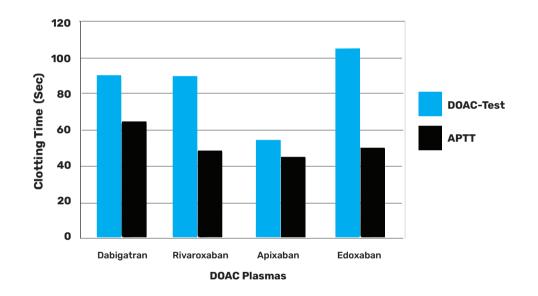


## **DOAC-Test**

DOAC measurement test with high sensitivity

- High sensitivity for all new DOACs (including dabigatran, apixaban, rivaroxaban and edoxaban)
- Resistant to heparin / low factor VIII levels
- Ready to use (no reconstitution required)
- Stabiliity: 2 years at 2-8°C

**DOAC-Test** reagent is a modified phospholipid-rich Russells viper venom reagent with enhanced sensitivity to DOACs. DOAC-Test is resistant to most lupus inhibitors and heparins (up to 1u/ml) but is sensitive to warfarin and defects in the common coagulation pathway. New or direct oral anticoagulants (DOACs) include inhibitors of thrombin (eg. dabigatran) and factor Xa (eg. rivaroxaban, apixaban and edoxaban). The latter group are difficult to quantitate using current clotting methods and expensive chromogenic assays for the individual agents are in use. The lupus anticoagulant-resistant dilute Russells viper venom test (dRVT-LR or "Confirm") has been suggested as a possible test method for all the DOACs since it is very sensitive to both classes of these inhibitors in vitro and ex vivo (2) and is not affected by extraneous variables such as heparins, or low factor VIII, IX or XI levels than other clotting tests.



[	PRODUCT	REF	SIZE	STATUS	
	DOAC-Test	X9211	10ml	RUO	

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## **Inhibitor Tubes**

Simplify your laboratory or research needs, our Inhibitor Tubes can be used to prepare positive controls for clotting and chromogenic assays.

- Enables addition of DOACs at 500ng, or heparin at 0.2IU to individual plasma or blood samples
- Convenient for validating DOAC-Stop™, QC or experimentation
- Rapidly dissolving material
- Stability: 2 years at 2-8°C

**Inhibitor Tubes** provide a pre-determined quantity of a coagulation inhibitor such as dabigatran or rivaroxaban for delivery to a blood, plasma or urine sample in a tube. They allow laboratories to prepare inhibitor samples at any concentration in any biological fluid by using variable volume for use in research, teaching, or other purposes. DOACs and other anticoagulants are usually provided in freeze dried normal plasmas for reconstitution and use as calibrators or in quality control. Inhibitor Tubes provide an alternative way for laboratories to access such agents for multiple uses.

PRODUCT	REF	COLOUR	VALUE	SIZE
Dabi-like Tubes	X9222-D	BLUE	500ng	12 tubes
Edoxa-like Tubes	Х9222-Е	YELLOW	500ng	12 tubes
Betrixa-like Tubes	Х9222-В	PINK	500ng	12 tubes
Riva-like Tubes	X9222-R	LIGHT GREEN	500ng	12 tubes
Apixa-like Tubes	X9222-A	DARK GREEN	500ng	12 tubes
Heparin Tubes	Х9222-Н	RED	0.2IU	12 tubes
Sample (2x each)	X9222-S	MULTI	500ng & 0.2IU	12 tubes

**REFERENCES PAGE 13** 



## **Phospholipids**

Synthetic phospholipids are the best fit for your research needs in anticoagulants research or thrombin generation testing.

**Synthetic phospholipids** have greater procoagulant activity than phospholipids extracted from natural biological sources and give more predictable results. They are useful in Non Activated Clotting Time (NAPTT) tests for activated clotting factors and procoagulants. Also for specifically bypassing the effect of lupus anticoagulants (LA) in phospholipid correction tests and as platelet lipid substitutes in APTT and dRVVT reagents.

#### SYNTHETIC PROCOAGULANT PHOSPHOLIPID (I)

- Proportion of dioleyl phosphatidyl serine: dioleyl phosphatidyl choline (DOPS: DOPC) = 3:7.
- Much higher activity and better reproducibility than brain phospholipids.

#### SYNTHETIC PROCOAGULANT PHOSPHOLIPID (II)

- DOPE: DOPS: DOPC= 5:3:2.
- Optimal phospholipid blend for coagulation.

PRODUCT	REF	SIZE	STATUS
Synthetic procoagulant phospholipid (I)	X9113	25mg	RUO
Synthetic procoagulant phospholipid (II)	X9115	25mg	RUO

**REFERENCES PAGE 13** 

## Collagen

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Made to order for use in investigating platelet functions.

**Collagen** is a classical activator of blood platelets and is widely used to investigate platelet function. These tests are carried out with diluted dispersions of collagen either on platelet rich plasma (PRP) using light transmission aggregometry (LTA) or on whole blood using electrical impedence measurement.

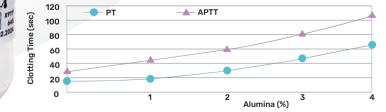
PRODUCT	REF	SIZE	STATUS
Collagen A (2 mg/ml)	X9316.A	1x5ml vial	RUO
Diluent	X9316.B	3x10ml vial	RUO



## Alumina Gel Adsorbent

For preparation of factor deficient plasmas.

C gamma alumina gel is known to specifically bind vitamin K-dependent clotting factors from citrated plasma specimens. These factors include factors II, VII, IC, X, protein C, protein S and protein Z. Such factor-depleted plasmas may be frozen away in small volumes and used a convenient and reproducible abnormal quality control reference.



**GRAPH:** Effect of alumina concentration used for adsorbing citrated normal plasma on typical prothrombin time (PT) and activated partial thromboplastin time (APTT).

PRODUCT	REF	SIZE	STATUS
Alumina Gel Adsorbent	X9111	50ml	RUO



COLLAGE

### Solcoll

For platelet function testing and applications where a collagen dispersion is needed.

Slightly turbid, non-settling liquid. **Solcoll** is a solubilised full length equine collagen type I/III for use in platelet aggregation testing, platelet adhesion and collagen binding studies. It comes as a relatively stable 200ug/ml suspension in 0.02 M tris/HEPES glucose buffer at pH 7.0.

PRODUCT	REF	SIZE	STATUS
Solcoll Solution	X9315	10ml	RUO

## **Ellagic Acid Powder**

For activating intrinsic blood clotting factors in APTT + other clotting tests. And for use in powdered APTT reagents, POC devices.



Yellowish powder containing 10% ellagic acid-zinc complex and stabilizers. Gradually dispersible in water or 0.02M HEPES buffer at 10% or lower concentrations to form a contact activator solution.

#### TABLE: Ellagic acid efficacy:

Powder % in Water	Final Ellagic acid concentration			3' APTT (sec)	
0.1%	0.010% (100ug/ml)			35.8	
0.05%	0.005% (50ug/ml)			32.5	
0.025%	0.0025% (25ug/ml)		30.5		
0.0125%	0.00125% (12.5ug/ml)		28.9		
0% (blank diluent)	0		90.5		
DRODUCT					
PRODUCT	REF	SIZE	S	STATUS	
Ellagic Acid Powder	X9552	1gm	RI	RUO	

#### **DOAC-Stop**<sup>™</sup>

1. Exner T, et al. The effect of DOACs on laboratory tests and their removal by activated carbon to limit interference in functional assays. International Journal Laboratory Hematology 2020;00:1–8.

2. Favaloro E, et al. Neutralising rivaroxaban induced interference in laboratory testing for lupus anticoagulant (LA): A comparative study using DOAC Stop and andexanet alfa. Thrombosis Research 180 (2019) 10–19

3. Slavic L, et al. Evaluation of the DOAC-Stop Procedure by LC-MS/MS Assays for Determining the Residual Activity of Dabigatran, Rivaroxaban, and Apixaban. Clinical and Applied Thrombosis/Hemostasis. 2019; Volume 25: 1-6

4. Zabczyk M, et al. The effect of DOAC-Stop on lupus anticoagulant testing in plasma samples of venous thromboembolism patients receiving direct oral anticoagulants. De Gruyter Clin Chem Lab Med 2019;

5. Exner T, et al. Effect of an activated charcoal product (DOAC Stop<sup>™</sup>) intended for extracting DOACs on various other APTT-prolonging agents. Clin Chem Lab Med. 2019; 57: 690-696.

6. Exner T, et al. Clotting test results correlate better with DOAC concentrations when expressed as a "Correction Ratio"; results before/after extraction with the DOAC Stop reagent. Thromb Res 2019; 179: 69-72

7. Platton S, Hunt C. Influence of DOAC Stop on coagulation assays in samples from patients on rivaroxaban or apixaban". Int J Lab Haematol. 2018; 1-7.

8. Exner T, et al. Simple method for removing DOACs from plasma samples Thromb. Res. 2018; 163: 117-122.

#### HRRS

1. Favalaro E J, et. al. Lupus anticoagulant testing during anticoagulation, including direct oral anticoagulants. Res. Pract. Thromb. Haemost. 2022; 1-16

#### **Intrinsin APTT Reagents**

1. Proctor RR, Rapaport SI. The partial thromboplastin time with kaolin. A simple screening test for first stage plasma clotting factor deficiencies. Am J Clin Pathol.1961; 35; 212.

 CLSI. One-stage prothrombin time (PT) test and activated partial thromboplastin time (APTT) test; Approved guideline - Second edition. CLSI document H47-A2.
 Wayne, PA, USA: Clinical and Laboratory Standards Institute; 2008.
 Brancaccio V, Ames PR, Glynn J, et al. A rapid screen for lupus anticoagulant with good discrimination from oral anticoagulants, congenital factor deficiency and heparin is provided by a comparing a sensitive and insensitive APTT reagent. Blood Coag. Fibrinolys.1997; 8; 155-60.

4. Jacobsen EM, Barna-Cler L, Taylor JM, et al. The lupus ratio test - an interlaboratory study on the detection of Lupus Anticoagulants by an APTT-based, integrated and semi-quantitative test. Thromb. Haemost. 2000; 83; 704-8.

5. Smyth MA, Koerber JM, Westley SJ et al. Use of the activated partial thromboplastin time for heparin monitoring. Am J Clin Pathol. 2001;115; 148-155.

6. Pengo V, Tripodi A, Reber G, et al. Update of the guidelines for lupus anticoagulant detection. Thromb Haemost. 2009;7;1737-40.

#### **dRVT** Reagents

1. Pengo V, Tripodi A, Reber G et al. Update of the guidelines for lupus anticoagulant detection. J. Thromb Haemost 2009; 7; 1737-40.

2. Thiagarajan P, Pengo V, Shapiro SS. The use of the dilute Russells viper venom time for the diagnosis of lupus anticoagulants. Blood 1986; 68; 869-874.

3. Exner T, Papadopoulos G, Koutts J. Use of a simplified dilute Russells viper venom time confirms heterogeneity among "lupus anticoagulants". Blood Coag. Fibrinolysis.1990; 1; 259-266.

4. Rauch J, Tannenbaum M, Janoff AS. Distinguishing lupus anticoagulants from anti-factor antibodies using hexagonal phase II phospholipids. Thromb Haemostas. 1989; 62; 892-896.

5. Thorpe RS, Pook CE, Malhotra A. Phylogeography of the Russell's viper (Daboia russelli) complex in relation to variations in the colour pattern and symptoms of envenomation. Herpet. J. 2007; 17; 209-218.

6. Testing for Lupus Anticoagulant. Approved guideline-1st edition. CLSI document H60. Clinical and Laboratory Standards Institute, 2014.

7. Moore GW, Savidge GF. The dilution effect of equal volume mixing studies compromises confirmation of inhibition by lupus anticoagulants even when mixture specific reference reagents are applied. Thromb Res. 2007;119; 369-376.

8. Favalaro E J, et. al. Lupus anticoagulant testing during anticoagulation, including direct oral anticoagulants. Res. Pract. Thromb. Haemost. 2022; 1-16

#### SACT-II

1. Exner T, Rickard KA, Kronenberg H. A sensitive test demonstrating lupus anticoagulant and its behavoural patterns. Brit J Haematol.1978;40;143-151.

2. Chantarangkul V, Tripodi A, Arbini KMA, Mannucci PM. Silica clotting time as a screening and confirmatory test for lupus anticoagulants. Thromb. Res. 1992; 67; 355-365.

3. Lesperance B, et al. Relative sensitivity of different tests in the detection of low titer lupus anticoagulants. Thromb Haemost. 1988; 60;217-9.

4. Galli M, Finazzi G, Bevers EM. Kaolin clotting time and dilute Russells viper venom time distinguish between prothrombin dependent and beta 2 glyco-protein I dependent antiphospholipid antibodies. Blood 1995; 86; 617-623.

5. Brandt JT, et al. Criteria for the diagnosis of lupus anticoagulants: An update. Thromb. Haemostas. 1995; 74;1185-1190.

6. Exner T, et. al. Effect of an activated charcoal product (DOAC STOPTM) intended for extracting DOAC on various other APTT-prolonging agents. Clin Chem Lab Med. 2019; 57; 690-696

7. Eby C. Antiphospholipid syndrome review. Clin. Lab Med. 2009; 29; 305-319.

8. Devreese K, Hoylaerts MF. Laboratory diagnosis of the antiphospholipid syndrome: a plethora of obstacles to overcome.

#### **DOAC-Test**

1. Ten Cate H. Monitoring new oral anticoagulants, managing thrombosis or both? Thromb. Haemost. 2012; 107; 803-805.

2. Exner T, Ellwood L, Rubie J, Barancewicz A,. Testing for new oral anticoagulants with LA resistant Russell's viper venom reagents. An in vitro study. Thromb. Haemost. 2013; 109; 762-5.

3. Altman R, Gonzalez CD. Simple and rapid assay for effect of the new oral anticoagulant (NOAC) rivaroxaban: preliminary results support further tests with all NOACs. Thromb. J. 2014; 12; 7.

4. Sennesael AL, Exner T, Chatelain B, et al, An optimized dRVVT-based assay to estimate the intensity of anticoagulation in patients treated with direct oral anticoagulants. Thromb Res. 2017; 157: 29-37.

5. Exner T, Michalopoulos N, Pearce J. et al. Simple method for removing DOACs from plasma samples. Throm.Res. 2018; 16:1028-39.

#### **Inhibitor Tubes**

1. Simple method for removing DOACs from plasma samples. Exner T, et al. Thrombosis Research. 2018; 16:1028-39.

2. Effect of an activated charcoal product (DOAC-Stop™) intended for extracting DOACs on various other APTT-prolonging agents. Exner T, et. al. Clin Chem Lab Med. 2019; 57: 690-696.

#### **Phospholipids**

1. Etscheid M, et. al. Identification of Kallikrein and FXIa as impurities in therapeutic immunoglobulins: implications for the safety and control of intravenous blood products. Vox Sang. 2012; 102 (1): 40-6

2. Exner T, et. al. Studies on phospholipids in the action of a lupus coagulation inhibitor. Pathology. 1975; 7 (4): 319-28

3. Zwaal R F, et. al. Lipid-protein interactions in blood coagulation. Biochim Biophys Acta. 1998;1376(3):433-53

#### Collagen

1. Koltai K, Kesmarky G, Feher G, et al. Platelet Aggregometry Testing: Molecular Mechanisms, Techniques and Clinical Implications. Int J Mol Sci. 2017; 18:1803-18.

2. Hayward CP, Moffat KA, Raby A et al. Development of North American consensus guidelines for medical laboratories that perform and interpret platelet function testing using light transmission aggregometry. Am. J. Clin. Pathol. 2010; 134: 955–963.

3. Harrison P, Mackie I, Mumford A et al. British Committee for Standards in Haematology. Guidelines for the laboratory investigation of heritable disorders of platelet function. Br. J. Haematol. 2011; 155: 30–44.

4. Tóth O, Calatzis A, Penz S, et al. Multiple electrode aggregometry: A new device to measure platelet aggregation in whole blood. Thromb. Haemost. 2006; 96: 781–788.

5. Christie DJ, Avari T, Carrington LR, et al. Platelet Function Testing by Aggregometry; Approved Guideline. Clinical and Laboratory Standards Institute; Wayne, PA, USA: 2008.

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