Methodist Health Services Corporation
& UnityPoint Health Methodist
Department of Pathology
Peoria, IL 61636

Effective: July 21, 2009
Revised: January 29, 2017

INHIBITOR SCREEN
1:1 Mixing Studies

I. Principle

The PT and APTT Correction Tests are used to differentiate a factor deficiency from an inhibitor. Deficiencies of coagulation factors may be the result of an inhibitor to the factor rather than the lack of synthesis. If a sample is deficient in a particular factor(s), the addition of normal plasma will correct the deficiency in the test system. However, if the deficiency is a result of an inhibitor, the normal plasma will not correct the deficiency. Depending on the type of inhibitor present, it may or may not immediately correct with the addition of normal plasma. But with time and incubation, the inhibitor will eventually take over the factor and prolong the test results.

II. Clinical Significance

To assist the physician in determining between a factor deficiency or an inhibitor. Treatment varies with the diagnosis.

III. Specimen

Mix nine parts of freshly collected blood with one part of 0.11 mol/L (3.2%) sodium citrate. Invert the tube gently three or four times immediately after venipuncture to ensure proper mixing of blood and anticoagulant. A syringe or evacuated tubes may be used with caution for collection. If an evacuated tube system is used, the coagulation sample should be the second or third tube collected. Even minimal contamination with tissue thromboplastin may produce errors. Agitation of the blood sample, air bubbles, and foaming may influence the results.

If blood is drawn from an indwelling catheter, the line should be flushed with saline and the first 5 mL of blood discarded. The citrate concentration must be adjusted in patients who have hematocrit values above 55% (greater than 3/4 of tube is red cell pack). Specimens that are clotted, collected in any tube other than sodium citrate, have visible hemolysis, have less than 90% expected fill of the collection tube, specimens improperly stored/transported, contaminated with IV fluid, or labeled incorrectly should be rejected.

IV. Specimen Handling Conditions

The whole blood specimen is checked for clot formation by gently inversion. Centrifuge the blood specimen for 4 minutes at 4000 rpms as soon as possible after collection. Prothrombin Times can be stored at room temperature and tested up to 24 hours after collection. APTT specimens can be tested up to 4 hours after collection if stored at room temperature and up to 2 weeks if stored at < or equal to -20°C. If immediate testing is to be done, the plasma may remain on the packed cells. To separate plasma from cells, use a plastic transfer pipette to transfer the plasma to a plastic tube; keep refrigerated until ready to test. If testing is not complete within 4 hours, the plasma must be frozen. Frozen plasma samples must be rapidly thawed at 37^0C

and tested immediately. If testing is delayed, the thawed sample may be held for up to 2 hours at 4^0C.

V. Instrumentation/Equipment/Reagents

Refer to Stago STA Compact Max procedure

A. Precision Biologic Pooled Normal Plasma consists of a pool of normal citrated human plasma from a minimum of 20 healthy individuals. The plasma can be used as an alternative to laboratory collected pools of normal patient plasma. This is stored in storeroom Ultracoldfreezer lower shelf. Place in 37 degree water bath for 5 minutes to thaw prior to use.
B. Neoplastin CI Plus
C. CaCl2 see front of analyzer for reconstitution instructions, if needed
D. PTT-Automate 5

VI. 1:1 Mix Procedure

A. Perform a PT and or an APTT on patient's sample to establish the baseline results.
B. In a plastic tube, add 0.7ml of patient's plasma with 0.7ml of Precision Biologic pooled normal plasma. Mix well. Run a PT and/or APTT on mixture.
C. Incubate the remaining patient/normal plasma mixture in a 37°C water bath for 2 hours.
D. Upon completion of incubation step, repeat PT and/or APTT

VII. Reporting Results

Record results in the LIS after ensuring controls are within limits.

VIII. Procedural Notes/Problem-Solving Tips

Order as follows:

PT 1:1mix---PTMIX
APTT 1:1Mix--- PTTMIX

IX. References

A. "Clinical Hematology & Fundamentals of Hemostasis", Harmening, 2nd Edition, F.A. Davis,1992
B. Sysmex CA – 1500 System Operator's Manual 2001
C. "Cryo Check" Pooled Normal Plasma (Precision Biologic Inc.). Package insert #09.60.00012 Rev. 2-16-2011

POLICY CREATION :		
Author: Barb Chapman		July 21, 2009
Medical Director:	Horea Baila, MD	July 21, 2009

Methodist Health Services Corporation
& UnityPoint Health Methodist
Department of Pathology
Peoria, IL 61636

Effective: July 21, 2009
Revised: January 29, 2017

MEDICAL DIRECTOR		
DATE	NAME	SIGNATURE
January 29, 2017	Elizabeth A. Bauer-Marsh	Elizabeth A. Bauer-Marsh MD
SECTION MEDICAL DIRECTOR		
July 5, 2014	Julia Adams, MD	Julia Adams, M.D.

REVISION HISTORY			
Rev	**Description of Change**	**Author**	**Effective Date**
1	Removed ordering from lab only and added Sunquest codes	Kim Paige	7/13/16
2	Changed instrument name and added reagents under Instrumentation/equipment and Reagent section	K. Paige	12/15/16

Lead	Date	Coordinator	Date	Manager	Date	Medical Director	Date
			4/20/10				3/30/10
			1/10/11				1/10/11
			4/24/12				4/17/12
		Kathy L. Turpin	9/12/14			Julia Adams, M.D.	9/16/14
Kim Paige	7/13/16	Kathy L. Turpin	7/13/16			Julia Adams, M.D.	8/25/16
Kim Paige	12/15/16		1/20/17	Kathy L. Turpin	1/17/17	Julia Adams, M.D.	1/20/17