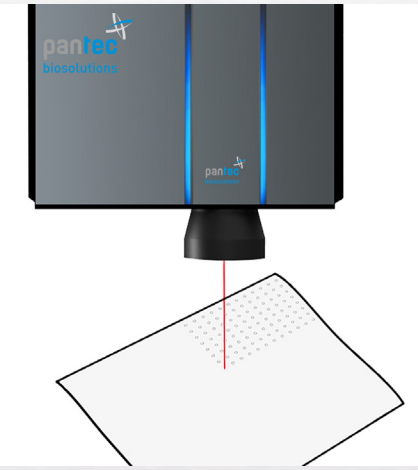
MIR Laser Lab

Pore Generator & Analyzer

m.i.k.r.o.n.™
Innovative Laser Systems

- Er:YAG laser for precise ablation of biological tissue with high-speed scanner.
- Cold ablation with minimal thermal tissue impact.
- Flexible adjustable pore pattern and ablation depth.
- Optional integrated OCT for real-time depth control of generated pores and 3D-diagnosis.
- Optional integrated camera for pore tracking and diagnosis.
- Optional integrated beam shaping mechanism to flexibly change beam size and beam shape for each pore.



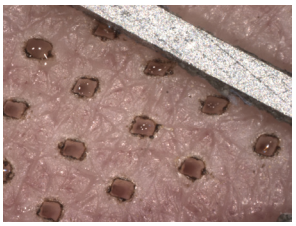
Specifications

Optical Parameters	
· Wavelength	2940 nm (Er:YAG), others on request
· Laser class (device)	Class 4
· Average Output Power (max)	2 W
· Pulse Energy (max)	20 mJ
· Pulse Repetition Rate	up to 1 kHz
· Pulse Duration	(40 - 500) µs
· Mode of Operation	Pulsed, free-beam
· Beam Shape	Top hat, circular (other shapes on request, optional: adjustable beam shape)
· Beam Focus	250 µm (other beam focus on request, optional: adjustable beam size)
· Focus Distance	Ca. 15 cm from last surface
· Scan Surface	(50 x 50) mm²
· Aiming Beam	E.g. red color
Diagnosis Tools	
· OCT (optional)	1300 nm wavelength OCT aligned with Er:YAG beam
· Camera (optional)	2 MP
Cooling Requirements	
· Cooling	forced-air
Electrical Parameters	
· Power Consumption	Ca. 500 VAC (without PC and optional item)
· Operating Voltage	(100 x 240) VAC, 50/50 Hz
Mechanical Dimensions	
· Dimension (L x W x H)	(60 x 60 x 60) cm³ (without PC and optional item)
· Weight	30 kg (without PC and optional item)

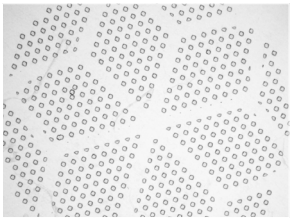
3m.i.k.r.o.n.™ impresses with its high degree of flexibility. It enables cold ablation with high energy pulses or high thermal impact by heat stacking with a series of low energy pulses. A few high energy pulses can open the tissue and drill into the target tissue layer.

Furthermore, the repetition rate can be adjusted up to 1 kHz, allowing usage of a high-speed scanner for sequential micropore generation, instead of using multi-lense arrays. This results in a homogeneous pore distribution, variable pore densities and very high energy respectively thermal impact per pore (25 times higher energy compared to traditional Er:YAG lasers with mulit-lense arrays).

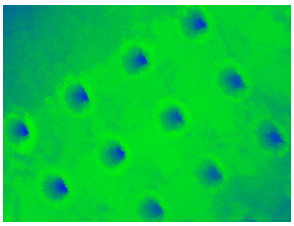
Application



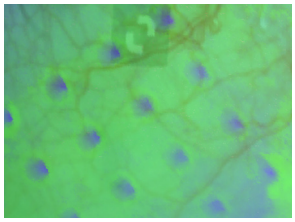
Micropores generated with 100 ppp (in vivo). Minimal coagulation, without bleeding.



Micropores generated on thermal paper. The grid results from a disposable, keeping the skin in focus over the whole treatment area.



Micropores generated on biological tissue, measured with OCT for further analysis.



Micropores generated on biological tissue and overlaid with detected image.

Test and Evaluate

The 3m.i.k.r.o.n.™ evalution kits are ready-to-use and straightforward laboratory systems for first feasibility studies in research environment. The evaluation kits are available with different kinds of laser sources (see front page), shortens the development time, enables flexibility and a fast demonstration of feasibility. The test systems are delivered with your requested laser source, a laser control system and a cooling system for laboratory use only.

Please contact us for more information on rental or purchase conditions: info@pantec-biosolutions.com

3m.i.k.r.o.n.™ Applications

Medical	Industrial
· Aesthetics / Dermatology	· Material Processing (Drilling, Cutting, Melting, Welding, Evaporation)
· Dentistry	· Analytics
· ENT	· Security
· Lithotripsy	· Defense
· Minimally-Invasive Surgery	
· Orthopedics	
· etc.	

More Services

Customized laser sources
Optical and mechanical design
Contract development and manufacturing
Medical device consulting (IP research, Medical CE, ...)

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