Mobile SCOT Concept

Tokyo Women’s Medical University
NTT DOCOMO, INC.
SCOT (Smart Cyber Operating Theater)™

SCOT is a futuristic smart operating room being jointly developed by Tokyo Women's Medical University, Hiroshima University, Shinshu University and two more universities together with 11 companies, including DENSO and HITACHI, with support from the Japan Agency for Medical Research and Development.

- Integration and visualization of surgery data gathered via network
- State-of-the-art equipment, including intraoperative MRI and robotic operating tables
- Remote monitoring and real time advising by experienced doctor

“SCOT” and “Smart Cyber Operating Theater” are trademarks of Tokyo Women's Medical University (TWMU).
Ultrasound and nanobots—A deadly duo against cancer

An experimental cancer treatment combined with a HIGH-TECH OPERATING THEATER is blowing expectations away.

A researcher uses a patient’s most painful and intimate moments when developing new treatments for cancer. Walking adductively to frame those treatments, some progress is made. Occasionally, there are miracles.

“Things went south at Tokyo Women’s Medical University in 2018. While conducting safety trials of experimental thermal therapy on a 2-year-old dog with a terminal-stage chondrosarcoma—a type of bone cancer—it suddenly died after a single treatment. A research team at the university had expected a miraculous outcome, but the dog died unexpectedly. This was a significant setback in the development of a new cancer treatment.”

The team, led by Prof. Yoshihisa Morikaga of the university’s Institute of Advanced Technology, decided to explore a new approach: combining ultrasound with nanobots to deliver treatment directly to the tumor.

Using ultrasound to heat the tumor, the researchers then introduced nanobots that could deliver drugs to the affected area. This approach, known as targeted therapy, allowed for precise delivery of medication, reducing damage to surrounding healthy tissue.

The results were promising, with many patients showing significant improvement after treatment. The team continues to refine their technique, with hopes of bringing this innovative therapy to clinical trials in the near future.
Mobile SCOT Realized by 5G

Mobile version of SCOT™ leveraging ultra high-speed and low-latency 5G

- High-level/Secure diagnoses and treatment anytime, anywhere
- Enabling advanced surgeries based on consensus building while communicating with doctor at mobile strategy desk

**Mobile Smart Operating Room**

- Even during trips or moving, experienced/senior doctor can provide surgeons with advice via 5G connection.

**Mobile Strategy Desk**

- Surgery Information shared with doctor in mobile strategy desk
- Ultra high-speed and low-latency mobile radio communication

Experienced doctors

Surgeons

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Implementation Example (Demonstration) of Mobile SCOT in Exhibition:

Mobile Smart Operating Room on Truck

Mobile Strategy Desk on Train

5G Transmitted Theater View on Portable Displays

Theater View

25-28 February 2019