



DAMAE MEDICAL
see beyond appearances

French start-up company founded in 2014, based in Paris

Development of medical devices based on LC-OCT, improving skin cancer management with cellular-resolution imaging

LC-OCT TECHNOLOGY INVENTED BY PROF. ARNAUD DUBOIS AT CHARLES FABRY LAB (CNRS, IOGS, UPSACLAY) AND FULLY TRANSFERRED TO DAMAE MEDICAL



20

TEAM
Product
Software
Optics
Applications
Data science

3

CE-MARK OBTAINED

50

SCIENTIFIC PUBLICATIONS

25

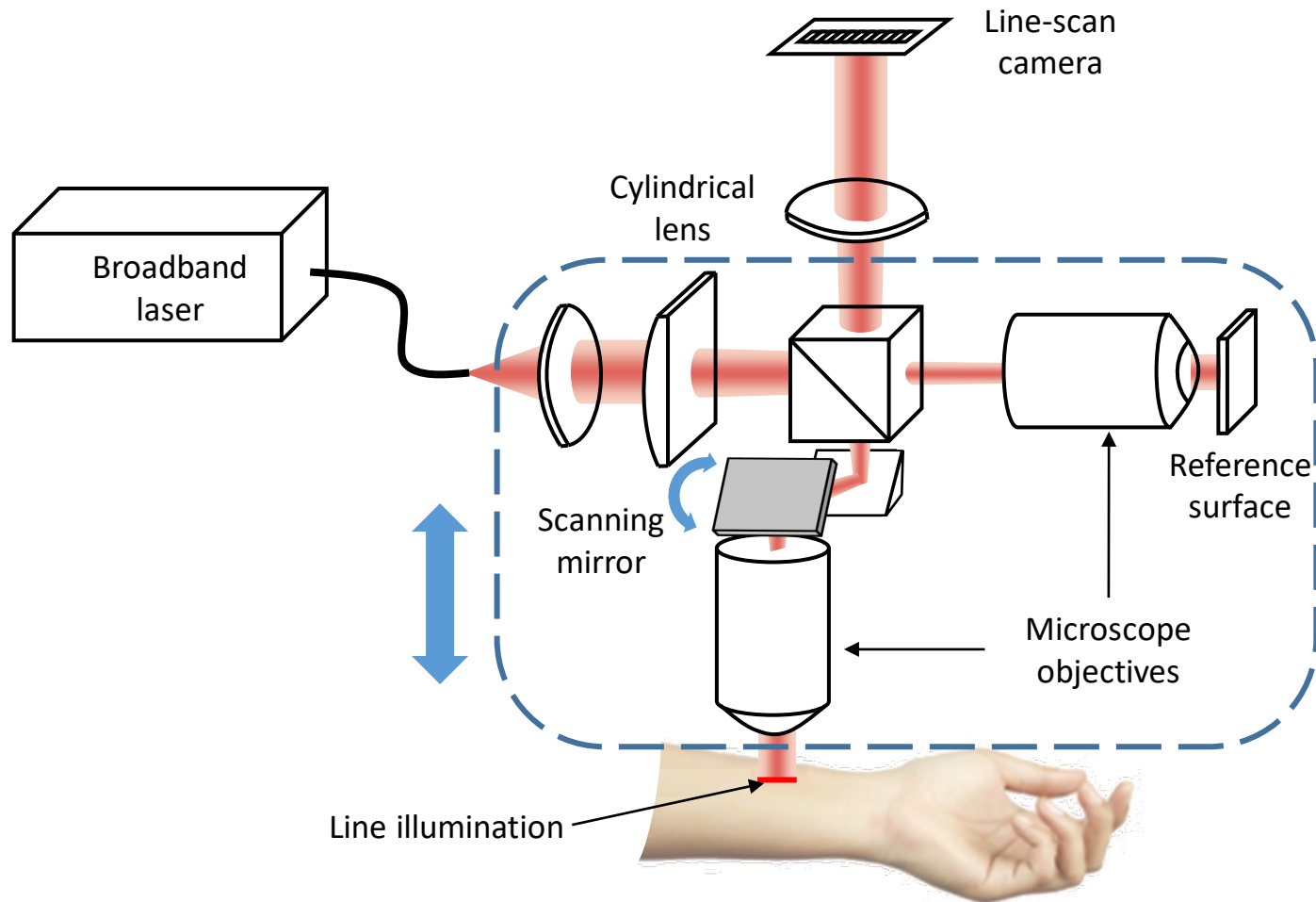
INSTALLED BASE

6

PATENT FAMILIES

100/year

PRODUCTION CAPACITY



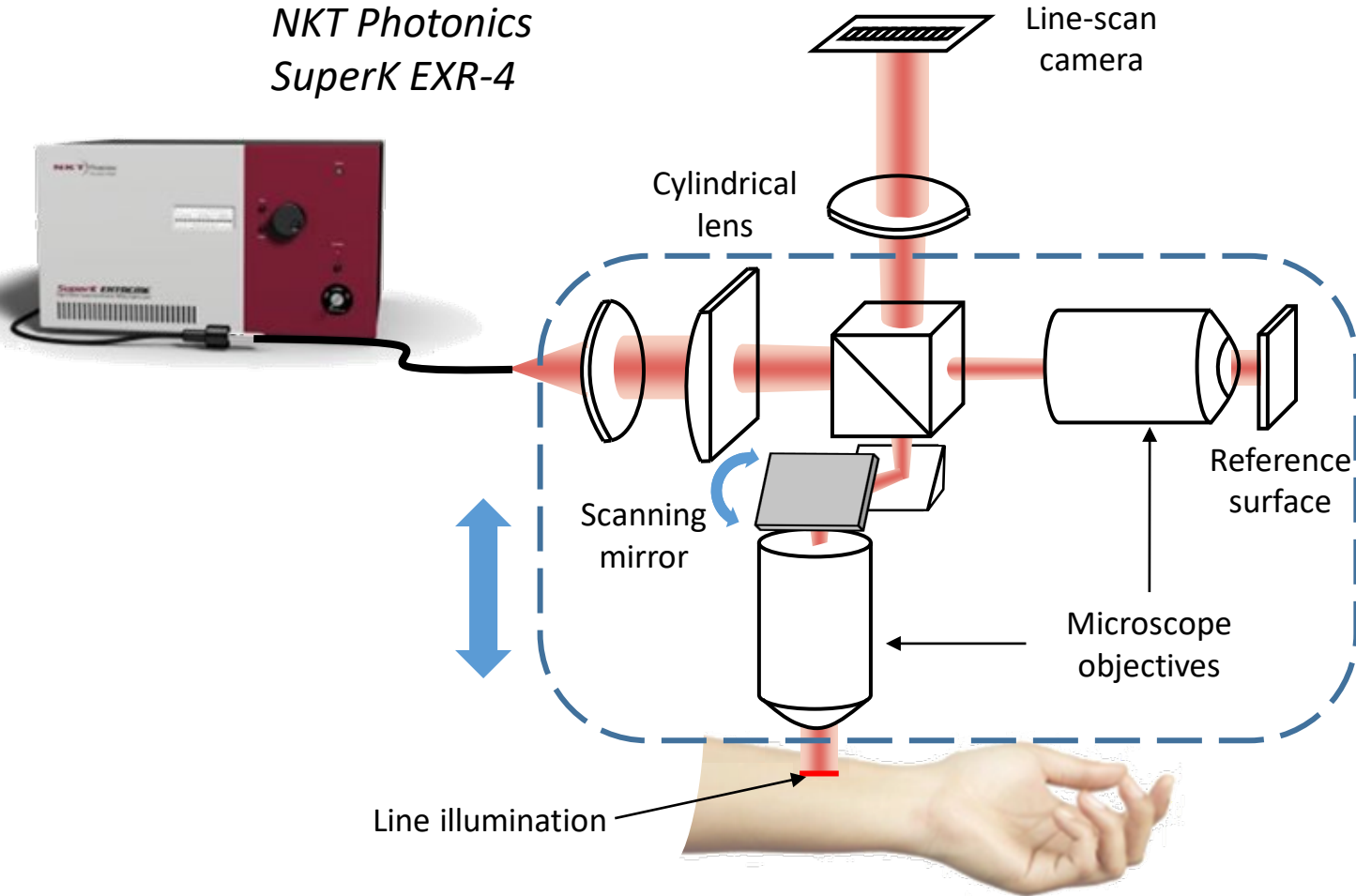
- **Broadband laser:** high axial resolution
- **Microscope objectives:** high lateral resolution
- **Line illumination and detection:** confocal filtering + parallelization for fast acquisition
- **Vertical scan:** vertical slice imaging
- **Lateral scan:** en face imaging

- Dubois A, *et al.* Line-field confocal optical coherence tomography for high-resolution noninvasive imaging of skin tumors. *J Biomed Opt* 2018;**23**:1–9.
- Ogien J, *et al.* Dual-mode line-field confocal optical coherence tomography for ultrahigh-resolution vertical and horizontal section imaging of human skin in vivo. *Biomed Opt Express* 2020;**11**:1327.
- Ogien, J, *et al.* Line-field confocal optical coherence tomography for three-dimensional skin imaging. *Front Optoelectron* 2020;**13**:381–392.

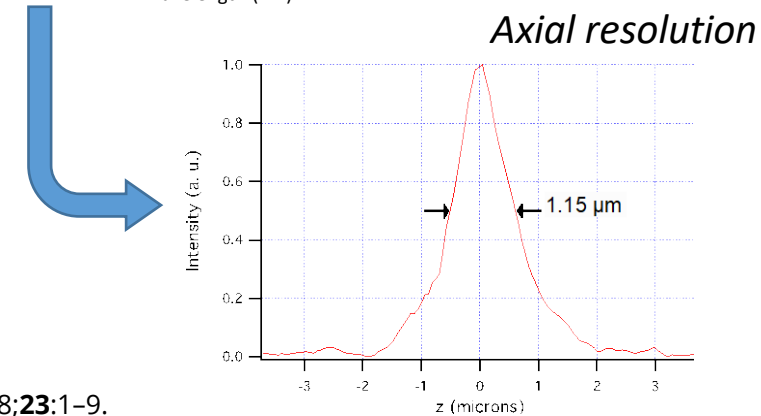
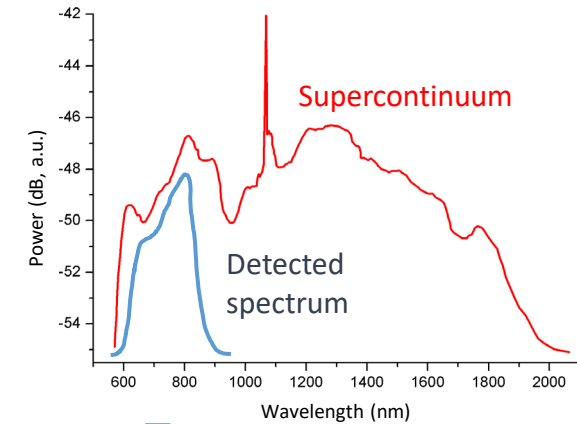
LC-OCT: Line-field Confocal Optical Coherence Tomography



NKT Photonics
SuperK EXR-4



- **Broadband laser:** high axial resolution

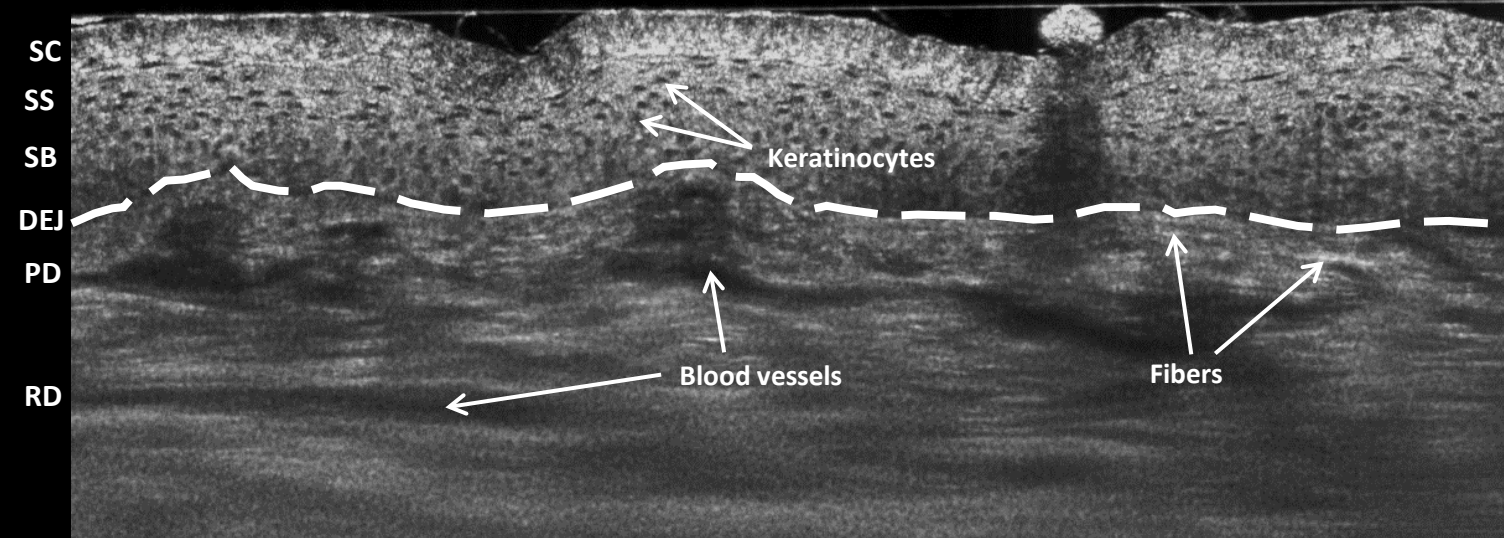


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LC-OCT: Line-field Confocal Optical Coherence Tomography



2016, First LC-OCT prototype with integrated EXR-4



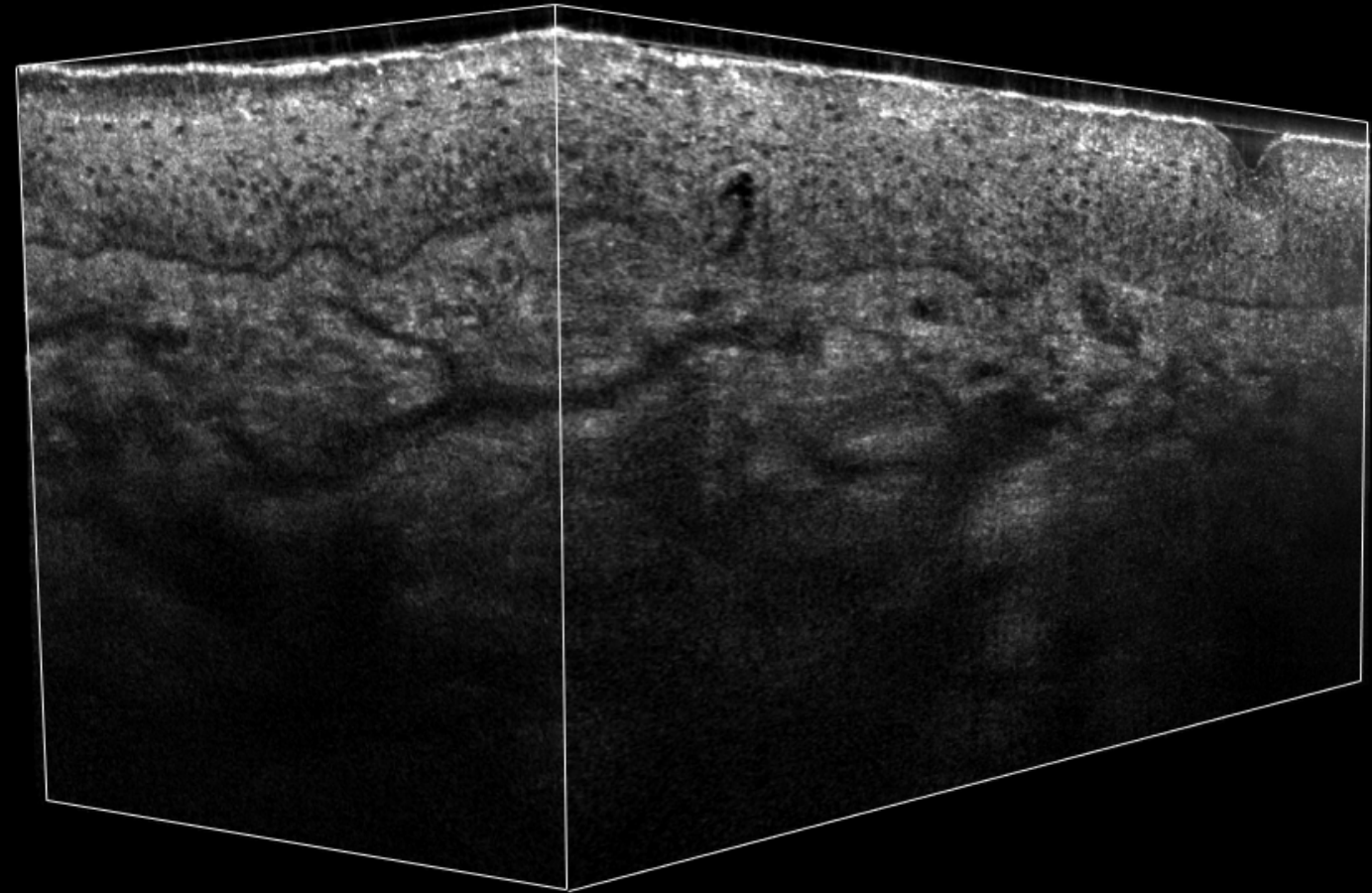
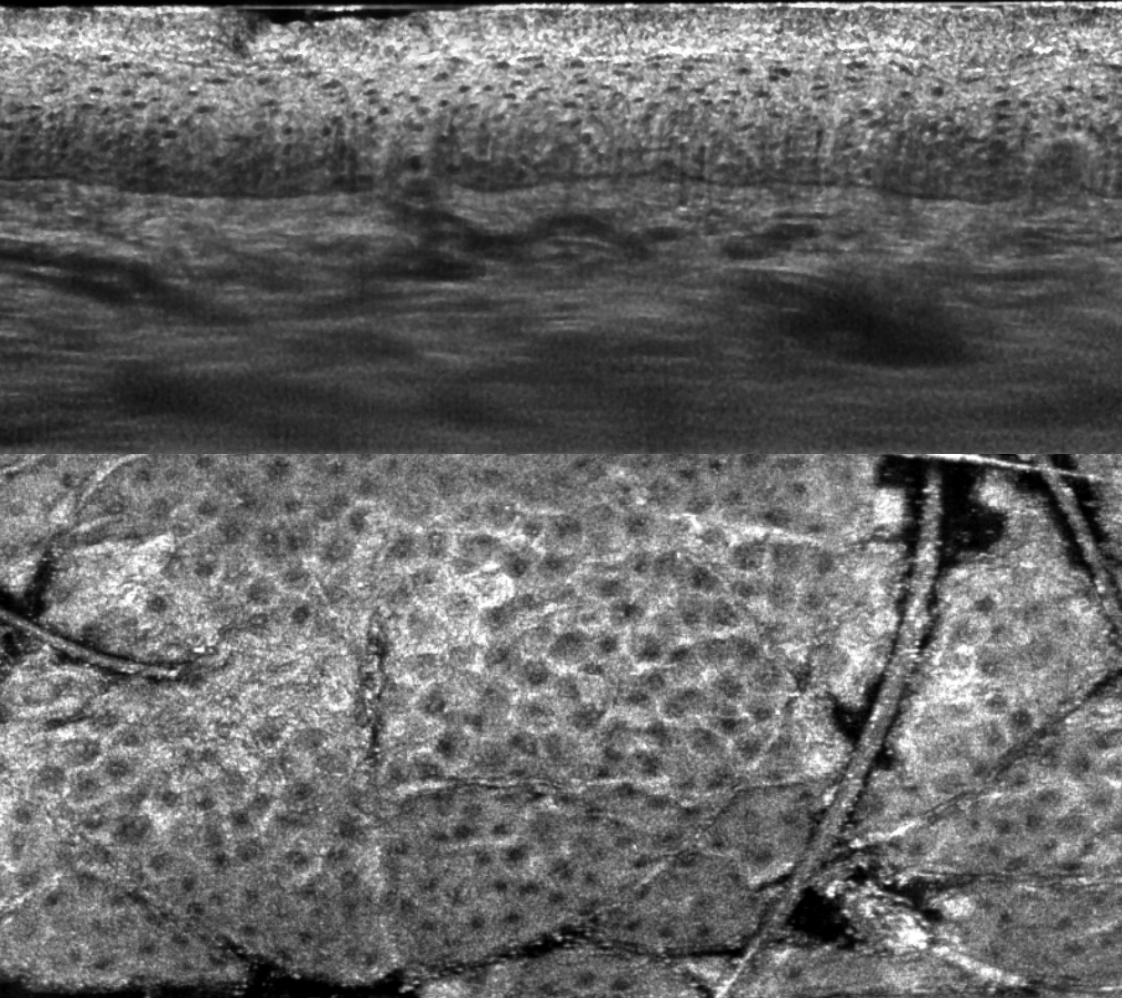
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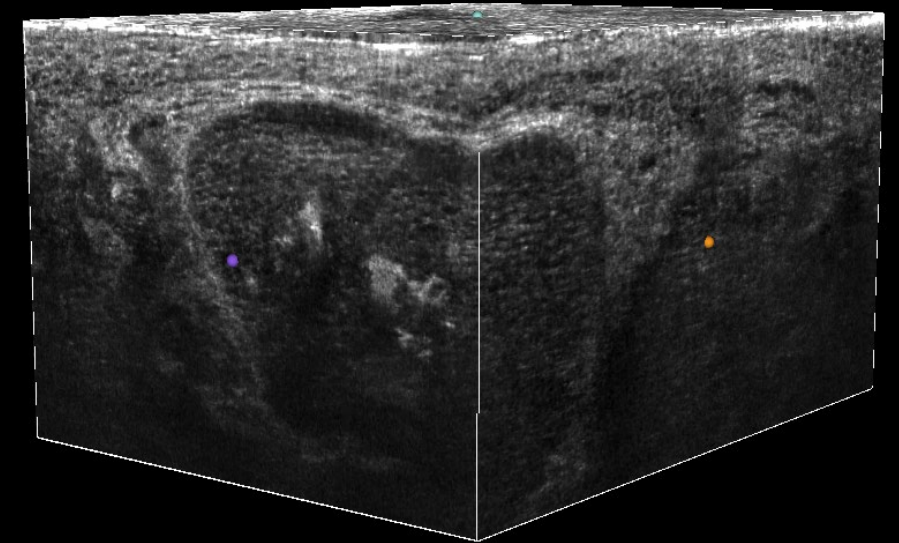
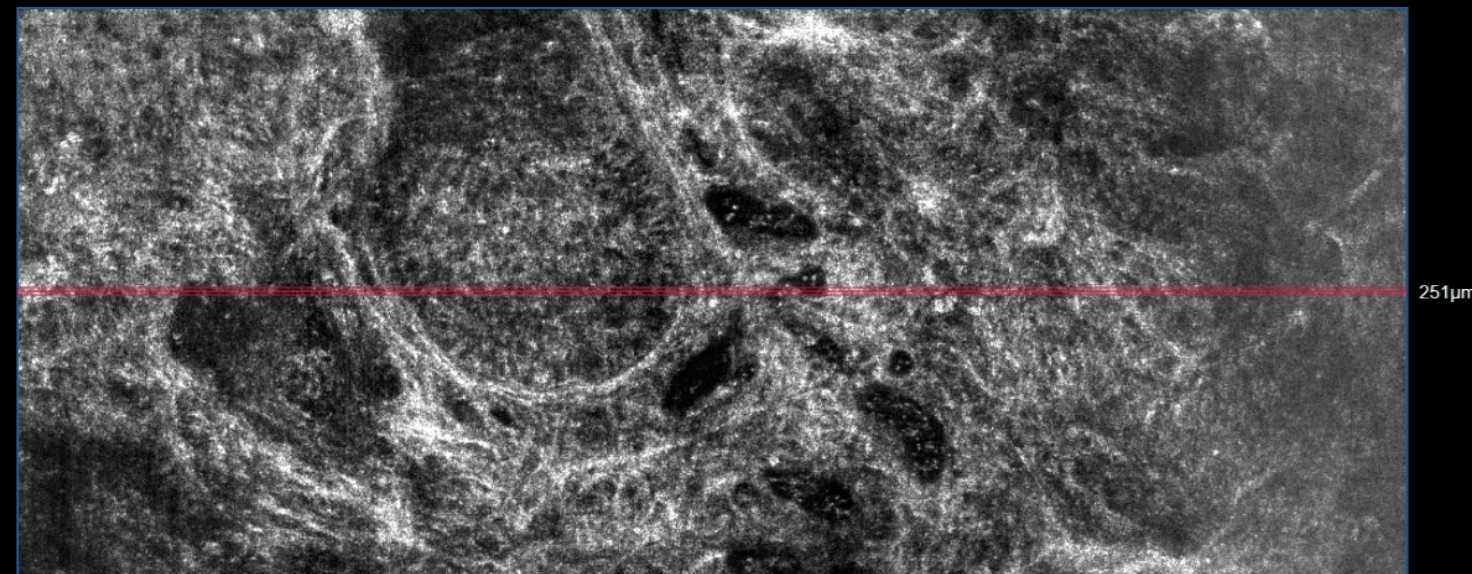
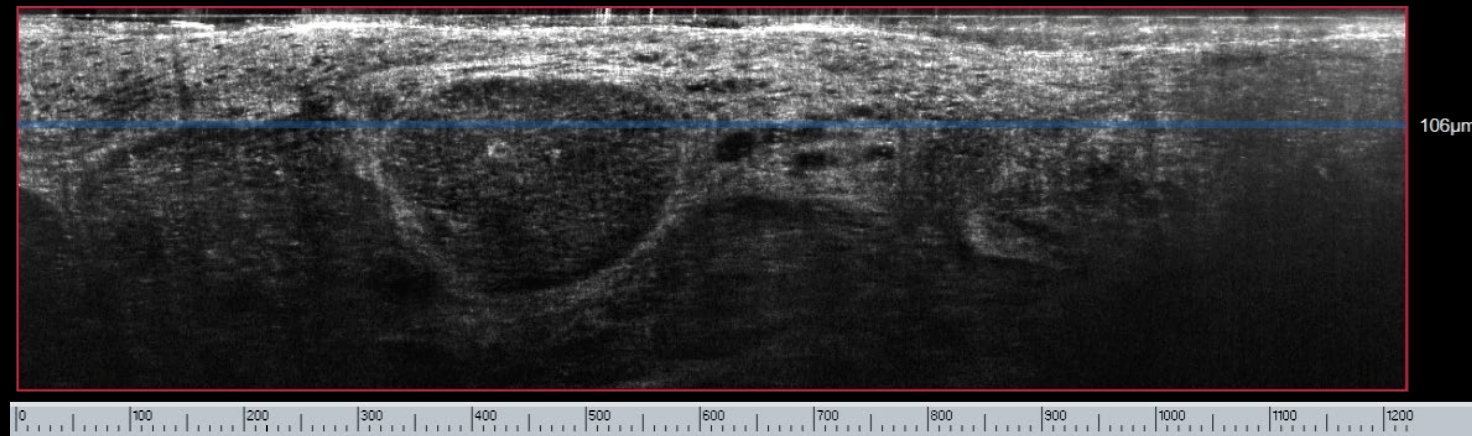
Healthy skin



JEADV 2020, Monnier et al: In-vivo characterization of healthy human skin with a novel, non-invasive imaging technique: line-field confocal optical coherence tomography



Basal cell carcinoma



Images Courtesy Prof. Malvehy and Perez-Anker, Hospital Clinic Barcelona



Melanoma

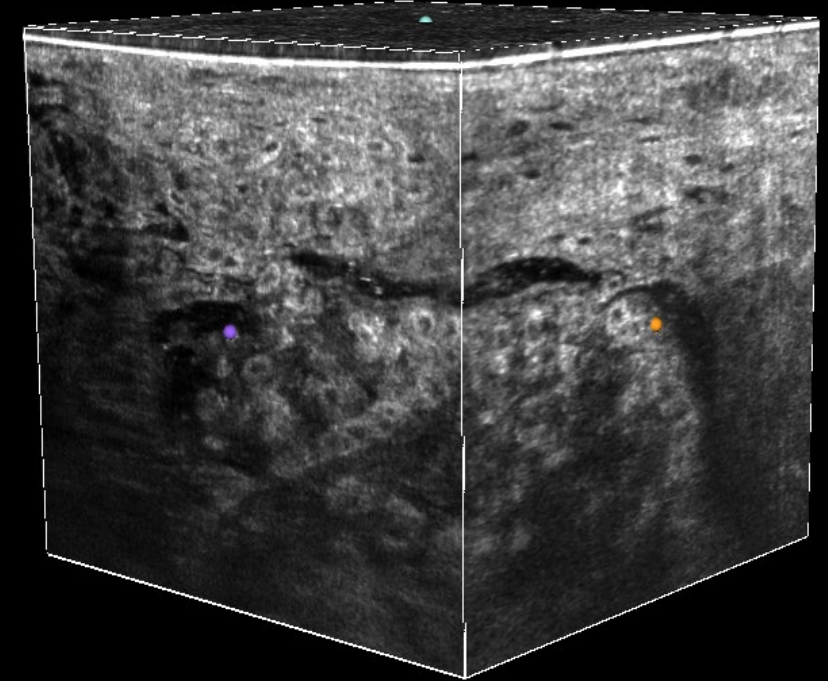
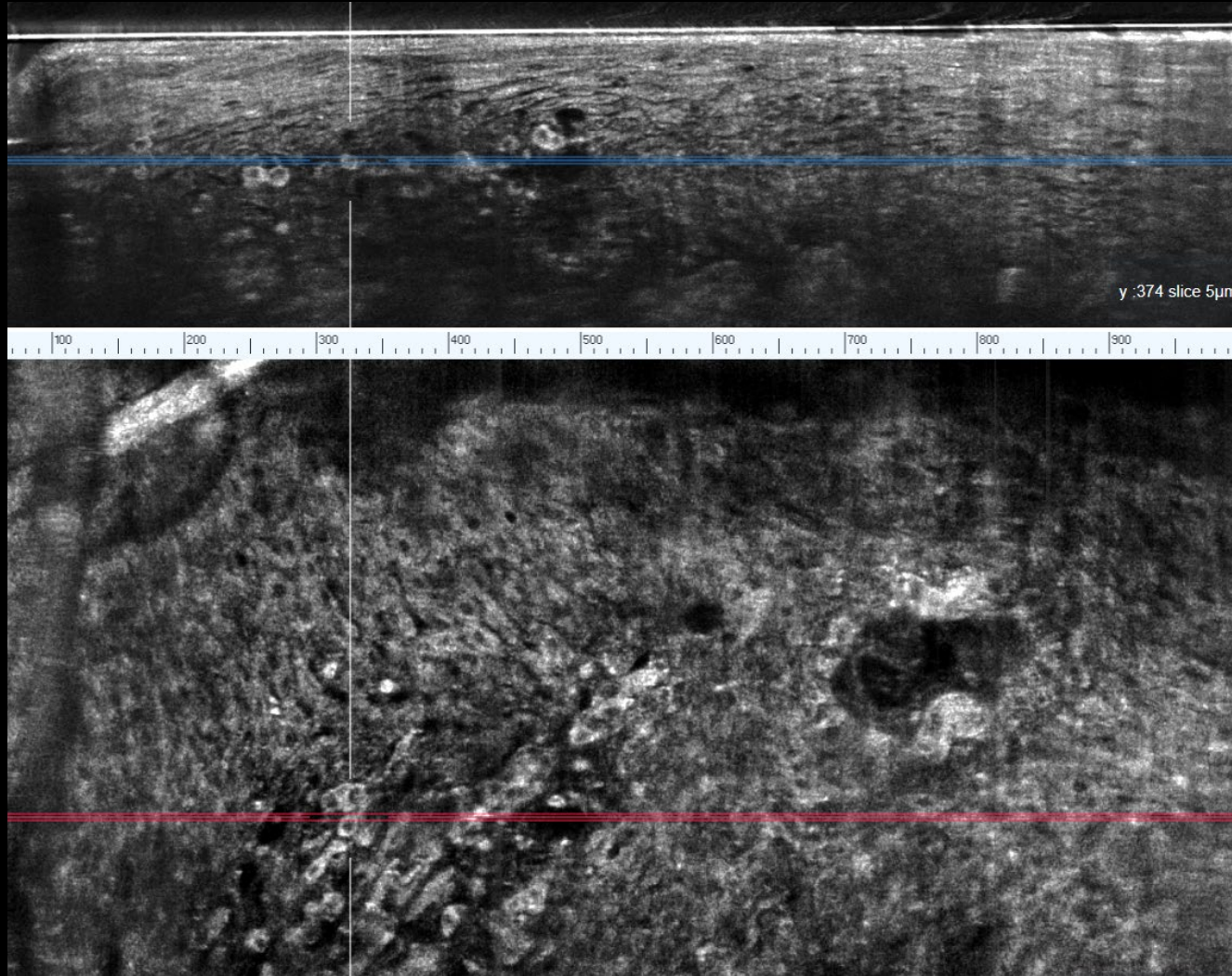


Image Courtesy Prof. Perrot, St-Etienne University hospital, France



Future challenges

- ***System miniaturization***
In particular laser, optics, camera, scanning systems
- ***Improved acquisition speed***
In particular, faster line-scan camera and scanning systems
- ***Coupled modalities for improving diagnostic accuracy***
Work in progress related to coupling LC-OCT with confocal Raman microspectroscopy



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