



TR-MNS; TR-LNS; TR-XNS

Preservation of Tissue Samples, Biopsies
and Organoids

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1 Components

1.1 Kit Contents

Product Code	Components	Units	Unit Volume	Medium to Add
TR-MNS-03	GelBase Beads	3 tubes	0.4 mL	-
	Gel A (5x)	3 tubes	0.12 mL	0.48 mL
	Dissolution Buffer	3 tubes	1.1 mL	-
TR-MNS-06	GelBase Beads	6 tubes	0.4 mL	-
	Gel A (5x)	6 tubes	0.12 mL	0.48 mL
	Dissolution Buffer	6 tubes	1.1 mL	-
TR-MNS-12	GelBase Beads	12 tubes	0.4 mL	-
	Gel A (5x)	12 tubes	0.12 mL	0.48 mL
	Dissolution Buffer	12 tubes	1.1 mL	-
TR-MNS-24	GelBase Beads	24 tubes	0.4 mL	-
	Gel A (5x)	24 tubes	0.12 mL	0.48 mL
	Dissolution Buffer	24 tubes	1.1 mL	-
TR-MNS-50	GelBase Beads	50 tubes	0.4 mL	-
	Gel A (5x)	50 tubes	0.12 mL	0.48 mL
	Dissolution Buffer	50 tubes	1.1 mL	-
TR-LNS-03	GelBase Beads	3 tubes	2 mL	-
	Gel A (5x)	3 tubes	0.5 mL	2 mL
	Dissolution Buffer	3 tubes	3 mL	-
TR-LNS-06	GelBase Beads	6 tubes	2 mL	-
	Gel A (5x)	6 tubes	0.5 mL	2 mL
	Dissolution Buffer	6 tubes	3 mL	-
TR-LNS-12	GelBase Beads	12 tubes	2 mL	-
	Gel A (5x)	12 tubes	0.5 mL	2 mL
	Dissolution Buffer	12 tubes	3 mL	-
TR-LNS-24	GelBase Beads	24 tubes	2 mL	-
	Gel A (5x)	24 tubes	0.5 mL	2 mL
	Dissolution Buffer	24 tubes	3 mL	-
TR-LNS-50	GelBase Beads	50 tubes	2 mL	-
	Gel A (5x)	50 tubes	0.5 mL	2 mL
	Dissolution Buffer	50 tubes	3 mL	-

Product Code	Components	Units	Unit Volume	Medium to Add
TR-XNS-03	GelBase Beads	3 tubes	8 mL	-
	Gel A (5x)	3 tubes	2 mL	8 mL
	Dissolution Buffer	3 tubes	12 mL	-
TR-XNS-06	GelBase Beads	6 tubes	8 mL	-
	Gel A (5x)	6 tubes	2 mL	8 mL
	Dissolution Buffer	6 tubes	12 mL	-
TR-XNS-12	GelBase Beads	12 tubes	8 mL	-
	Gel A (5x)	12 tubes	2 mL	8 mL
	Dissolution Buffer	12 tubes	12 mL	-
TR-XNS-24	GelBase Beads	24 tubes	8 mL	-
	Gel A (5x)	24 tubes	2 mL	8 mL
	Dissolution Buffer	24 tubes	12 mL	-
TR-XNS-50	GelBase Beads	50 tubes	8 mL	-
	Gel A (5x)	50 tubes	2 mL	8 mL
	Dissolution Buffer	50 tubes	12 mL	-

NOTE: Remove components from 2-8°C storage for at least 20 minutes before use

1.2 Components to be Supplied by the User

1000 µL pipettes and tips or serological pipettes with a pipette filler

Cell culture medium (Antibiotic-Antimycotic supplementation is recommended if used outside a sterile environment)

Sterile forceps or Pasteur pipette

Syringe and needle (optional)

2 Before You Begin

1. If you have not already, we recommend you fill in our Technical Support Questionnaire to get tailored support for your cell type. Fill in the questionnaire at <https://www.atelerix.co.uk/technical-support-questionnaire/>.
2. Ensure TissueReady™ kits have not passed the expiry date stated on the packaging. Atelerix does not recommend using kits after this date.
3. Visit <https://www.youtube.com/watch?v=3WgXWOmDK9U> and watch our TissueReady™ video protocol.
4. Read the troubleshooting guide on page 14 to see our list of frequently asked questions. For any further queries, please email us at technical@atelerix.co.uk.
5. TissueReady™ is intended for use solely in accordance with this protocol using the components provided within the kit.

3 Sample Size Guide

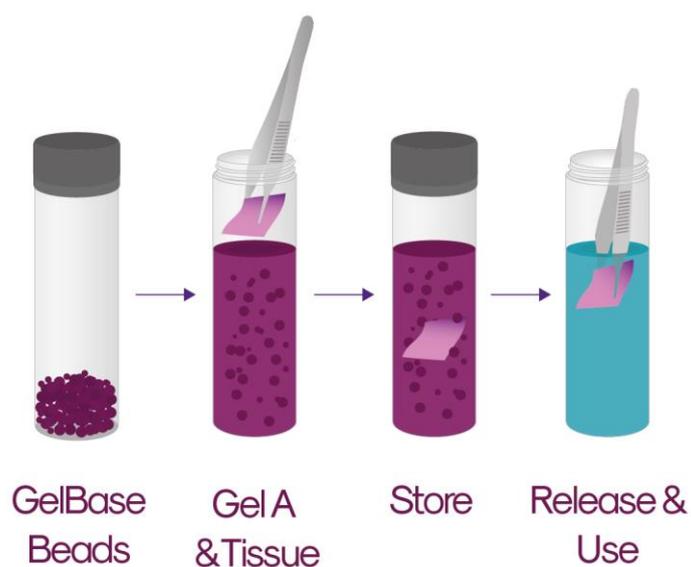
3.1 Fresh Tissues

Product	Range	Tissue Size (length x width x depth)
TissueReady™-M (TR-MNS)	Lower Limit	none
	Upper Limit	≤ 0.5cm x 0.5cm x 0.5cm
TissueReady™-L (TR-LNS)	Lower Limit	> 0.5cm x 0.5cm x 0.5cm
	Upper Limit	≤ 3.0cm x 0.9cm x 0.9cm
TissueReady™-XL (TR-XNS)	Lower Limit	> 3.0cm x 0.9cm x 0.9cm
	Upper Limit	≤ 4.0cm x 1.6cm x 1.6cm

3.2 Organoids and Spheroids

Product	Organoid/spheroid size	Recommended number/vial
TissueReady™-M (TR-MNS)	≤ 200 μm	≤ 250
	≤ 1.5 mm	≤ 25
TissueReady™-L (TR-LNS)	≤ 200 μm	≤ 1,000
	≤ 1.5 mm	≤ 100
TissueReady™-XL (TR-XNS)	≤ 200 μm	≤ 4,500
	≤ 1.5 mm	≤ 450

4 Protocol Overview



5 TissueReady™ Medium (TR-MNS)

5.1 Gelation

Caution: Follow the correct gelation step depending on the sample being stored – Fresh tissue (5.1.1) OR organoids and spheroids (5.1.2).

5.1.1 Gelation for Fresh Tissues

1. Ensure that all components are allowed to equilibrate to room temperature before use and conduct all steps in a laminar flow hood at room temperature.
2. Add 0.48 mL cell culture medium directly to the vial containing **Gel A**. Mix until homogenous with a pipette 5 – 10 times, ensuring that no bubbles are introduced (see troubleshooting guide on page 14).
3. Add 0.6 mL of the cell culture medium and **Gel A** solution to the tube of **GelBase Beads**. Place the cap back on the tube and invert the **gel / bead** mixture several times until the beads are evenly distributed throughout the gel. Gently flick the tube to settle the contents and proceed *immediately* to **step 4**.
4. Remove the cap and add your sample into the **gel / bead** mixture, ensuring that it is entirely submerged.¹ This must be done within **20 minutes** of step 3.
5. Place the cap back on the tube, ensuring a tight seal (the gel will cure *in situ* within approximately 30 minutes, sample is ready to ship after 1 hour).
6. Store away from light at the recommended temperature for the tissue type encapsulated. See the table below or, for the most up to date recommendations on storage temperatures and times, please check our

dedicated webpage by visiting

<https://www.atelerix.co.uk/guidelines-for-testing-conditions/> or by scanning the QR code.

¹Use the collection tube containing Gelbase Beads provided for encapsulation, storage, and release.



5.1.2 Gelation for Organoids and Spheroids

1. Ensure that all components are allowed to equilibrate to room temperature before use and conduct all steps in a laminar flow hood at room temperature.
2. Resuspend organoids in 0.48 mL of cell culture medium.
3. Add 0.48 mL of organoid suspension directly to the vial containing **Gel A**. Carefully mix until homogenous using a Pasteur or micropipette 5 – 10 times, ensuring that no bubbles are introduced (see troubleshooting guide on page 14).
4. Add 0.6 mL of organoid suspension and **Gel A** solution to the tube of **GelBase Beads**.
5. Place the cap back on the tube, ensuring a tight seal, and invert the **gel / bead** mixture several times until the beads are evenly distributed throughout the gel.
6. Gently flick the tube to settle the contents (the gel will cure *in situ* within approximately 30 minutes, sample is ready to ship after 1 hour).
7. Store away from light at the recommended temperature for the tissue type encapsulated. See the table below or, for the most up to date recommendations on storage temperatures and times, please check our dedicated webpage by visiting

<https://www.atelerix.co.uk/guidelines-for-testing-conditions/> or by scanning the QR code.

¹Use the collection tube containing Gelbase Beads provided for encapsulation, storage, and release.



5.2 Storage Temperature Guide

Sample	Output	Recommended Storage Conditions	Tested Storage Time
Tissue	Histology	2 - 8 °C	2-3 days
Tissue	Cell viability	15 - 25 °C	4-5 days
Tissue	Histology & Cell viability	15 - 25 °C	2-3 days
Organoids	Cell viability	15 - 25 °C	5 days

5.3 Release

1. Ensure that all components and samples are allowed to equilibrate to room temperature before use and conduct all steps in a laminar flow hood at room temperature.
2. Using a serological pipette or syringe with needle, pierce the gel and infuse between 1 mL **Dissolution Buffer** towards the bottom of the vial, filling up to the indicated line. As the Dissolution Buffer is added to the gel, remove the pipette tip/needle to avoid spillage and ensure that you do not disturb the sample.
3. Place the cap back on the tube and allow the gel to dissolve by occasionally agitating the tube by gentle inversion or rocking for **10 minutes** (see troubleshooting guide on page 11). When the gel has fully dissolved the sample can be recovered using sterile forceps (*if preserving organoids, collect using a Pasteur or micropipette*).
4. Wash sample with culture medium or buffer solution before continuing with downstream processes.

5.4 Shipping Your Samples

Use appropriate controlled room temperature packaging² when preparing samples for shipping to reduce the effect of ambient temperature change on the encapsulated tissues or organoids / spheroids during transit.

²For best cell recovery upon arrival, we recommend using the CoolGuard™ Advance CRT container. Find out more at <https://pelibiothermal.com/products/coolguard-advance>.

6 TissueReady™ Large (TR-LNS)

6.1 Gelation

Caution: Follow the correct gelation step depending on the sample being stored – Fresh tissue (6.1.1) OR organoids and spheroids (6.1.2).

6.1.1 Gelation for Fresh Tissues

1. Ensure that all components are allowed to equilibrate to room temperature before use and that gels are at the bottom of their tubes. Conduct all steps in a laminar flow hood at room temperature.
2. Add 2 mL cell culture medium directly to the vial containing **Gel A**. Mix until homogenous with a pipette 5 – 10 times, ensuring that no bubbles are introduced (see troubleshooting guide on page 14).
3. Add 2.5 mL of cell culture medium and **Gel A** solution to the tube of **GelBase Beads**. Place the cap back on the tube and invert the **gel / bead** mixture several times until the beads are evenly distributed throughout the gel. Gently flick the tube to settle the contents and proceed *immediately* to **step 4**.
4. Remove the cap and add your sample into the **gel / bead** mixture, ensuring that it is entirely submerged.¹ This must be done within **20 minutes** of step 3.
5. Place the cap back on the tube, ensuring a tight seal (the gel will cure *in situ* within approximately 30 minutes, sample is ready to ship after 1 hour).
6. Store away from light at the recommended temperature for the tissue type encapsulated. See the table below or, for the most up to date recommendations on storage temperatures and times, please check our dedicated webpage by visiting <https://www.atelerix.co.uk/guidelines-for-testing-conditions/> or by scanning the QR code.

¹Use the collection tube containing GelBase Beads provided for encapsulation, storage, and release.



6.1.2 Gelation for Organoids and Spheroids

1. Ensure that all components are allowed to equilibrate to room temperature before use and that gels are at the bottom of their tubes. Conduct all steps in a laminar flow hood at room temperature.
2. Resuspend organoids in 2 mL of cell culture medium.
3. Add 2 mL of organoid suspension directly to the vial containing **Gel A**. Carefully mix until homogenous using a Pasteur or micropipette 5 – 10 times, ensuring that no bubbles are introduced (see troubleshooting guide on page 14).
4. Add 2.5 mL of organoid suspension and **Gel A** solution to the tube of **GelBase Beads**.
5. Place the cap back on the tube, ensuring a tight seal, and invert the **gel / bead** mixture several times until the beads are evenly distributed throughout the gel.
6. Gently flick the tube to settle the contents (the gel will cure *in situ* within approximately 30 minutes, sample is ready to ship after 1 hour).
7. Store away from light at the recommended temperature for the tissue type encapsulated. See the table below or, for the most up to date recommendations on storage temperatures and times, please check our dedicated webpage by visiting <https://www.atelerix.co.uk/guidelines-for-testing-conditions/> or by scanning the QR code.

¹Use the collection tube containing GelBase Beads provided for encapsulation, storage, and release.



6.2 Storage Temperature Guide

Sample	Output	Recommended Storage Conditions	Tested Storage Time
Tissue	Histology	2 - 8 °C	2-3 days
Tissue	Cell viability	15 - 25 °C	4-5 days
Tissue	Histology & Cell viability	15 - 25 °C	2-3 days
Organoids	Cell viability	15 - 25 °C	5 days

6.3 Release

1. Ensure that all components and samples are allowed to equilibrate to room temperature before use and conduct all steps in a laminar flow hood at room temperature.
2. Using a pipette tip or a syringe with needle, pierce the gel and infuse 3 mL **Dissolution Buffer** towards the bottom of the vial, ensuring that you do not disturb the sample. As the Dissolution Buffer is added to the gel, remove the pipette tip/needle to avoid spillage.
3. Place the cap back on the tube and allow the gel to dissolve by occasionally agitating the tube by gentle inversion or rocking for **10 minutes** (see troubleshooting guide on page 11). When the gel has fully dissolved the sample can be recovered using sterile forceps (*if preserving organoids, collect using a Pasteur or micropipette*).
4. Wash sample with culture medium or buffer solution before continuing with downstream processes.

6.4 Shipping Your Samples

Use appropriate controlled room temperature packaging² when preparing samples for shipping to reduce the effect of ambient temperature change on the encapsulated tissues or organoids / spheroids during transit.

²For best cell recovery upon arrival, we recommend using the CoolGuard™ Advance CRT container. Find out more at <https://pelibiothermal.com/products/coolguard-advance>.

7 TissueReady™ Extra Large (TR-XNS)

7.1 Gelation

Caution: Follow the correct gelation step depending on the sample being stored – Fresh tissue (7.1.1) OR organoids and spheroids (7.1.2).

7.1.1 Gelation for Fresh Tissue

1. Ensure that all components are allowed to equilibrate to room temperature before use and that gels are at the bottom of their tubes. Conduct all steps in a laminar flow hood at room temperature.
2. Add 8 mL cell culture medium directly to the vial containing **Gel A**. Mix until homogenous with a pipette 5 – 10 times, ensuring that no bubbles are introduced (see troubleshooting guide on page 14).
3. Add 10 mL of cell culture medium and **Gel A** solution to the tube of **GelBase Beads**. Place the cap back on the tube and invert the **gel / bead** mixture several times until the beads are evenly distributed throughout the gel. Gently flick the tube to settle the contents and proceed *immediately* to **step 4**.
4. Remove the cap and add your sample into the **gel / bead** mixture, ensuring that it is entirely submerged.¹ This must be done within **20 minutes** of step 3.
5. Place the cap back on the tube, ensuring a tight seal (the gel will cure *in situ* within approximately 30 minutes, sample is ready to ship after 1 hour).
6. Store away from light at the recommended temperature for the tissue type encapsulated. See the table below or, for the most up to date recommendations on storage temperatures and times, please check our dedicated webpage by visiting <https://www.atelerix.co.uk/guidelines-for-testing-conditions/> or by scanning the QR code.

¹Use the collection tube containing GelBase Beads provided for encapsulation, storage, and release.



7.1.2 Gelation for Organoids and Spheroids

1. Ensure that all components are allowed to equilibrate to room temperature before use and that gels are at the bottom of their tubes. Conduct all steps in a laminar flow hood at room temperature.
2. Resuspend organoids in 8 mL of cell culture medium.
3. Add 8 mL of organoids suspension medium directly to the vial containing **Gel A**. Mix until homogenous with a pipette 5 – 10 times, ensuring that no bubbles are introduced (see troubleshooting guide on page 14).
4. Add 10 mL of organoid suspension and **Gel A** solution to the tube of **GelBase Beads**.
5. Place the cap back on the tube, ensuring a tight seal, and invert the **gel / bead** mixture several times until the beads are evenly distributed throughout the gel.
6. Gently flick the tube to settle the contents (the gel will cure *in situ* within approximately 30 minutes, sample is ready to ship after 1 hour).
7. Store away from light at the recommended temperature for the tissue type encapsulated. See the table below or, for the most up to date recommendations on storage temperatures and times, please check our dedicated webpage by visiting <https://www.atelrix.co.uk/guidelines-for-testing-conditions/> or by scanning the QR code.

¹Use the collection tube containing GelBase Beads provided for encapsulation, storage, and release.



7.2 Storage Temperature Guide

Sample	Output	Recommended Storage Conditions	Tested Storage Time
Tissue	Histology	2 - 8 °C	2-3 days
Tissue	Cell viability	15 - 25 °C	4-5 days
Tissue	Histology & Cell viability	15 - 25 °C	2-3 days
Organoids	Cell viability	15 - 25 °C	5 days

7.3 Release

5. Ensure that all components and samples are allowed to equilibrate to room temperature before use and conduct all steps in a laminar flow hood at room temperature.
6. Using a serological pipette or syringe with needle, pierce the gel and infuse between 6 mL and 12 mL **Dissolution Buffer** towards the bottom of the vial, filling up to the indicated line. As the Dissolution Buffer is added to the gel, remove the pipette tip/needle to avoid spillage and ensure that you do not disturb the sample.
7. Place the cap back on the tube and allow the gel to dissolve by occasionally agitating the tube by gentle inversion or rocking for **10 minutes** (see troubleshooting guide on page 11). When the gel has fully dissolved the sample can be recovered using sterile forceps (*if preserving organoids, collect using a Pasteur or micropipette*).
8. Wash sample with culture medium or buffer solution before continuing with downstream processes.

7.4 Shipping Your Samples

Use appropriate controlled room temperature packaging² when preparing samples for shipping to reduce the effect of ambient temperature change on the encapsulated tissues or organoids / spheroids during transit.

²For best cell recovery upon arrival, we recommend using the CoolGuard™ Advance CRT container. Find out more at <https://pelibiothermal.com/products/coolguard-advance>.

8 Troubleshooting Guide

Problem / Question	Guidance
I have air bubbles in the gel after mixing with my media, is this a problem?	Air trapped within the gel will affect preservation, so bubbles should be eliminated before mixing with the beads. Allow time for the mixture to settle and the bubbles to travel to the surface before addition.
Can I use the kit to encapsulate organoids and / or spheroids?	Yes, organoids / spheroids can be encapsulated by following the same protocol. Although for recovery we would recommend washing in the tube by repeatedly allowing the material to settle by gravity and carefully removing the supernatant.
Can I ship the Dissolution Buffer in the same package as the samples?	Yes, the Dissolution Buffer is stable at a wide range of temperatures and can be shipped together with the encapsulated samples.
What are the recommended storage times and temperatures for my tissue type?	A guide to the recommended storage times and temperatures can be found within this book and at https://www.atelerix.co.uk/guidelines-for-testing-conditions/ . If you cannot find any recommendations for your cell type please contact technical@atelerix.co.uk .
Can I reuse the contents of the kit if I don't use it all?	No, there should only be sufficient volume for a set number of encapsulations per kit. Any spare reagents will not be sufficient to perform any additional encapsulations properly.
Can I use PBS instead of media when encapsulating samples?	No, PBS should not be used at any point as it inhibits and slowly reverses gelation.
Can I split the kit into smaller tubes to get more encapsulations?	No, we do not recommend removing the Gelbase Beads from the tubes supplied or deviating from the volumes stated.
Can I encapsulate multiple tissue biopsies in the same tube in order to get more encapsulations?	Yes, multiple tissues may be encapsulated in the same tube provided the combined size of the tissues does not exceed the recommended tissue size, and all pieces of tissue can be fully submerged in the gel.
What if beads have not fully dissolved after 10 minutes? Can the sample be allowed to sit in the buffer for longer?	As long as the Gel A component is dissolved you do not need to wait for the beads to dissolve to remove your sample (unless your sample is organoids / spheroids). Please contact technical@atelerix.co.uk for information on how long materials may be allowed to incubate in the Dissolution Buffer.

9 Statements

9.1 Kit Storage and Stability

This kit is stable at 2-8°C. Atelerix does not recommend using the kit after the expiry date stated on the packaging.

9.2 Cellular Material

This kit can be used to encapsulate small tissue biopsies and cellular spheroids/organoids.² Please ensure that biological materials are free of fungal and bacterial contamination before proceeding.

9.3 Trademarks

TissueReady™ is a trademark of Atelerix Ltd.

Notes