

Serum Blood Collection Tube

IMPROVACUTER® serum blood collection tube aims at providing high-quality serum specimen for medical laboratories. It includes 3 kinds of tubes: No Additive Tube with red cap, Pro-coagulation Tube with red cap and Gel & Clot Activator Tube with golden cap.



NO ADDITIVE TUBE

No Additive Tube is used in blood collection and storage for biochemistry, immunology and serology tests in medical inspection. It can provide enough and nonpolluted serum specimen for clinical test, while keeping the serum invariable in the long inspection period. It is applicable for all current mainstream biochemical analyzers.





PRO-COAGULATION TUBE

Pro-coagulation Tube is used in blood collection and storage for biochemistry and immunology tests. Its main merit is that it's suitable for a wide range of operation, fast in coagulation, and free from both secondary separation of fibrin protein and the cracking of blood corpuscle. Hence the serum can meet the requirements of fast clinic and emergency medicine.







GEL & CLOT ACTIVATOR TUBE

Gel & Clot Activator Tube is used for clinical biochemistry and immunology. Inside the tube there is a barrier gel present at the bottom, which is a pure substance, very stable in physical and chemical features. The barrier gel with high temperature-resisting property will not change inside at all. After centrifugation, the barrier can effectively separate the serum from fibrin and cells, while preventing substance exchange between blood cell and serum. As a result, it can keep biochemical characters and chemical components of serum unchanged for a long time. Serum can also be aspirated directly from the collection tube, no need for transfer to another container.



Plasma Blood Collection Tube

IMPROVACUTER plasma blood collection tube aims at providing high-quality plasma specimen for medical laboratories. It includes 5 Kinds of tubes:Glucose Tube with grey cap, PT Tube with light blue cap, Heparin Tube with green cap, Gel & Heparin Tube with green cap and Gel & EDTA. K2 Tube with lavender cap.









GLUCOSE TUBE

anticoagulation for the analyses such as blood sugar, sugar tolerance, anti-alkali haemoglobin and sugar water. It is available with different additives, sodium fluoride/potassium oxalate and sodium fluoride/EDTA. Owing to the first use of special stabilizer and surface treatment inside the tube, IMPROVACUTER® glucose tube successfully solves the unavoidable hemolysis and prevents the occurrence of insoluble and anti-coagulant substances. So it can guarantee that value of blood sugar can be kept invariable within 72 hours.



PTTUBE

PTTube is mainly used for the test of blood coagulation mechanism. It is filled with buffered tri-sodium citrate solution, and citrate concentrations of either 0.109mol/l (3.2%) or 0.129mol/l (3.8%) are available. The choice of the concentration depends upon the policies of the laboratories. The mixing ratio is 1 part citrate to 9 parts blood with the advantage of high accurate blood-to-additive ratio. It can provide an excellent condition for the test of PT and APTT values.



HEPARIN TUBE

Heparin Tube is used in blood collection and anticoagulation not only for routine clinical biochemistry
tests and emergency biochemistry tests but also for
some test items in blood rheology. It is coated with
lithium heparin or sodium heparin. The anticoagulant
heparin activates antithrombins, thus blocking the
coagulation cascade and producing a whole blood/
plasma sample instead of clotted blood plus serum.
IMPROVE® validates that through its special treatment,
most of the plasma indexes can be repeated within 6
hours, especially for such sensitive ones as AST, ALT, TBIL,
DBIL and GGT.



Plasma Blood Collection Tube

IMPROVACUTER® plasma blood collection tube aims at providing high-quality plasma specimen for medical laboratories. It includes 5 Kinds of tubes: Glucose Tube with grey cap, PT Tube with light blue cap, Heparin Tube with green cap, Gel & Heparin Tube with green cap and Gel & EDTA. K2 Tube with lavender cap.





Gel & Heparin Tube is a kind of anti-coagulation tube with inert separation gel at the bottom of heparin tube (Lithium Heparin or Sodium Heparin). Through centrifugation, the separation gel can form a barrier between plasma and blood cell and prevent substance exchange between them, while keeping the original characters of plasma. Plasma specimen obtained is the best choice for electrolyte test, and is also used for plasma analysis in routine biochemistry and any emergent biochemistry. The specimen could be put into the equipment directly and kept stable in cold storage Gel & Heparin TUBE for 48 hours, which favors the specimen retest.





Gel & EDTA.K2 Tube is a kind of EDTA.K2 Tube for a special use: the preparation of undiluted plasma specimen instead of whole blood specimen. There are 2 kinds of additives inside: inert separation gel at the bottom of the tube and EDTA.K2 sprayed in the interior surface above gel. Through centrifugation, the separation gel can form a barrier between plasma and blood cell and totally separate them, while keeping the original characters of plasma. Clinical specimen is then obtained, suitable for analysis of virus capacity and **Gel & EDTA.K2** TUBE molecular diagnostics of undiluted plasma.



Whole Blood Collection Tube

IMPROVACUTER® whole blood collection tube aims at providing high-quality blood specimen for medical laboratories. It includes 2 kinds of tubes: EDTATube with lavender cap (EDTA.K2/K3) and ESRTube with black cap.



EDTA TUBE

as various kinds of blood cell test instruments. It makes use of EDTA K2/EDTA K3 as anticoagulant. Meanwhile, it offers a comprehensive protection for blood cell, especially for protecting the blood platelet, so that it can effectively stop the gathering of blood platelet and makes the form and volume of blood cell uninfluenced in a long time. EDTA tube can be used in direct sampling analyzers without actually being opened.



 $\label{eq:continuous} \textbf{ESR Tube} \ is \ used in blood collection and anticoagulation for sedimentation rate test. It contains a 3.8% (0.129 mol/L) or 3.2% (0.109 mol/L) buffered tri-sodium citrate solution with the mixing ratio of 1 part citrate solution to 4 parts blood. ESR measurement refers to the Westergren method.$





Closed ESR System

IMPROVACUTER® Closed ESR system is a convenient, rapid and safe system.



ESR fast detector is made up of plastic frame with a graduation scale indicating ESR values and a stainless steel motherboard. It is suitable for the ESR tests for subjects of different gender and ages, with higher related coefficient comparing with the Westergren method.

Intended use

- ESR fast detector is designed to match IMPROVACUTER®
 ESR tubes(specification: 1.6ml/ 9x120mm) for testing the Erythrocyte Sedimentation Rate (ESR), which is a non-specific assay item.
- It is safe, reliable and easy to read with clear scales.

Installation

- ESR fast detector should be placed stably without wobble and draught.
- It should be kept erect with a slope angle less than 2°.



Specimen collection and processing

- Make use of ESR tube and needles to obtain the blood specimen by venipuncture.
- Gently invert ESR tube at least 8-10 times. Avoid of fierce shake to destroy the Erythrocytes.
- 3. Repeat before inserting Tube into Stand.
- 4. Insert ESR tube into Stand.
- 5. Align zero level of scale to bottom of meniscus.
- 6. Set timer and read erythrocyte level after 30 min.
- 7. Discard ESR tubes without opening.

Evacuated Blood Collection Tubes

Classification ¹	ltems ²	Additive	Colo	or ³	Tube Material	Main Intended Use⁵	Basic Tube size ⁶ (mm)
Serum Tube	No Additive Tube	/	Red		Glass	Determinations in	Ф 13x75 Ф 13x100 Ф 16x100
	Pro-coagulation Tube	Clot Activator	Red		Glass/Plastic	serum for clinical biochemistry, immunology, and	
	Gel & Clot Activator Tube	Gel & Activator	Golden		Glass/Plastic	serology	
Plasma Tube	Glucose Tube	Potassium Oxalate/Sodium fluoride or EDTA /Sodium fluoride	Grey		Glass/Plastic	Determinations in stabilised anti-coagulated whole blood or plasma for glucose and lactate testing	Ф 13x75 Ф 13x100
	PTTube	0.109mol/L or 0.129mol/L Sodium Citrate (1:9)	Light Blue		Glass/Plastic	Determinations in citrated plasma for coagulation testing	Ф 13x75 Ф 13x100
	Heparin Tube	Lithium Heparin, Sodium Heparin	Green		Glass/Plastic	Determinations in heparinised plasma for clinical chemistry	Φ 13x75 Φ 13x100 Φ 16x100
	Gel & Heparin Tube	Gel & Lithium Heparin or Sodium Heparin	Green		Glass/Plastic	For plasma determinatons in chemistry.	Φ 13x100 Φ 16x100
	Gel & E DTA.K2 Tube	Gel & EDTA.K2	Lavender		Glass/Plastic	For use in molecular diagnostic test methods(such as but not limited to PCR).	Φ 13x100 Φ 16x100
Whole Blood Tube	EDTA Tube	EDTA.K2 EDTA.K3	Lavender		Glass/Plastic	Determinations in EDTA whole blood for hematology	Ф 13х75
	ESRTube	0.109mol/L or 0.129mol/L Sodium Citrate	Black		Glass	Blood cell sedimentation rate	Φ 9x120 Φ 13x75
		(1:4)		Plastic	test	Ф 13х75	

Notes:

- 1. IMPROVACUTER® classification is made according to the specimen requirements in medical labs, such as serum, plasma and whole blood required by the lab. Due to the multifunction of IMPROVACUTER®, one classification may be used for other functions, for example, EDTA tube can also be used for plasma collection.
- 2. The names of IMPROVACTER® items all come from historical habit but can not totally refer to what they mean, e.g. Glucose tube can be used for providing plasma or whole blood specimen for other tests.
- 3. IMPROVACUTOR® color code obeys general recommendation or international tradition except when there are new products or customers' special requirements. Recommended color code refers to the fundamental color for blood collection tube.
- 4. Tube material might change because of application of new material, while its gas permeability and water permeability will change because of material difference. Characteristics of materials cause influence on the storage and period of validity of blood collection tube. Please pay attention to the expiry date on the label.
- 5. Application range refers to the general applicable test items. Due to the limitation of the system and research itself, blood collection tube can not be used in all test items. For more information, please refer to "Application guide of IMPROVACUTER" test items and "IMPROVACUTER" use exception report and correction form "
- 6. Basic tube sizes do not include those special sizes directed by certain rules of law or required by special customers.

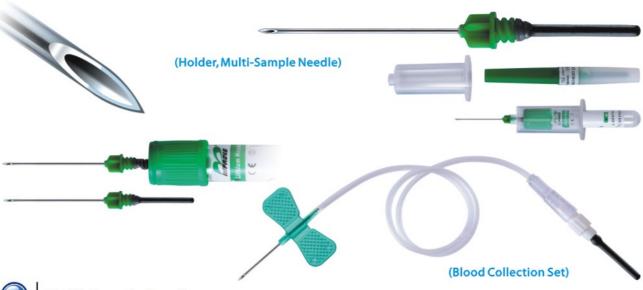




Tourniquet

IMPROVACUTER® Tourniquet is used for fastening the vein in blood collection or blood transfusion. It is also applicable in venipuncture for other medical purposes.

IMPROVACUTER® Tourniquet is manufactured with a wide stretch strap so that the intensity of pressure largely decreases to the modest degree. It can avoid congestion at the largest degree, ease uncomfortable feeling and improve quality of blood sample.



🕝 | Multi-Sample Needle

- The uniquely sharpened faceting simplifies penetration of tissue. In comparison with other common needles, painful trauma is considerably reduced.
- The specially sharpened point results in minimal tissue damage and thromboplastin seepage.
- A special design of rubber protection jacket reduces the contamination risk in that the distal end of the needle is immediately covered and protected from following removal of the blood.
- The needle coating ensures smooth and gentle penetration when the needle is pierced into the patient vein.
- The new design of the needle protective sleeve enhances the optical recognition of the various needle types.
- An increased protective sleeve diameter minimizes the chance of damage to the needle point during opening.

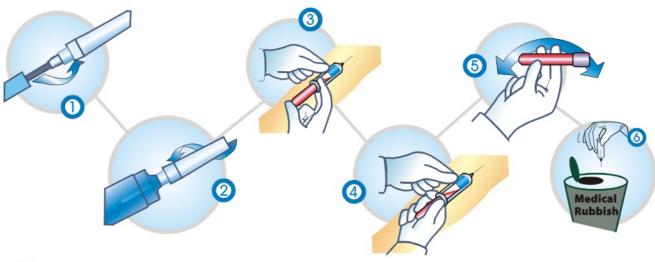


Blood Collection Set

Blood Collection Set allows you to deliver exceptional patient care without compromising personal safety. This product is intended for blood collection and infusion procedures. It is a necessity for automatic blood collection in the future. Comparing with the multi-sample needle, it has more benefits as follows:

- Large, flexible wings improve needle pierce during blood collection and infusion procedures.
- Translucent shield improves users' control of the blood collection and infusion procedures..

For Multi-sample Needle

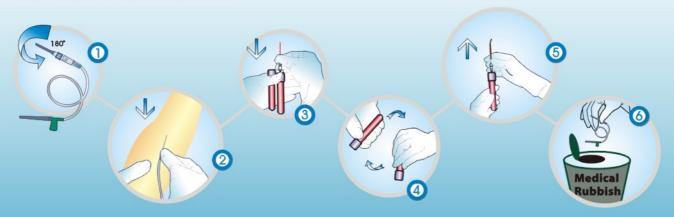




Venipuncture Techniques

- 1. Select appropriate multi-sample needle for required specimen. Remove the cover from the valve section of the needle.
- 2. Thread the needle into the holder. Be sure the needle is firmly seated to avoid its removal during use.
- 3. Apply tourniquet. Prepare venipuncture site with an appropriate antiseptic. Do not palpate venipuncture area after cleansing. Place patient's arm in a downward position and insert the needle into the vein as usual.
- 4. When penetrating the stopper, center tubes in holder to prevent sidewall penetration and resultant premature vacuum loss. Push tube into the holder and onto the needle valve puncturing the rubber stopper. Hold in place with the thumb. The prespecified vacuum of the tube allows the required quantity of blood to flow into the tube. Remove the tourniquet as soon as blood appears in the tube.
- 5. For proper additive performance, gently invert the tubes 5-8 times immediately after collection. As soon as blood stops flowing in the last tube, remove needle from vein, and apply pressure to puncture site with dry sterile swab until bleeding stops.
- 6. Dispose of needle and holder according to your facility's policies and guidelines.
- Note: Venipuncture technique is almost the same when blood collection set is used. But be sure you twist the luer
 adaptor deasil before puncture, preventing vacuum loss or blood leakage during collection. Venipuncture
 proceeds as normal and blood flashback is clearly seen through the translucent shield.

For Blood Collection Set



IMPROMINITM



Capillary Blood Collection Tube

Capillary blood collection tube is mainly used in collection, storage, pretreatment and transportation of capillary blood specimen. It is suitable for newborn babies, infants, prostrate patients in ICU and other patients who are not able to collect venous blood (like those with bad burn). It is also suitable for collecting small-volume venous blood specimen (usually less than 1 ml). The tube is made from virtually unbreakable and highly transparent polypropylene.



Recommended Collection Order

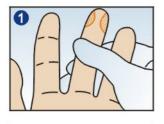
1.EDTA Tubes



2.Other Additive Tubes

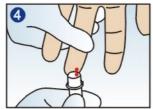


3.Serum Tubes









Instruction for Use

- Select appropriate puncture site and cleanse site thoroughly with medical alcohol. Puncture skin with proper lancet and gently wipe away the firstdrop of blood with sterile gauze or cotton ball.
- 2. Apply gentle pressure with the thumb and ease intermittently as blood drops, while holding IMPROMINI™ tube and touching its collector end to drops of blood to allow a free flow of blood to bottom of tube. Avoid scraping skin surface to collect blood specimen.
- Fill tubes with required volume and twist back color-coded cap, then mix by inverting according to the suggested times to assure that sample is mixed with additive thoroughly.
- If multi-sample collection is required, carry it out according to the recommended order.
- 5. Label tubes clearly and send them for testing within the set time.

Cautions

- O Directly pressing the puncture site will lead to hemolysis and affect the preciseness of test result.
- Specimen collection that takes over 2 minutes will frequently result in poor-quality specimens, and higher incidence of micro clotting in additive tubes.
- Samples collected in EDTA tubes for hematology must be tested within four hours after collection.
- O Serum tubes must be ensured to have more than 30 minutes for cruor.
- O Insufficient blood sample will cause an incorrect ratio of blood to drug and then a wrong analysis result.
- O Gently mix the specimen and additive by inverting, do not shake.



Microbiological Transport System

IMPROSWAB™ Microbiological Transport System is a special device for the collection, transportation and preservation of microbiological specimen, providing an optimal and professional solution for those specimen treatments. It can effectively protect the microbial character, physiological active and otherwise before analysis, and greatly improve the exactness of analytical results. Meanwhile, it simplifies medical staff's work and keeps them from biological pollution.

IMPROSWAB[™] Microbiological Transport System will also help to realize the standardization in microbiological specimen collection.



◎Tip

It makes use of medical rayon fibre instead of traditional purified cotton. The rayon with single composition can avoid the interference on the virus PCR examination caused by thefluorescence material contained in the purified cotton.

Rayon fibre has a strong absorbing ability to take sufficient specimen.

Shaft

It makes use of medical nontoxic plastic instead of wood or bamboo to avoid the interference on the activity and modality of virus and bacteria caused by the toxin which may be contained in wooden or bamboo shaft and the rudimental formaldehyde which may be added in the process of manufacture.

Extra long shaft design can avoid direct contact between medical staff and patients and thus prevent a cross infection in sample collection.

Plastic shaft can be broken, satisfying other processing requirements after sample collection.

Adhesive

It makes use of medical adhesive. This material is a medical macromolecule material with water solubility and high purity. With a good biological compatibility, it can't be degraded by microbes in human body and yet don't affect the growth of those microbes, totally in accordance with United States Pharmacopeial.

© Tube

It makes use of medical pp, with sound intensity and transparency. Double-seal design between the tube and the cap insures an excellent preserving environment for specimen.

Sterilization

It is guaranteed by 100,000 degree GMP production environment and effective validation on sterilization.

Operation



Step1: Peel the packing



Step3: Insert swab into the tube and firmly close the cap



Step2: Collect specimen with swab



Step4: Witte down the information on the label

Main Product List IMPROVACUTER® Evacuated Blood Collection Tubes

Closure: C-Conventional Closure, SC-Safety Cap

Item	Tube Size	Volume	Tube material	Closure	Additive State	Additive	Color	Main Intended Use	Packaging
	13x100mm	5,6,7ml		<u> </u>					
No Additive	13x75mm	3,4,5ml	Glass	C,SC	,	,	Red		
	16x100mm	8,9,9.5ml	Glass	0,30	,	1	Rea		
Pro- coagulation	12v100mm	5,6,7ml	Glass					Determinations in	40.475
	100111111	5,6ml	Plastic	c,sc	1	Blood Clot Activator	Red	Determinations in serum for clinical chemistry, microbiological serology,	13×75mm: 1000pcs/CTN (100pcs/bx,10bx/CTN) Carton Size: 759x184x199mm
	13x75mm	3,4,5ml	Glass						
	13X/3IIIII	3,4ml	Plastic						
	16x100mm	8,9,9.5ml	Glass or Plastic					immunology	
	12-100	3,4,5,6ml	Glass					1	
	13x100mm	3,4,5ml	Plastic						
Gel & Clot Activator		3,4ml	Glass	C,SC	1	Gel & clot Activator	Golden		
Addition	13x75mm	3,3.5ml	Plastic	0,00	_ ′	Oci di diolinativator	Coldon		
	16x100mm	7,8,8.5ml	Glass or Plastic						13×100mm
	13x100mm	3,4,5ml	Glass or Plastic						1000pcs/CTN (100pcs/bx,10bx/CTN) Carton Size: 759x184x249mm
K,EDTA	200000	1,2,3,4,5ml	Glass	c.sc	Liquid or	K₂EDTA	Lavender	Determinations in EDTA whole blood for hematology	
•	13x75mm	1,2,3,4ml	Plastic	-,	Powder				
		2,3,4,5ml	Glass		Liquid	K₃EDTA	Lavender		
K₀EDTA 13x75mm	13x75mm	2,3,4ml	Plastic	C,SC					
	13x100mm	1.8,2.7,3.6,4.5ml	Glass or Plastic			0.109mol/L or		Determinations in	
PT Tube	12v7Emm	1.8,2.7,3.6,4.5ml Glass		C,SC Liqui	Liquid	Liquid 0.129mol/L Buffer sodium citrate	Light blue	citrated plasma for coagulation testing	
13x75mm	1.8,2.7,3.6ml	Plastic			40×400				
	13x100mm	1.6,2.4ml	Glass or Plastic	c,sc		0.109mol/L or		Batamata attance	16×100mm: 1000pcs/CTN (50pcs/bx,20bx/CTN)
ESR Tube 13x75mm	1.6,2.4ml	Glass or Plastic	0,00	Liquid	0.129mol/L Buffer sodium citrate	Black	Determination of the ESR.	Carton Size:	
	9x120mm	1.6ml	Glass	С		sodium citrate			872x232x252mm
Sodium	13x100mm	2,3,4,5,6ml	Glass or Plastic	c,sc	Powder	Sodium Heparin	Croon	Determinations in heparinised plasma	
Heparin	13x75mm	3,4ml	Glass or Plastic	0,00	rowder	30didili Flepaliii			
Lithium	13x100mm	2,3,4,5,6ml	Glass or Plastic					forclinical chemistry	
Heparin	13x75mm	3,4ml	Glass or Plastic	C,SC	Powder	Lithium Heparin	Green		
Glucose	13x100mm	2,3,4,5ml	Glass or Plastic	0.00	Supersaturated		Grey	Determinations in stabilised anticoagulated whole blood or plasma for glucose and lactate testing	9×120mm: 1000pcs/CTN (100pcs/bx,10bx/CTN)
Tube	13x75mm	2,3,4ml	Glass or Plastic	c,sc	solution	fluoride or EDTA/sodium fluoride			Carton Size: 743x184x278mm
Gel &K,EDTA	13x100mm	4,5ml	Glass or Plastic	c,sc	EDTA: Powder	Gel &K _x EDTA	Lavender	For use in molecular diagnostic test methods (such as but not limited to PCR).	
Gel & L.H.	13x100mm	A Grad	Glass or Plastic	c,sc	Heparin:	Gel & Lithium Heparin	Cross	For plasma	
Gel & N.H.	IOX TOURN	4,6ml	GIASS OF PIASTIC	0,30	Powder	Gel & Sodium Heparin	Green	determinations in chemistry.	

Notes:details refer to "Product Catalog (IMPROVACUTER" Evacuated Blood Collection Tubes)"

IMPROVACUTER® Other Accessories

Blood Collection Needle & Holder

Item	Gauge × Needle Length Needle Diameter × Needle Length(× Tubing Length)		Color	Product Code
Multi-Sample Needle	18G×1 1/2"	1.2x38mm	Pink	592118380
	20G ×1 1/2"	0.9 x 38mm	Yellow	592120380
	21G ×1 1/2"	0.8 x 38mm	Green	592121380
55	21G ×1"	0.8 x 25mm	Green	592121250
	22G ×1 1/2"	0.7 x 38mm	Black	592122380
	22G ×1"	0.7 x 25mm	Black	592122250
	23G ×1 1/2"	0.6 x 38mm	Blue	592123380
Blood Collection Set	21G ×3/4"	0.8 x 19mm x 300mm	Green	591121300
A	22G ×3/4"	0.7 x 19mm x 300mm	Black	591122300
d	23G ×3/4"	0.6 x 19mm x 300mm	Blue	591123300
/	25G ×3/4"	0.5 x 19mm x 300mm	Orange	591125300
Holder				581010

Tourniquet

Item	Туре	100			
		Length	Width	Color	Product Code
Tourniquet	Adult's	L:400mm±10mm;	W:25mm±1mm	Light Blue	5711A0100
		L:400mm±10mm;	W:25mm±1mm	White	5711A0200
		L:400mm±10mm;	W:25mm±1mm	Bright White	5711A0300
		L:400mm±10mm;	W:25mm±1mm	Plum	5711A0400
		L:400mm±10mm;	W:25mm±1mm	Green	5711A0500
10		L:400mm±10mm;	W:25mm±1mm	Turquoise Blue	5711A0600
		L:400mm±10mm;	W:25mm±1mm	Blue	5711A0700
		L:400mm±10mm;	W:25mm±1mm	Red	5711A0800
		L:400mm±10mm;	W:25mm±1mm	Orange	5711A1000
	Child's	L:350mm±10mm;	W:25mm±1mm	Light Blue	5710A0100
3 101		L:350mm±10mm;	W:25mm±1mm	Pink	5710A1400
3		L:350mm±10mm;	W:25mm±1mm	Golden	5710A1500
		L:350mm±10mm;	W:25mm±1mm	Turquoise Blue	5710A0600
	Magic Paster	L:350mm±10mm;	W:30mm±1mm	Light Blue	5720A0100
		L:350mm±10mm;	W:30mm±1mm	Plum	5720A0400
	, and the second	L:350mm±10mm;	W:30mm±1mm	Blue	5720A0700
		L:350mm±10mm;	W:30mm±1mm	Red	5720A0800

IMPROMINI™ Capillary Blood Collection Tube

Color	Item	Volume	Additive	Product Code	
	Pro-coagulation	0.5ml	Blood Clot Activator	5616105	
	Pro-coagulation	1.0ml	Blood Clot Activator	5616110	
	Gel & clot Activator	0.5ml	Gel & clot Activator	5616205	
	EDTA.K ₂	0.5ml	EDTA.K ₂	5616805	
	EDTA.K ₃	0.5ml	EDTA.K ₃	5616905	
	Sodium Heparin	0.5ml	Sodium Heparin	5616605	
	Lithium Heparin	0.5ml	Lithium Heparin	5616505	
	Glucose Tube	0.5ml	EDTA.K ₂ /NaF	5616705	

IMPROSWAB™ One-used microbiological transport swab

Item	Material of stick	Material of head	Transport Medium	Product Code	
	Polystyrene	Artificial fiber	No media	550000	