

The Scinvivo logo features the word "Scinvivo" in a bold, dark blue sans-serif font. A red, curved shape resembling a stylized 'v' or a checkmark is positioned behind the letters 'i' and 'v', partially overlapping them.

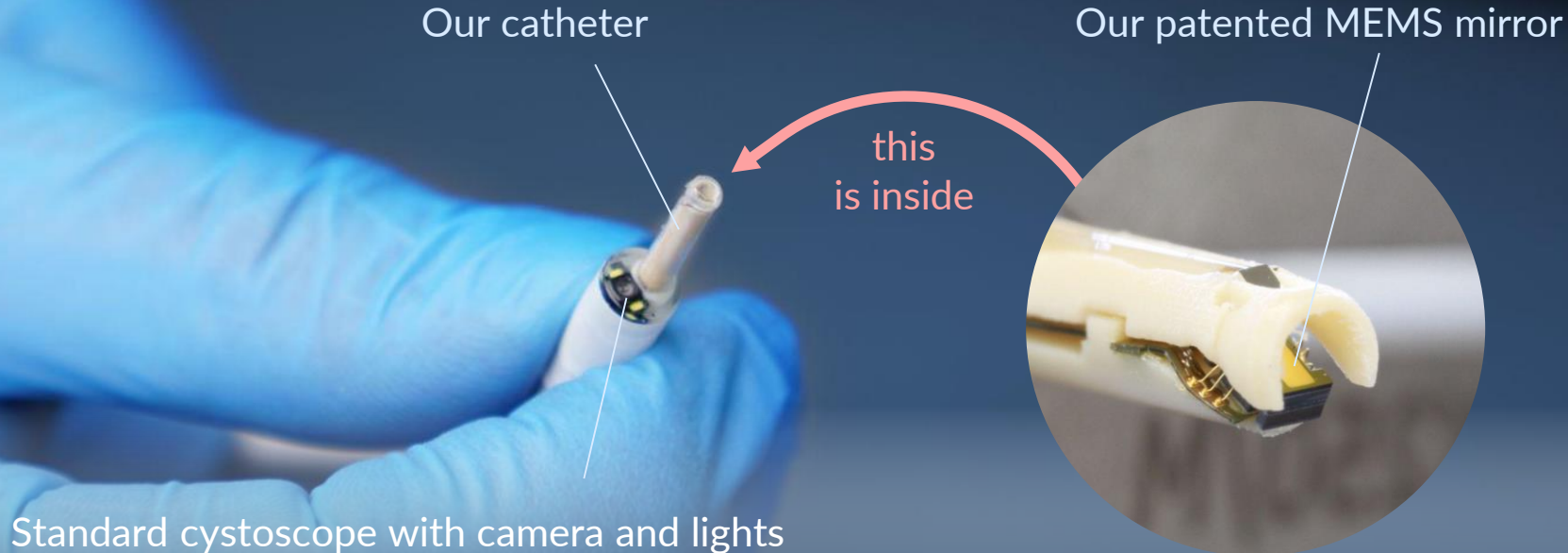
Scinvivo

**OCT catheter for bladder cancer imaging
EPIC Online Technology Meeting on Bio-Imaging**

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13-Feb-2023

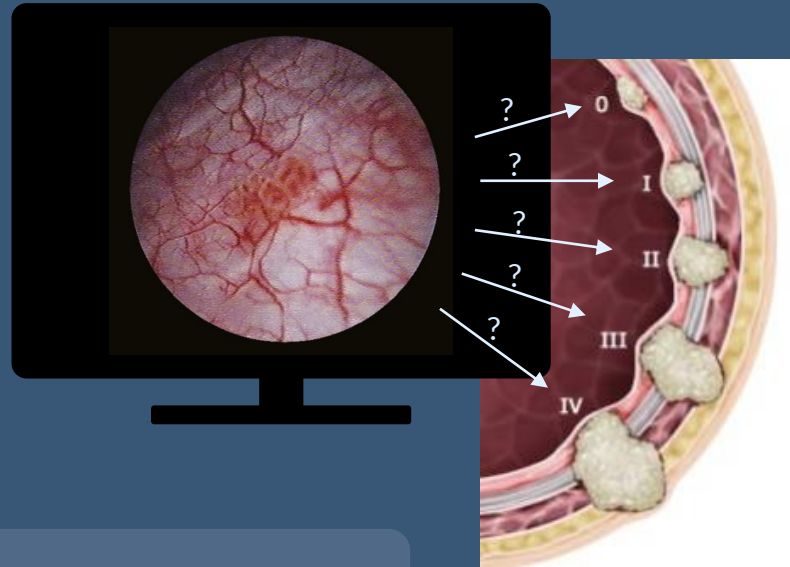


We managed to make our catheter so small that it fits within the working channel of a standard cystoscope



Urologists today simply can not see the structure of the bladder wall to determine the stage of cancer

They can only see the surface through the camera



Bladder Cancer Staging System (TNM Classification)

Stage 0: Cancer cells found on the inner surface of the bladder.

Stage I: Cancer cells have penetrated the inner lining of the bladder but not muscle.

Muscle-invasive stages

Stage II: Cancer cells have spread into the muscle layer.

Stage III: Cancer cells have spread beyond the bladder and into the outer layer.

Stage IV: Cancer cells have spread towards the abdominal or pelvic wall.



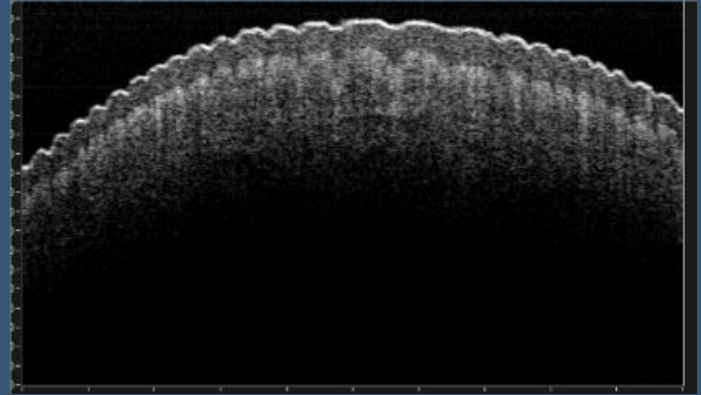
MRI/CT techniques are unusable due to low resolution
(1mm while the entire bladder wall is 2mm thick)

Optical Coherence Tomography

OCT is a non-invasive imaging technique that functions very similar to US – using low intensity, NIR light directed at the patient. OCT images consist of structural information from a sample based on light backscattered from different layers of material within the sample.

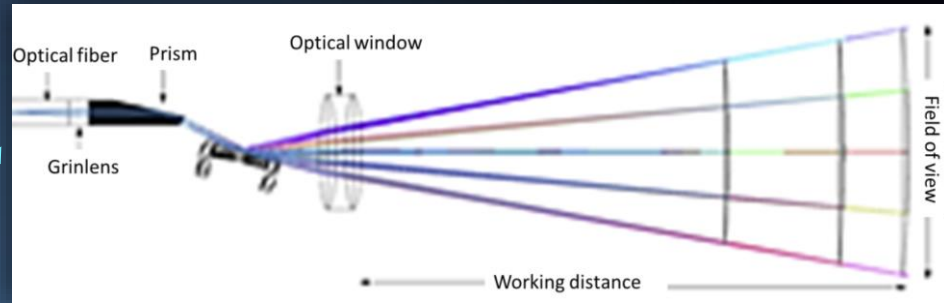
The advantages of OCT are:

- Completely non-invasive, it provides in vivo images without impacting the tissue that is imaged.
- Fast scanning rates and quick signal processing allows for image visualization in real time and at video rate.
- High resolution



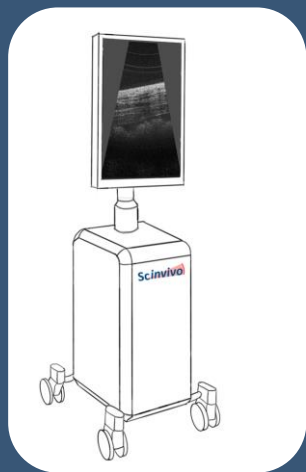
Example of OCT image of a fingertip

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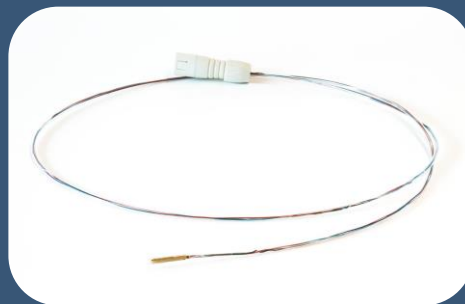


- Based on MEMS mirror
- Working distance of 11 mm
- Field of view of 5 mm
- ~800 frames per second imaging speed
- Diameter of 2.5mm

Our OCT base and disposable catheters are used as compatible add-ons to standard hospital equipment



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Standard, available
at hospitals

Scinvivo OCT Base

will be parked in the room,
comes as a turn-key solution
with our software and interface

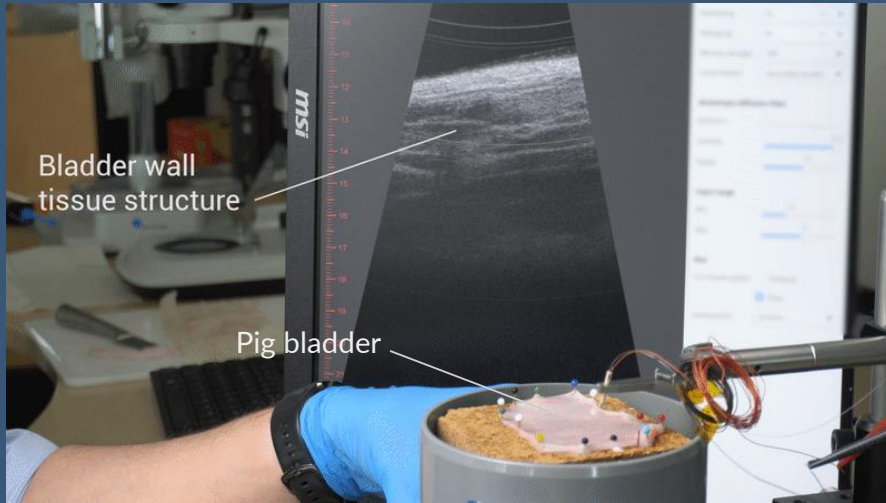
Scinvivo catheters

also in the room, sterile and disposable
(we take them back for our
sustainability program)

Standard cystoscope

not only is it available at the
hospital but it's already ideally
positioned in patient's body at the
moment Scinvivo is needed

After seeing our working demo, 10 out of 10 urologists want to participate in our early adopter program!



“The bladder wall appears to be clearly visible and it's even possible to see the lumina of blood vessels!”

Dr. Pascal Stijns, uroloog St. Antonius hospital

Click to see our 20-second video:

<https://youtu.be/luD4SgnXX18>

Current challenges

We are miniaturizing optics to fit in a small form factor, so any brilliant ideas from anyone are welcome to help in this

OCT light source:

- Direct tunable laser based on PIC - Target modulation frequency = 400 MHz

Localization and Shape Sensing:

- Include fiber technology (Fiber Bragg Grating) in our catheter to measure in-line the position of the catheter for localization purposes (e.g. easy finding previous tumor locations).
- Able to measure with a frequency > 25Hz for tracking purposes.

Additional modalities:

- Add other laser light-based measurement solutions to our base station (e.g. different wavelength for other applications in the body; hyperspectral imaging; Raman spectroscopy; etc.).
- Add treatment laser to the system (higher power laser to fulgurate the tumor) - One stop diagnose treatment.

Thanks for your attention

Scinvivo – Making cancer obvious

