

Frozen Specimens

Frozen specimens are essentially frozen serums, plasma, urine, CSF, stool, and others. Some tests are “time sensitive” and to preserve the contents of the specimen, the specimen is frozen and must remain frozen to maintain the integrity of the specimen. If for any reason the specimen thaws in the pre-analytical stage, the sample may become compromised, and the test not performed. What follows is a guide outlining the process for collecting and processing various frozen specimens, common supplies required, and a list of common tests requiring frozen samples.



Instructions for Processing Frozen Specimens

1. Gather all necessary supplies needed for transferring specimens, which include:
 - a. PPE
 - b. Transfer Pipette
 - c. Collection Tubes (parent tubes) from patient that have been prepared for testing (i.e. mixed, allowed to clot, centrifuged) and appropriate Transfer Tube(s) and caps for the frozen test(s) ordered.
2. Remove the cap from the parent tube.
3. Using the transfer pipette, take the serum/plasma from the specimen from the Parent Tube and deposit on the appropriate Transfer Tube.
4. Only use one pipette per patient, per specimen type.
5. Label the Transfer Tube with two patient identifiers and the source of specimen present (EDTA Plasma, Citrated Plasma, Serum, etc).
6. Place frozen specimens in a specimen bag, affix a “Keep Frozen” sticker to the outside of the bag, and put the specimen(s) in a freezer.
7. Place the Test Request Form in the outer pouch of the zip-lock bag with the specimen.
8. Prepare the specimen for courier pickup:
 - a. If a live in-office pickup, maintain the specimens in an appropriate designated freezer and direct the courier to this location upon arrival.
 - b. If using a lock box, place the frozen specimens in a Re-Usable Frozen Specimen Keeper (ensuring enclosed ice packs are frozen), and place the Specimen Keeper in your lockbox for courier pickup. The courier will remove the specimens from the kit and leave the kit for you to re-use.



Always use a transfer pipette to ensure the specimen is free of contaminants (red cells, gel, etc).

Specific Types of Frozen Specimens



Plasma from EDTA

Collect from Patient:		Processing:
	Lavender EDTA tube	Centrifuge and transfer plasma layer to a polypropylene screw-capped frozen transfer tube. Freeze immediately.
Submit to Lab:		Notes:
	Plasma from Lavender (EDTA)	Label: "Plasma from Lavender"



Plasma from EDTA with Trasylol®

Collect from Patient:		Processing:
	Chilled Lavender (EDTA) tube	Chill the tube prior to draw. After draw, add 0.25 ml Trasylol® to the lavender tube and mix well. Centrifuge and transfer the plasma to a LabCorp transpak frozen purple tube with screw cap. Freeze Immediately.
Submit to Lab:		Notes:
	Plasma from Lavender (EDTA) with Trasylol®	Label "Plasma from Lavender with Trasylol®"



Plasma from Sodium Citrate

Collect from Patient:		Processing:
	Plasma from Sodium Citrate Light Blue	Centrifuge and transfer plasma layer to a Plasma from Sodium Citrate Light Blue Tube. Freeze immediately.
Submit to Lab:		Notes:
	Plasma from Sodium Citrate Light Blue	Label: "Plasma from Sodium Citrate Light Blue"



Plasma from Heparin

Collect from Patient:		Processing:
	Green Heparin tube	Centrifuge and transfer plasma layer to a polypropylene screw-capped frozen transfer tube. Freeze immediately.
Submit to Lab:		Notes:
	Plasma from Green (Heparin)	Label: "Plasma from Green"



Plasma from Heparin (light protected)

Collect from Patient:		Processing:
	Green (Heparin) tube	Centrifuge and transfer plasma layer to an amber plastic transport tube with amber stopper. Freeze immediately.
Submit to Lab:		Notes:
	Plasma from Green (Heparin)	Label "Plasma from Green (Heparin)" If amber tubes are unavailable: Cover standard purple frozen transport tube completely, top and bottom, with aluminum foil. Identify specimen with patient's name directly on the container and the outside of the aluminum foil. Secure with tape.

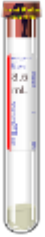

Whole Blood

Collect from Patient:		Processing:
	Lavender (EDTA) tube	Transfer the entire whole blood specimen to a polypropylene screw-capped frozen transport tube. Freeze immediately.
Submit to Lab:		Notes:
	Whole Blood	Label "Whole Blood from Lavender"



Whole Blood (light protected)

Collect from Patient:		Processing:
	Lavender (EDTA) tube	Transfer the entire whole blood specimen to an amber plastic transport tube with amber stopper. Freeze immediately.
Submit to Lab:		Notes:
	Whole Blood	Label "Whole Blood from Lavender". If amber tubes are unavailable: Cover standard purple frozen transport tube completely, top and bottom, with aluminum foil. Identify specimen with patient's name directly on the container and the outside of the aluminum foil. Secure with tape.


Serum

Collect from Patient:		Processing:
	Serum Gel Tube	Centrifuge and transfer serum to a polypropylene screw-capped frozen transport tube. Freeze immediately.
Submit to Lab:		Notes:
	Serum	Label "Serum"

Urine

Collect from Patient:		Processing:
	Urine Collection Container	Transfer the urine specimen to a yellow screw-top urine container. Freeze immediately.
Submit to Lab:		Notes:
	Urine Bottle	Label with patient information.

Frozen Specimen Supplies

Name	Unit of Measure	Part Number	
4mL EDTA (Lavender) Tube	Pack of 100	40006-PK	
8.5mL SST Tube	Pack of 100	39996-PK	
2.7mL Sodium Citrate (Light Blue) Tube	Each	39961	
4mL Lithium Heparin (Green) Tube	Each	39925	
Purple Frozen Tube w/ Screw Cap	Each	49482	
Amber Screw-Top Light Protected Transfer Tube	Each	23612	
Urine Paper Cups w/Lid	Pack of 50	90492	
Sterile Specimen Cup w/ Screw Top	Back of 100	2648-PK	
Pipette	100 per Pack	22178-R	
Trasylol® Kit	Each	33328	
Futhan Kit	Each	78946	
Frozen Specimen Transport Kit	Each	117967	
Label – Keep Frozen	25 per Roll	3890-R	
Centrifuge	Each	4734	

Common Tests Requiring Frozen Specimens

Test No.	Test Name	Specimen Type	Specimen Volume
004440	ACTH	EDTA Plasma Froz.	0.8mL/ 0.3mL
117762	ACTIVATED PROTEIN C RESISTANCE	Sodium Citrate Plasma	1 mL / 0.5 mL
070228	ACYLCARNITINE	Green(Heparinized Plasma)	0.5 mL/ 0.1mL
117913	ADAMTS13 ACTIVITY	Sodium Citrate Plasma	0.5 mL/ 0.3 mL
117921	ADAMTS13 ACTIVITY REFLEX	Sodium Citrate Plasma	0.5 mL/ 0.3 mL
117915	ADAMTS13 ANTIBODY	Sodium Citrate Plasma	0.5 mL/ 0.3 mL
046557	ADH	Serum Ref.& EDTA Plasma Froz.	1 mL Ser, 2mL PI
117739	ALPHA 2 ANTIPLASMIN	Sodium Citrate Plasma	1 mL / 0.5 mL
700068	AMINO ACIDS, PLASMA	Green(Heparinized Plasma)	4 mL / 1 mL
700140	AMINO ACIDS, URINE	Urine (24-hour) No Preserv.	10 mL / 2 mL
700180	AMINO ACIDS, CSF	CSF	0.5 mL/ 0.25mL
702891	AMIODARONE	Serum or EDTA/ Heparin Plasma Froz.	1.0 mL/ 0.3 mL
007054	AMMONIA	EDTA Plasma	1 mL / 0.5 mL
002180	ANGIOTENSIN II	EDTA Plasma	3 mL/ 1.5 mL
117079	ANTIIPHOSPHOLIPID SYNDROME	Serum ref.& Citrate Plasma Froz.	6.0mL/ 3.0mL PL
015040	ANTITHROMBIN ACTIVITY	Sodium Citrate Plasma	1 mL / 0.5 mL
015057	ANTITHROMBIN ANTIGEN	Sodium Citrate Plasma	2 mL / 1.0 mL
015594	ANTITHROMBIN	Sodium Citrate Plasma	1 mL / 0.5 mL
140889	BNP-Brain Natriuretic Peptide	EDTA Plasma	0.5 mL/ 0.3 mL
120220	C1 ESTERASE INHIBITOR	Serum or EDTA Plasma Froz.	0.5 mL/ 0.1 mL
123014	C3d IMMUNE COMPLEXES	Serum or EDTA Plasma Froz.	0.5 mL/ 0.1 mL
004895	CALCITONIN	Serum	1 mL / 0.4 mL
706500	CARNITINE	Serum	2.5 mL/ 1.5 mL
084152	CATECHOLAMINES	EDTA or Heparinized Plasma	3.0 mL/ 2.2 mL
001941	CH 50	Serum	1 mL / 0.5 mL
	CLONIDINE SUPPRESSION, ALL	EDTA Plasma Froz.	3.0 mL/ 2.2 mL
002402	CREATINE, SERUM	Serum	1 mL / 0.5 mL
003475	CREATINE, URINE	Urine	2 mL / 0.2 mL
004984	CYCLIC AMP, PLASMA	EDTA Plasma Froz.	0.5 mL/ 0.2 mL
004903	CYCLIC AMP, URINE	Urine	10 mL/ 0.5mL
115188	D-DIMER	Sodium Citrate Plasma	2 mL / 1 mL
141325	DES GAMMA CARBOXY PROTHROMBIN (DCP)	Serum	0.5 mL/ 0.25 mL
081893	FATTY ACIDS, FREE (NONESTER)	Serum	1 mL / 0.2 mL
004390	GASTRIN	Serum	0.5 mL / 0.3 mL
004622	GLUCAGON	EDTA Plasma w/Trasylo [®]	1 mL / 0.3 mL

480136	HER-2/NEU	EDTA Plasma	2 mL / 1 mL
144600	HISTAMINE, PLASMA	EDTA Plasma	2 mL / 1 mL
143803	INHIBIN A	Serum	0.3 mL/ 0.2 mL
142455	INTERLEUKIN-2 RECEPTOR	Serum	0.5 mL/ 0.3 mL
117054	LUPUS ANTICOAGULANT COMP	Sodium Citrate Plasma	3 mL / 2 mL
117892	LUPUS ANTICOAGULANT W/REFLEX	Sodium Citrate Plasma	3 mL / 2 mL
715300	METHYPHENIDATE (RITALIN), SERUM	Serum or EDTA Plasma	3 mL / 1.1 mL
010421	MSH	EDTA Plasma with Trasylol®	2 mL/ 0.3 mL
140120	MYELIN ASSOCIATED GLYCO (MAG)	Serum	0.3 mL/ 0.1mL
716720	ORGANIC ACID URINE	Urine	10 mL/ 3 mL
007010	OROTIC ACID, URINE	Urine	3.0 mL/ 0.5 mL
120071	OSMOLALITY, FECAL	Liquid Stool	15 mL
010249	OSTEOCALCIN	Serum	2 mL / 0.3 mL
146704	PANCREATIC POLYPEPTIDE	Serum	0.5 mL/ 0.3 mL
146787	PLASMINOGEN ACT INHIB ACTIVITY	Sodium Citrate Plasma	0.5 mL/ 0.3 mL
146790	PLASMINOGEN ACT INHIB ANTIGEN	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
164750	PROCALCITONIN	Serum or Green (Hep Plasma)	1.0 mL/ 0.4 mL
140533	PROINSULIN	Serum	0.5 mL/ 0.3 mL
080465	PROTEIN C ANTIGEN	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
283655	PROTEIN C DEFICIENCY PROFILE	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
117705	PROTEIN C FUNCTIONAL	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
117754	PROTEIN S DEFICIENCY PROFILE	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
164517	PROTEIN S ANTIGEN	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
164519	PROTEIN S FREE	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
164525	PROTEIN S FUNCTIONAL	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
117199	a PTT MIXING STUDY	Sodium Citrate Plasma	2 mL / 1 mL
117028	PTT MIXING STUDY	Sodium Citrate Plasma	2 mL / 1 mL
503380	PTHrp	EDTA Plasma, FROZEN	1 mL / 0.5 mL
266015	RBC FOLATE	Whole blood (two tubes) 1 Frozen, 1 Refrigerated	2 Full EDTA Tubes
002006	RENIN (PLASMA RENIN ACTIVITY)	EDTA Plasma	3 mL / 1 mL
117180	REPTILASE	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
150018	SEROTONIN RELEASE ASSAY	Serum	1.0mL/ 0.5mL
015230	THROMBIN TIME	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
117170	THROMBIN MIXING STUDY	Sodium Citrate Plasma	2 mL / 1 mL
140150	TROPONIN T (HIGHLY SENSITIVE)	Lithium Heparin Plasma	1.0 mL/ 0.8 mL
010355	TRYPsin	Serum or EDTA Plasma	1 mL / 0.3 mL
140673	TUMOR NECROSIS FACTOR-ALPHA	Serum	1 mL/ 0.4 mL
117006	VEGF	EDTA Plasma	1.0 mL/ 0.5 mL
117021	VEGF	Serum	1.0 mL/ 0.5 mL
010397	VIP (Use Trasylol® additive when collecting.)	EDTA Plasma with Trasylol®	2 mL / 0.4 mL

070115	VIT B3	Serum or EDTA Plasma/ Light Protected	1 mL / 0.5 mL
001479	VIT C	Serum, EDTA, Heparin, or Oxalate Plasma – Light Protected	2 mL / 0.7 mL
123420	VIT C DILUTIONS	LIGHT PROTECTED Lithium Heparin Plasma	1.0 mL/ 0.5 mL
164509	VON WILLEBRAND FACTOR ACTIVITY	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
086280	VON WILLEBRAND FACTOR ANTIGEN	Sodium Citrate Plasma	1.0 mL/ 0.5 mL
084715	VON WILLEBRAND FACTOR PROFILE	Sodium Citrate Plasma	2 mL / 1 mL

This is not an exhaustive list of all tests requiring frozen specimens. Specimen requirements are subject to change. Consult the Directory of Services for the most up to date specimen collection information.