

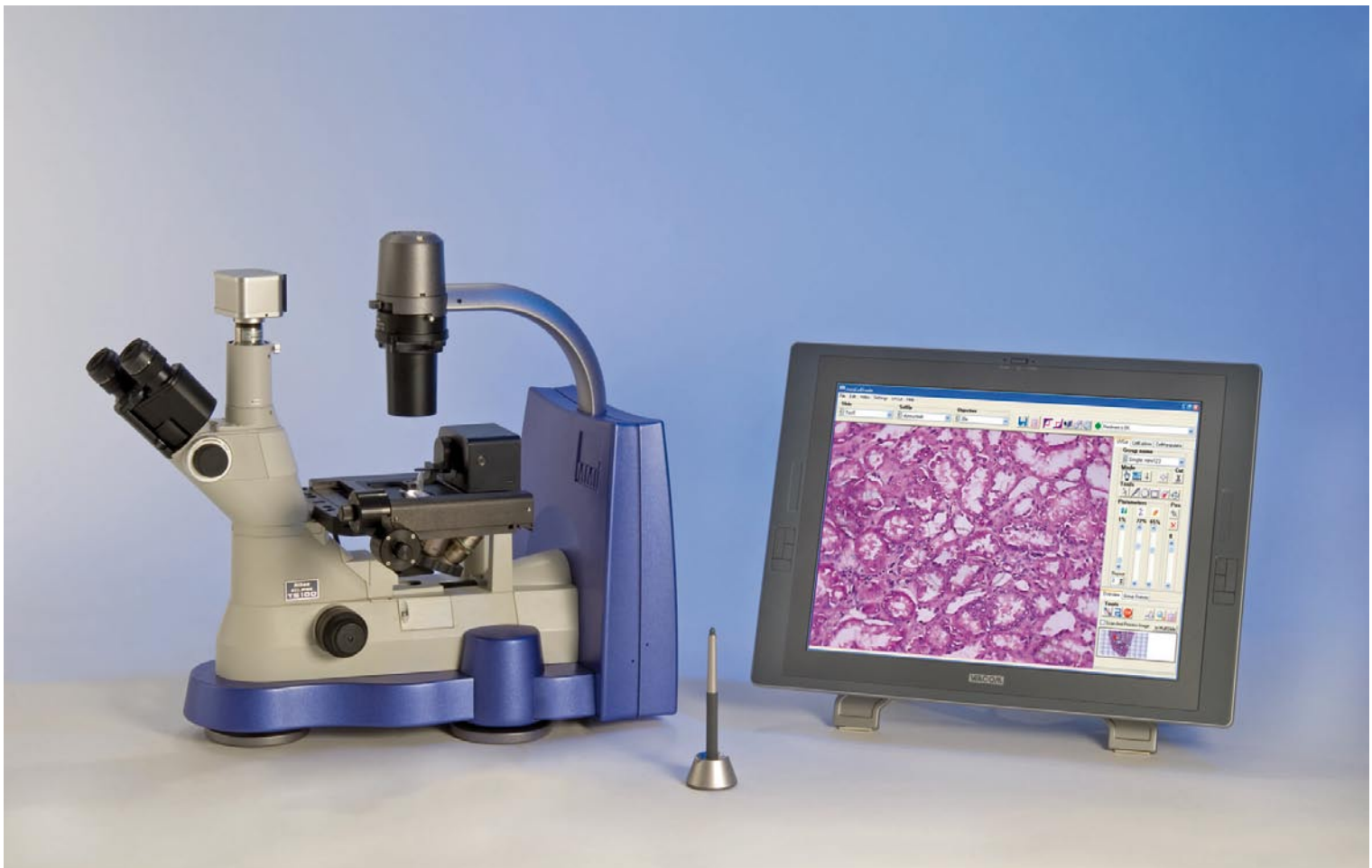


Molecular Machines & Industries

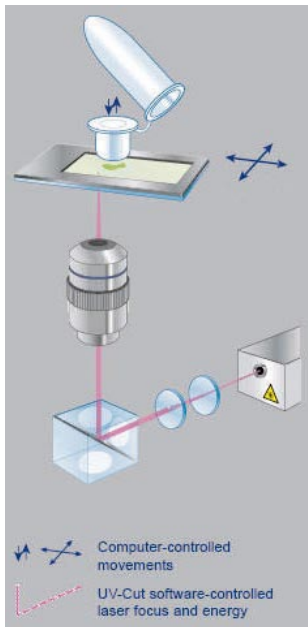
# mmi SmartCut <sup>PLUS</sup>

## Laser Microdissection System reduced to the max

MMI Switzerland developed and optimized solid state laser technology for ultra-precise cutting of uncontaminated samples from tissues and live cell cultures. Today, this technology is emerging as a prime technology in the rapid isolation of single cells or multi cellular structures. Hereby, we introduce our latest and smartest innovation: the mmi SmartCut Plus system - a compact, high-precision laser microdissection system that will impress with it's fast and easy handling and last not least with it's cost effectiveness.



## mmi Technologie:

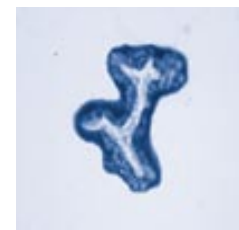
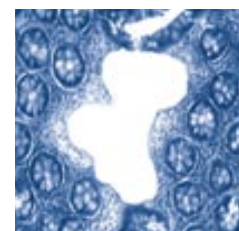
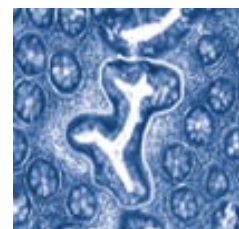
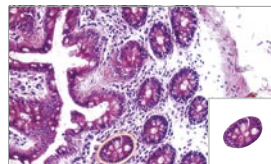


The mmi SmartCut Plus system consists of a comfortable inverted microscope with a motorized scanning stage, a solid state laser with a requisite laser beam delivery, transfer optics and a high-end computer which runs under MS Windows. The system is operated via MMI's especially developed software mmi CellTools which controls the laser, image capture, all scanning stage actions and automated CapLift options. In microdissection a "live view" image of the microscopic sample is displayed on the monitor, allowing the user to easily identify and mark the target area, e.g. a cell or a group of cells. During microdissection, the UV laser is focused with the objective onto the microscopic sample and remains aligned at the centre of the optical axis whilst the high-precision motorized stage is used to accurately move the sample. Finally, the unique and patented mmi CapLift technology provides a contamination-free of targeted collection of microdissected sample materials.



## Applications:

- Molecular pathology
- Cell biology
- Cancer research
- Forensic medicine
- Immunology
- Food research
- Neuroscience
- Microbiology / Virology
- Genomics / Proteomics
- Live cell handling



Today, targeting specific cells in healthy as well as in diseased tissues is of particular importance in elucidating the molecular mechanisms that lead to cancer and other life-threatening diseases. The group of Tomlins, et al. published recently a molecular concept of prostate cancer progression after laser microdissection and individual profiling of 101 specific cell populations with the mmi CellCut, (see Ref.1). Further, Buckanovich et al. used Immuno-LCM for the expressive profiling of cell populations in a tumor micro environment of human ovarian cancer, (see Ref. 2). The above image showed a colon tissue stained with hematoxylin/eosin and the insert displays intestinal glands of this section after microdissection. The easily dissected area is now ready for any downstream analysis such as molecular profiling for proteomics or genomics means.

Ref. 1 Tomlins, S.A. et al. NATURE GENETICS 39, 41 – 48 (2007)

Ref. 2 Buckanovich, R.J. et al. CANCER BIOLOGY & THERAPY, 5:6 635-642 (2006)

## Technical Specifications:

Samples	For all application-relevant samples; cryo or paraffin-preserved tissues, single cells, cytopins cell compartments, chromosomes, etc.
Microscope	System integrated TS100-F with CF160 infinity optics, illumination pillar with 30 W halogen lamphouse, long working distance condenser NA 0.3 WD = 75mm,
Picosecond UV, solid-state laser	Computer-controlled / Wavelength: 355 nm / Pulse duration: <500 psec Pulse energy/average energy: <1 µjoule/approx. 4 mW, Repetition rate: > 5kHz
	System complies with IEC 60825-1 AM. 2:2001. Class 1M laser product
CapLift technology	Covering full slides; unique and contamination-free technology
Digital camera with high sensitivity	Digital colour: 1,032x776 pixels with integrated 1/3" interline progressive CCD, compact housing
mmi CellTools software basic functions	Laser energy and focus control / Full slide and petri dish control / Saving multi-user profiles MultiGroup function, Autodocumentation
PC and monitor	Windows XP, 19" LCD monitor; Specifications will be continuously updated
Motorized stage	Computer-controlled for high-precision movement/cutting Travelling range: 120x100 mm: step width: 0.075 µm; repositioning accuracy: 2 µm
<b>Options</b>	
PenScreen system operation	Sensitive 17" or 21" touch screen monitor for user-friendly system operation
mmi CellExplorer	Cell identification software which automatically identifies and cut's out cells
manual mmi CapLift	manual mmi CapLift available upon request

