To Local News / Feature Editor
For Immediate Release

**Press Release**

**Academic Exchange Conference on**
**Asia Pacific Nanoknife in Tumor Ablation**
**Sharing of Latest Scientific Achievements by Experts**

(11 May 2014, Hong Kong) Advanced medical technology makes treatment in tumor ablation being diversified, and irreversible electroporation, also named as Nanoknife, serves as one of the new directions. Today, experts from the U.S.A., Taiwan, the Mainland and Hong Kong have come to Hong Kong and attended the Academic Exchange Conference on Asia Pacific Nanoknife in Tumor Ablation, sharing with us the result of scientific research. For example, in the U.S.A., over 150 cases have been completed, with a majority being liver and pancreatic lesions and 6 have been completed in Hong Kong.

Nanoknife technology is still at its preliminary stage in Hong Kong and the conference today helps raise the awareness about this new technology in the local medical field, as stated by **Prof. Simon Yu, Director of Vascular and Interventional Radiology Foundation Clinical Science Center, The Chinese University of Hong Kong, as well as the co-organizer of today's conference.** Prof. Peihong Wu, Chairman of Asia Pacific Association of Imaging Guided Therapy in Oncology, also believed that Nanoknife can raise the overall survival and the quality of life. It will become a new direction in tumor ablation.

## Percutaneous Nanoknife Treatment: No Surgical Operation, Only Puncture Holes

At this stage, the effectiveness of thermal ablation, such as microwave ablation and radiofrequency ablation, is up to 80% - 90%. However, ablation may have a chance in harming some of the organs, and therefore cannot effectively eradicate cancer cells that are close to blood vessels, bile duct and bowel. The greatest advantage of Nanoknife is that it does not harm blood vessels, bile duct and nerves that are close to the lesions. Without surgical operation, it is applicable to solid tumors of no more than 3 cm, especially for percutaneous Nanoknife treatment. It lasts for about an hour and the only wounds are needle holes. The length of stay is also greatly shortened.

Nanoknife treatment involves the use of Nanoknife equipment and needle-electrodes. After placing the needle-electrodes, ultra-short pulses of direct electric current at very high voltage are emitted from the Nanoknife equipment, in pulse with electrocardiac cycles, to induce a strong electric field to cover the tumor, which lead to cell death of the tumor cells by apoptosis.

## Treating Liver and Pancreatic Cancer with Nanonknife Help Raise Patients' Survival Rate

One of the speakers of today's conference – **Prof. Robert C.G. Martin**, Division Director, Division of Surgical Oncology, University of Louisville, USA, has treated over 150 tumor cases, with a majority of being liver cancer and pancreatic cancer.

The medical paper published last year has recorded 150 patients, who had undergone Nanonknife treatment, and 51 procedures had been performed. Among them, 45 of them have liver cancer. The median age for the cohort was 62 and 53.3% of them were male patients. Over 50% failed in getting recovered with other treatments before having Nanoknife treatment. Among these patients, 60% had undergone chemotherapy; half of them had undergone other treatments, such as RFA, liver resection and hepatic arterial therapy. On average, the tumor size is 3cm and around 90% of patients have tumors in proximity to major blood vascular, biliary structures or organs.

The mean length of stay after Nanoknife treatment is 2.3 days with most procedures performed as an outpatient or with overnight observation. The recurrence free survival rate of patients who had undergone treatment reached up to 90% and over 50% for those who had Nanoknife treatment after a year. According to Dr. Martin, Nanoknife treatment is safe for tumors located in proximity to vital structures. However, lesions that are greater than 3-4 cm may have a higher risk for local recurrence. “To conclude, IRE in its current form is the best choice for tumors that cannot be treated because of location.” said Dr. Martin.

For advanced pancreatic tumors, the mean recurrence free survival rate is 9 months only and only 80% of cases can be treated. So far, there is no current thermal modality that is safe and effective. Dr. Martin has started treating pancreatic cancer with Nanoknife since 2012. He believed that it is safe to treat locally advanced pancreatic tumors, which are unresectable. If patients can undergo standard neo-adjuvant therapy for a minimum of 4 months, their overall survival can be improved (19 months), when compared to those who only undergone chemotherapy and radiation therapy (11 months).

## Academic Exchange Conference on Nanoknife in Tumor Ablation Helps Raise Technical Level Worldwide

Dr. Kai-wen Huang, Attending physician, Department of Surgery, National Taiwan University Hospital, Taiwan, also believed that the conference of today is quite constructive as it can foster academic exchange on Nanoknife in tumor ablation among experts all over the world, raising the technical level in this aspect.

“Experts in the medical field are always interested in new technology. We are glad to have experts from the U.S.A., the Mainland and Taiwan to share their valuable experience, so that the people who attend the conference can know the effectiveness and safety of Nanoknife treatment. ”said Prof. Yu.

## 6 Liver Cancer Patients in Hong Kong Treated with Nanoknife without Major Complication

Six patients with liver cancer have been treated in Vascular and Interventional Radiology Foundation Clinical Science Centre (VIFCSC), The Chinese University of Hong Kong from November 2013 to April 2014. There were 4 men and 2 women. Age varied from 63 to 80. All tumors were of size less than 3 cm and located next to a major vein within the liver. In 5 patients, the Nanoknife treatment was given with the needle-electrodes placed to the tumor directly through skin under CT guidance without open surgery. There was no major complication. The only wounds are needle holes.

An animal study on Nanoknife was conducted in VIFCSC in 2013, in which 9 pigs were used

to study the effect of Nanoknife on the physiology and various organs of live pigs in short term, mid-term and longer term, including the heart, lung, blood vessel, nerve, bile duct, gallbladder, stomach, urinary bladder, kidney, muscle, and bone. Changes in the various tissues and organs were analyzed using CT scan, gross pathology and histological examination. It was found that Nanoknife is effective in causing apoptosis in the cells of lung, kidney, and muscle, and at the same time, it does not cause damage to blood vessel, nerve, bile duct, and bone; it is not harmful to the stomach and urinary bladder when there is a safe distance.

**Future Further Studies Cover Bone and Brain Tumor**

The Center of CUHK will continue the studies of the safety and effectiveness of Nanoknife treatment in patients with liver cancer and pancreatic cancer. “We are now developing the use of CT navigation system to guide precise and direct placement of needle-electrode to the tumor through skin. Further studies will be conducted to study the use of Nanoknife on kidney tumor, bone tumor and brain tumor. ” said Prof. Simon Yu.

Photo caption:


Experts from the U.S.A., Taiwan, the Mainland and Hong Kong attended the Academic Exchange Conference on Asia Pacific Nanoknife in Tumor Ablation held in Hong Kong today. (From Left) Professor Peihong Wu, Professor Simon Yu, Professor Robert C.G. Martin, and Dr. Kai-wen Huang

Professor Simon Yu indicated that further studies will be conducted to study the future application of Nanoknife on bone tumor and brain tumor.


Ms. Liu (Left 2) and Ms. Lee (Right 2), who were treated successfully with Nanoknife for tumor in the liver, celebrate their happiness with family on this Mother's Day.

——End——