MMI Protocol

Sample Lysis for MMI Isolation Caps



Lysis of Tissue Sections and Single Cells using Sonication

Introduction

This protocol describes the lysis of tissue sections or single cells that have been isolated using the CellCut Laser Microdissection system and collected onto MMI Isolation Caps.

To maximise the recovery and quality of nucleic acids or proteins from these low-input samples, lysis is performed directly on the Isolation Caps. This minimises sample handling and loss, which is especially critical when working with minute or rare material.

Materials

- Lysis buffer (composition depending on your downstream application)
- MMI Isolation Caps (0.2, 0.5 or 1.5 ml)
- Ultrasonic lab bath
- Dry bath or heat block
- Microcentrifuge

Method

1. Pipette 20 µl of lysis buffer onto the MMI Isolation Cap to fully immerse the tissue or cells

Note: It is essential to ensure that the tissue on the cap is fully immersed in the lysis buffer. If a smaller volume (e.g., 10 µl) is sufficient to cover the sample completely, it may be used instead of 20 µl. However, this adjustment should be validated to ensure optimal performance in your specific experimental setup.

2. Non-contact ultrasonication under the following conditions:

- Power: 450–540 W
- Cycle: 15 s on / 30 s off
- Total: 30 cycles (~22min)

Note: Sonicate the closed Isolation Caps upside down (cap facing downward) to loosen the cuts from the surface

3. Centrifuge the Isolation Cap at up to 2,000g for 10 seconds

4. Incubate the sample at 90°C for 90 minutes in a dry bath / heat block

5. Repeat centrifugation at up to 2000g for 10 seconds

6. Repeat the same ultrasonication procedure described in step 2

7. Perform a final centrifugation up to 2000g for 10 seconds

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