

Applied Biosystems® Arcturus® Live Cell Applications for the Applied Biosystems® Arcturus^{XTM} Laser Capture Microdissection System

Benefits

- Enables live-cell microdissection and imaging
- Specially designed for *in vitro* research

In vitro studies provide valuable insights into cellular processes and mechanisms in their native states; however, these data are unavailable to researchers using fixed or otherwise processed specimens. Now, with the Applied Biosystems® Arcturus® Live Cell Application Module from Life Technologies, researchers performing experiments on live cells, such as transfection studies, can use the Applied Biosystems® Arcturus^{XTM} Laser Capture Microdissection (LCM) System to help access the desired information (Figure 1).

Special Design for Your Live-Cell Research

A custom modular stage insert enables researchers to use the Arcturus^{XTM} LCM System for imaging and microdissection of living cells from a Petri dish format (Figures 2 and 3). Following a validated protocol from Arcturus®—the leaders in tissue-based microdissection—the isolated live cells remain viable for subsequent re-culture or direct processing for use in downstream applications (Figure 4).



Figure 1. The Applied Biosystems® Arcturus^{XTM} Laser Capture Microdissection (LCM) System.

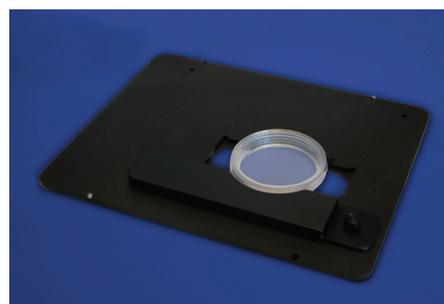


Figure 2. Applied Biosystems® Arcturus^{XTM} Petri Dish Stage Insert. The Applied Biosystems® Arcturus^{XTM} Petri Dish Stage Insert enables both live-cell imaging and live-cell microdissection experiments. The modular stage insert design allows easy exchange between live-cell and standard tissue-based applications.

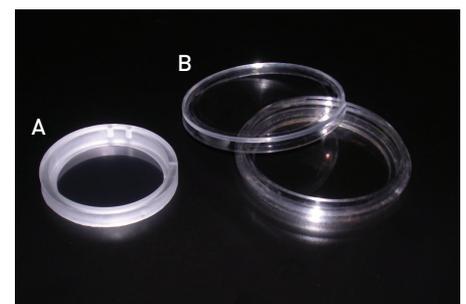


Figure 3. AXT Live Cell Growth Chamber and Microdissection Petri Dish. Live cells are grown on the PEN membrane surface of the Applied Biosystems® AXT Live Cell Growth Chamber (A), which is then placed into the AXT Microdissection Petri Dish (B) for the isolation procedure. The entire microdissection process takes place under sterile conditions.

Live Cell Module Applications

Sample applications that can be performed on the Applied Biosystems® Arcturus^{XTM} LCM System using the Live Cell Application Module include:

- Live-cell microdissection from Petri dish
 - Isolate adherent cells from a mixed culture
 - Separate different cell types and re-culture each back to purity
 - Isolate stem cells
 - Isolate subcultures of undifferentiated cells
 - Isolate differentiated cells for genomic or proteomic analysis

- Isolate transfected cells (e.g., GFP) for *in vivo* studies
- Isolate cells for clonal expansion
- Live-cell imaging from Petri dish
 - Nikon Eclipse Ti-E research microscope base
 - Optional high-resolution camera
 - Optional fluorescence, phase contrast, and differential interference contrast (DIC) imaging

Live Cell Module Consumables and Accessories

- Modular Petri dish stage insert
 - Can be installed by user
 - Easy exchange for standard tissue microdissection
- Specialized sterile live-cell microdissection accessories
 - AXT Live Cell Growth Chamber, 35 mm
 - AXT Microdissection Petri Dish, 50 mm

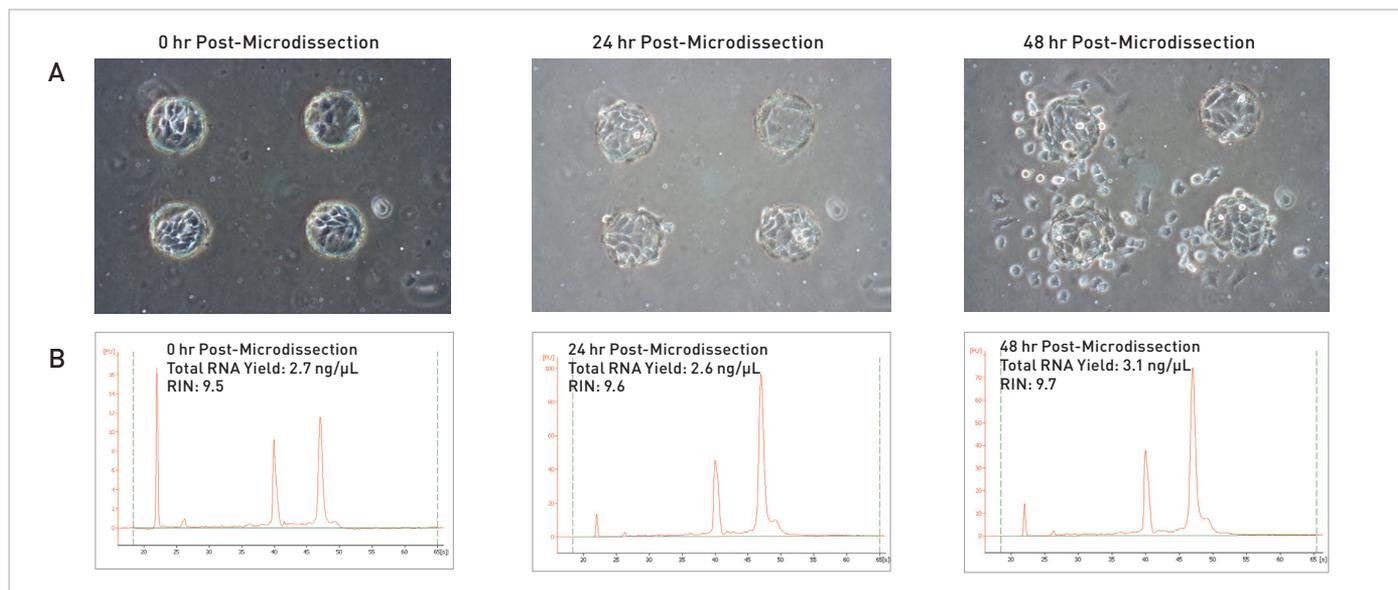


Figure 4. High RNA Yields From Applied Biosystems® Arcturus® Live Cell Microdissection. (A) Chinese hamster ovary (CHO) cells were grown in the AXT Live Cell Growth Chamber, and were subsequently isolated under sterile conditions using the AXT Microdissection Petri Dish on the Arcturus^{XTM} LCM instrument. The isolated cells were allowed to outgrow, and were visualized under differential interference contrast (DIC) at 0 hr, 24 hr, and 48 hr post-microdissection. (B) Human rhabdomyosarcoma (TE671) cells were cultured and microdissected in the same manner as described in Panel A. At each time point post-microdissection (0 hr, 24 hr, 48 hr) the isolated cells were trypsinized from the AXT Microdissection Petri Dish and total RNA was isolated. Total RNA quality (Agilent Bioanalyzer) and quantity (NanoDrop ND-1000) were evaluated, and both were found sufficient for downstream analysis, demonstrating that the microdissection process has no detrimental effects on the RNA.

ORDERING INFORMATION

Description	Size	Part Number
Arcturus ^{XTM} LCM Instrument	1 each	ARCTURUSXT
Arcturus ^{XTM} Petri Dish Stage Insert	1 each	0310-5631
AXT Live Cell Growth Chamber – Sterile	1 each	5000300
AXT Microdissection Petri Dish – Sterile	1 each	5000301

For additional information on Applied Biosystems® Arcturus^{XTM} Live Cell Applications and to place your order, visit www.appliedbiosystems.com/arcturus.

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