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Picosun's medical ALD solutions enable safer surgeries

ESPOO, Finland, 23rd November 2020 – Picosun Group, the leading supplier of AGILE ALD® (Atomic Layer Deposition) thin film coating solutions, partners with prominent Chinese hospitals and researchers to apply medical ALD technology for safer surgical procedures.

Picosun's biocompatible ALD coatings will be applied on electrosurgical equipment (electrotomes) to improve their performance, safety, and service life.

"It's great to collaborate with a company such as Picosun to develop solutions for safer and more patient-friendly surgeries. Picosun is the leader in medical ALD solutions. The company has extensive process portfolio for biocompatible ALD materials and their equipment are at use at several medical equipment manufacturers around the world. In China, Picosun is the market leader with numerous PICOSUN® ALD systems installed throughout the country. We have strong trust that this collaboration will result in disruptive new innovations and novel solutions for surgical equipment," says Longsheng Lu, Professor of South China University of Technology.



Electrotome utilizes high temperature to cut and separate tissue, with simultaneously coagulating blood, and it's a standard equipment replacing traditional mechanical scalpels in many operations. Tissue and blood sticking and burning on the electrotome blade is a serious problem because the crusted blade risks increased bleeding, tissue damage, tearing and scarring, thus making the patient's healing time longer. Smoke from the burning tissue may also hinder the surgeon's vision and increase the risk for error during delicate procedures such as cardiac or neurosurgery.

This far, there hasn't been a working solution in the market to overcome this problem. ALD technology can potentially provide this solution and thus improve patient safety, wound quality and healing time. ALD forms ultra-thin, pinhole-free coatings with unmatched conformality over the smallest microscale details of the surface, and the ALD process can be performed at moderate temperatures so the method is suitable also for sensitive materials. Deposited over special anti-adhesive micropatterning of the electrotome blade, biocompatible ALD film prevents blood and tissue from sticking to the blade.

"We are happy to extend our PicoMEDICAL™ technology to a yet new healthcare application, and to work with top tier Chinese hospitals and scientists to qualify our solutions in everyday use. ALD is revolutionizing the medical field right now, just like it did to semiconductor industries over a decade ago. We at Picosun want to use our extensive ALD know-how to develop solutions to improve people's health

and quality of life, which is why medical ALD is one of our key markets for the future," continues Dr. Jani Kivioja, CTO of Picosun Group.

Picosun provides the most advanced AGILE ALD® (Atomic Layer Deposition) thin film coating solutions for global industries. Picosun's ALD solutions enable technological leap into the future, with turn-key production processes and unmatched, pioneering expertise in the field – dating back to the invention of the technology itself. Today, PICOSUN® ALD equipment are in daily manufacturing use in numerous leading industries around the world. Picosun is based in Finland, with subsidiaries in Germany, USA, China mainland and Taiwan, Singapore, Japan and South Korea, offices in India and France, and a world-wide sales and support network. Visit www.picosun.com.

The project "Design of anti-adhesive surface modified with bionic microstructures and ALD coatings and its application on surgical electrotomes" is carried out in collaboration with SCUT (South China University of Technology), PLAGH (General Hospital of the People's Liberation Army), Guangdong Provincial People's Hospital, and Guangzhou First People's Hospital. The project will start on 1st December 2020 and continue for 3 years. The project is partially funded by Business Finland.

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