Medical device focused healthcare industry in Korea

Jeong Eun Ha, Officer for Innovation, Technology and Science, 3rd of March, 2016

Introduction

In 2014, Korea’s medical device market scale was approximately 3.4 billion euro showing annual growth records of 11.3 percent. Furthermore, Korea has core technologies in digital X-ray and ultrasound diagnostics units. This ultrasound device ranked #1 in the world obstetrics and gynecology market. Due to this growth in the medical device sector, the Korean government is trying to strategically support the medical device industry by focusing on several important sectors which have the potential to lead the global market.

Healthcare Industry state

1) Wearable device & Mobile medical application

Korea has two major smartphone companies which are Samsung Electronics and LG Electronics. Those companies are now heavily investing in healthcare application and wearable devices such as the S Health application and the smart watch. In addition, SK Telecom and Seoul National University Hospital have established a joint venture called Health Connect. This company provides hospital management solutions in Korea, and they have recently entered the Chinese market to provide diabetes management solutions to the Chinese customers.

2) 3D printing in bio sector

3D printing technology in biosector is still at a very early stage in Korea, but recently Professor Jeong Hwan Baik from Samsung Seoul Hospital has successfully operated the malignant neoplasm of accessory sinuses using a 3D printer. This was Korea’s first successful operation using a 3D printer. With the CT data, the professor produced a model of current state of facial bone from the 3D printer. Using this model, the team proceeded on virtual surgery simulation. Because of this simulation, the professor was able to minimize the possibility of asymmetry or skull dent side effects after the surgery.

3) Surgical Robot

There are still some arguments remained on surgical robots regarding to the safety and utility issue. But, ever since the first introduction of the surgical robot in 2005, the technology was utilized in surgery for the prostate cancer, and later spread to surgery for thyroid cancer, rectal cancer, stomach cancer, renal cancer and other gynecological diseases. At the moment, the core technology of the surgical robot is still licensed from other countries, so the Korean government is trying to secure the domestic core technology by setting up this industry as a strategic sector and is investing heavily in this industry. Recently, hospitals, research institutes, universities and private companies in Korea formed a consortium to apply for national R&D funding programs.

4) Bio-nanotechnology

In Korea, there is an active research in developing the artificial sense sensor which mimics the five senses of humans. Especially, recreating an artificial olfactory sensor is expected to replace the nose of
human which can be used for non-invasive cancer diagnosis, scent/food detection and drugs/biochemical weapon detection. Korea Research Institute of Bioscience and Biotechnology (KRIIB) has successfully developed an FET based artificial olfactory sensor which is more accurate than the nose of human.

5) Nano-biotechnology for Virus Measurement & Detection

The most commonly used system for measuring and detecting a virus is using antigen-antibody reaction. Most of the companies such as AIPCON Biotech Co., Ltd. are using this system to produce their products. In Korea, Seegene, Intron Biotechnology, Bioneer and Panagene are the companies which are active in using the antigen-antibody reaction system to measure and detect the virus. In addition, a research team from Korea University has developed a detection kit for the Middle East Respiratory Syndrome (MERS) within 15 minutes. In order to analyze the gene of the detected virus, the team has developed a supersensitive nano-biosensor using conductive carbon nano-tube and magnetic nano-particles.

Future Strategy focused on Medical devices

The Korean ministries such as the Ministry of Science, ICT and Future Planning (MSIP), Ministry of Trade, Industry and Energy (MOTIE), Ministry of Health and Welfare (MOHW) and Ministry of Food and Drugs Safety (MFDS) have jointly announced the ‘strategy for nurturing the future industry of bio health’. Their vision for the strategy is to become one of the seven leading countries for medical devices. In 2015, the Korean government has invested approximately 254 million euro to develop biopharmaceutical products and medical devices and so on.

Source


