



# APLICOR 3D

## Procedure Checklist

Personalized power,  
*realized now.*

# supply checklist

## SUPPLIES PROVIDED

Items	Qty*
Matrix plate	1
Micronizers (variety)	4
Dispenser 1	1
PCL <ul style="list-style-type: none"> <li>• Small Kit: 364mm</li> <li>• Medium Kit: 667mm</li> <li>• Large Kit: 1,100mm</li> </ul>	1
Luer connector	1-2
NFC tag	1
Sensor Tray	1
Bed film	1

\* Quantity based on size of kit



## ADDITIONAL SUPPLIES (not provided)

Items	Qty
Waste tray	1
Standing rack	1
Normal saline (50-100ml)	1
Syringe caps	2
<b>21-gauge, 1 inch needle*</b>	2
<b>5 ml syringes*</b>	2-4
10ml syringes	2-4
50ml syringes	1-2
Surgical tools	N/A



\*These supplies **must be the exact specifications**. No substitutions. Additional supplies without asterisks can be substituted at the professionals' discretion.

# operation checklist

S surgeon

1 non-sterile staff

2 surgeon or sterile staff

Pre-OP Setup																																																								
Practice Steps			Role	✓																																																				
0	Worktable setup (prepare two carts: one for APLICOR 3D Printer & one for the APLICOR 3D Scaffold Kit)																																																							
1	APLICOR 3D Printer Setup																																																							
	a. Secure a suitable space for setup. Place APLICOR 3D Printer on a cart or an instrument table.			1																																																				
	b. Insert the power plug → Insert Wi-Fi Dongle → Turn on the power switch			1																																																				
	c. Tap [Agree] on the LCD screen			1																																																				
	d. Connect the Wi-Fi			1																																																				
2	AiD Regen App Setup																																																							
	a. Connect the AiD Regen Tablet to the same Wi-Fi that is connected to APLICOR 3D Printer.			2																																																				
	b. Dock the AiD Mirror			2																																																				
	c. Open the App.			2																																																				
3	APLICOR 3D Printer AI Regen KIT Setup																																																							
	a. Cover the cart/instrument table with a sterile surgical wrap/drape			2																																																				
	b. Unpack all components and prepare them in the sterile work area prepared in step 3-a			2																																																				
	c. Prepare extra items required			2																																																				
	<div><div><b>Fibrin Protocol</b></div><table><thead><tr><th>Items</th><th>EA</th><th>Purpose for Use</th></tr></thead><tbody><tr><td>Matrix Plate</td><td>1</td><td>For printing</td></tr><tr><td>BD 5 ml luer lock syringe</td><td>4~6</td><td rowspan="2">Used Dispenser 2</td></tr><tr><td>BD 21G 1inch needle</td><td>2~4</td></tr><tr><td>10ml luer lock syringe</td><td>2~5</td><td>for Adipose Micronization</td></tr><tr><td>Normal Saline (50~100ml)</td><td>N/A</td><td rowspan="4">for Washing</td></tr><tr><td>50ml luer lock syringe</td><td>1~2</td></tr><tr><td>Standing Rack</td><td>1</td></tr><tr><td>Waste tray</td><td>1</td></tr><tr><td>Fibrin glue</td><td>1</td><td>To solidify the adipose tissue</td></tr></tbody></table></div> <div><div><b>Low Temperature Protocol</b></div><table><thead><tr><th>Items</th><th>EA</th><th>Purpose for Use</th></tr></thead><tbody><tr><td>Matrix Plate</td><td>1</td><td>For printing</td></tr><tr><td>BD 5 ml luer lock syringe</td><td>2~6</td><td rowspan="2">Used as Dispenser 2</td></tr><tr><td>BD 21G 1inch needle</td><td>2~4</td></tr><tr><td>10ml luer lock syringe</td><td>2-5</td><td>for Adipose Micronization</td></tr><tr><td>Normal Saline (50~100ml)</td><td>N/A</td><td rowspan="4">for Washing</td></tr><tr><td>50ml luer lock syringe</td><td>1~2</td></tr><tr><td>Standing Rack</td><td>1</td></tr><tr><td>Waste tray</td><td>1</td></tr><tr><td>Blade Scalpel</td><td></td><td>To cut PCL scaffold</td></tr></tbody></table></div>				Items	EA	Purpose for Use	Matrix Plate	1	For printing	BD 5 ml luer lock syringe	4~6	Used Dispenser 2	BD 21G 1inch needle	2~4	10ml luer lock syringe	2~5	for Adipose Micronization	Normal Saline (50~100ml)	N/A	for Washing	50ml luer lock syringe	1~2	Standing Rack	1	Waste tray	1	Fibrin glue	1	To solidify the adipose tissue	Items	EA	Purpose for Use	Matrix Plate	1	For printing	BD 5 ml luer lock syringe	2~6	Used as Dispenser 2	BD 21G 1inch needle	2~4	10ml luer lock syringe	2-5	for Adipose Micronization	Normal Saline (50~100ml)	N/A	for Washing	50ml luer lock syringe	1~2	Standing Rack	1	Waste tray	1	Blade Scalpel		To cut PCL scaffold
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d. Fill a 30ml or 50ml luer lock syringe with normal saline																																																								
e. Attach Bed Film to Matrix Plate without creating bubbles																																																								
f. Only in the case of Fibrin Protocol: Prepare Fibrin glue																																																								
g. Turn the PCL holder cover holding 3D Regen PCL clockwise until 5~10cm of PCL comes out																																																								

# operation checklist

S surgeon

1 non-sterile staff

2 surgeon or sterile staff

Operation			
Practice Steps			Role
			✓
1	<b>Wound Bed Preparation</b>		
	a. Perform debridement to clean and prepare the wound bed	<span style="background-color: #f96; border-radius: 50%; padding: 2px 5px;">S</span>	
2	<b>Generation and Transfer of Regen File to APLICOR 3D Printer using AiD Regen Tablet</b>		
	a. Tap <b>[Start]</b> at the home screen → Select the surgeon from the list	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	b. Enter the patient code or register a new patient → Select the wound type	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	c. Add photos of the wound (snap a photo or bring a photo from the gallery)	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	d. Select the wound area by AI-assisted detection or by manual drawing	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	e. Set the patch thickness and printing type	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	f. Request a Regen file	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	g. Enter the IP address shown on the LCD screen of APLICOR 3D Printer	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	h. Send the Regen file to APLICOR 3D Printer	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	i. Check the required volume of fat harvesting and each bioink	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
※ Step 3 & Step 4 can be done simultaneously or vice versa			
3	<b>Scaffold Printing</b>		
	a. Tap <b>[Confirm]</b> on APLICOR 3D Printer LCD screen	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	b. Open the door of APLICOR 3D Printer and Insert the NFC Tag	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	c. Insert NFC Tag and Sensor Tray	<span style="background-color: #4caf50; border-radius: 50%; padding: 2px 5px;">2</span>	
	d. Check print information → Tap the file	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	e. Tap <b>[Scaffold]</b>	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	f. Insert Matrix Plate coated with Bed Film	<span style="background-color: #4caf50; border-radius: 50%; padding: 2px 5px;">2</span>	
	g. Tap <b>[OK]</b> to proceed	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	h. Insert Dispenser 1 into Dispenser 1 Dock	<span style="background-color: #4caf50; border-radius: 50%; padding: 2px 5px;">2</span>	
	i. Install 3D Regen PCL and load it into the inlet of Dispenser 1 Dock	<span style="background-color: #4caf50; border-radius: 50%; padding: 2px 5px;">2</span>	
	j. Close the door of APLICOR 3D Printer	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	k. Perform printing (which will start once the closed door is detected)	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
	l. Check the printed Scaffold	<span style="background-color: #f9c74f; border-radius: 50%; padding: 2px 5px;">1</span>	
4	<b>Fat Harvesting</b>		
	a. Perform fat harvesting based on the fat harvesting volume shown in AiD Regen	<span style="background-color: #f96; border-radius: 50%; padding: 2px 5px;">S</span>	

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Operation			
Practice Steps			Role
			✓
5	<b>Adipose Tissue Micronization</b>		
	a.	Bring the harvested adipose tissue to the sterile work area where the APLICOR 3D Scaffold Kit components are located	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	b.	If the harvested fat is contained in a 20~50ml syringe, aliquot the fat into separate 10ml luer lock syringes using luer-to-luer Connector	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	c.	Micronize the adipose tissue with Adipose Micronizer ①	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	d.	Micronize the adipose tissue with Adipose Micronizer ②	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	e.	Micronize the adipose tissue with Adipose Micronizer ③	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	f.	Micronize the adipose tissue with Adipose Micronizer ④	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
6	<b>Washing of Micronized Adipose Tissue with Normal Saline</b>		
	a.	Introduce the micronized adipose tissue to sterile normal saline contained in a 30ml or 50ml luer lock syringe using luer-to-luer Connector (Recommended ratio - Micronized adipose tissue : normal saline = 1:2 ~ 1:5)	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	b.	Close the syringe containing both the adipose tissue and the normal saline with a needle or syringe cap	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	c.	Gently mix by inverting	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	d.	Place the syringe on a standing rack with the needle or syringe cap facing down	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	e.	Wait until sufficient layer separation has been achieved	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	f.	Discard the blood and fluid layers beneath the adipose layer into the waste tray	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
7	<b>Bioink Preparation</b>		
	a.	<i>In case of Fibrin Protocol:</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	a)	<i>Check AiD Regen App to determine the required volume for each Bioinks [Bioink 1= ECM &amp; Fibrinogen / Bioink 2 = Thrombin]</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	b)	<i>Prepare the required volume of Fibrinogen in an empty luer lock syringe</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	c)	<i>Prepare the required volume of ECM in an empty luer lock syringe</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	d)	<i>Prepare Bioink 1 by gently mixing the prepared ECM and Fibrinogen at the proper ratio using Dispenser 2 Tube</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	e)	<i>Transfer Bioink 1 into 5ml luer lock syringe using luer-to-luer connector</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	f)	<i>Close 5ml luer lock syringe containing Bioink 1 with 21G 1-inch needle</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	g)	<i>Transfer the required volume of Thrombin (Bioink 2) into 5ml luer lock syringe (luer-to-luer connector or 3-way IV connector can be used)</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>
	h)	<i>Close 5ml luer lock syringe containing Bioink 2 with 21G 1-inch needle</i>	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>



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Operation			
Practice Steps			Role
			✓
7	b. In case of <b>Low Temperature Protocol</b> :		
	a) Check AiD Regen App to determine the required volume for ECM	2	
	b) Prepare the required volume of ECM in 5ml luer lock syringe using luer-to-luer connector	2	
	c) Close 5ml luer lock syringe containing Bioink 1 with a 21G 1-inch needle	2	
8	<b>Bioink 1 &amp; Bioink 2 Printing using APLICOR 3D Printer</b>		
	a. Tap [ <b>Bioink 1</b> ] on the LCD screen of APLICOR 3D Printer	1	
	b. Open the door of APLICOR 3D Printer	1	
	c. Remove the cap of the needle on 5ml Luer lock syringe containing Bioink 1	2	
	d. Load 5ml Luer lock syringe containing Bioink 1 into Dispenser 2 Dock	2	
	e. Close the door of APLICOR 3D Printer	1	
	f. Perform printing (which will start once the closed door is detected)	1	
	g. When printing is complete, open the door.	1	
	g. Remove 5ml Luer lock syringe from Dispenser 2 Dock	2	
	<i>*Following steps (from h to n) are <b>only for Fibrin Protocol</b></i>		
	h. Tap [ <b>Bioink 2</b> ] on the LCD screen of APLICOR 3D Printer	1	
	i. Remove the cap of the needle on 5ml Luer lock syringe containing Bioink 2	2	
	j. Load 5ml Luer lock syringe containing Bioink 2 into Dispenser 2 Dock	2	
	k. Close the door of APLICOR 3D Printer	1	
	l. Perform printing (which will start once the closed door is detected)	1	
	m. When printing is complete, open the door.	1	
	n. Remove 5ml Luer lock syringe from Dispenser 2 Dock	2	
9	<b>Solidification</b>		
	a. In case of <b>Fibrin Protocol</b> :		
	a) Wait for 20~30 minutes (the elapsed time appears on the LCD screen)	2	
	b) After 15~20 minutes, gently scrape the sides of the patch against the edge of the PCL scaffold	2	
	c) Gently scrape the patch off the Bed Film	2	

# operation checklist

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Operation			
Practice Steps			Role
			✓
9	b. In case of Low Temperature Protocol:		
	a) Wait for 10~15 minutes (Keep the door of APLICOR 3D Printer closed)	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	b) After 10~15 minutes, check the patch solidity by touching it with Dispenser 2 Tip	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	c) Cut one side of the Scaffold with a scalpel	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	d) Peel off the Scaffold with forceps or with hands	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	e) Separate the matrix plate from the plate bed and check whether the patch is separated from the bed film using forceps after several seconds.	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	f) If the patch is separated from the bed film, put the Matrix Plate back on the plate bed and store it at a low temperature until applied to the wound	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
10	Patch Application to the Wound		
	a. Pick up the patch with forceps	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	b. Apply the patch to the wound site	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	c. Apply the first dressing	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
	d. Apply the second dressing	<span style="background-color: green; border-radius: 50%; padding: 2px;">2</span>	
11	APLICOR 3D Printer Cleaning & Disinfection		
	a. Remove Dispenser 1 and 3D Regen PCL from APLICOR 3D Printer and dispose them in the clinical waste bin	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	b. Remove Bed Film from Matrix Plate and dispose it in the clinical waste bin	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	c. Follow the user instructions of the disinfectant product to clean the inner chamber of APLICOR 3D Printer	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	d. Turn on the UV lamp and disinfect for at least 30 minutes.	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	e. Turn off the UV lamp	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	f. Turn off APLICOR 3D Printer and unplug the power cable	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	g. Clean the used Matrix Plate and Sensor Tray	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	
	h. Sterilize Matrix Plate and Sensor Tray	<span style="background-color: yellow; border-radius: 50%; padding: 2px;">1</span>	