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Taiwan's ITRI showcases biomedical innovations

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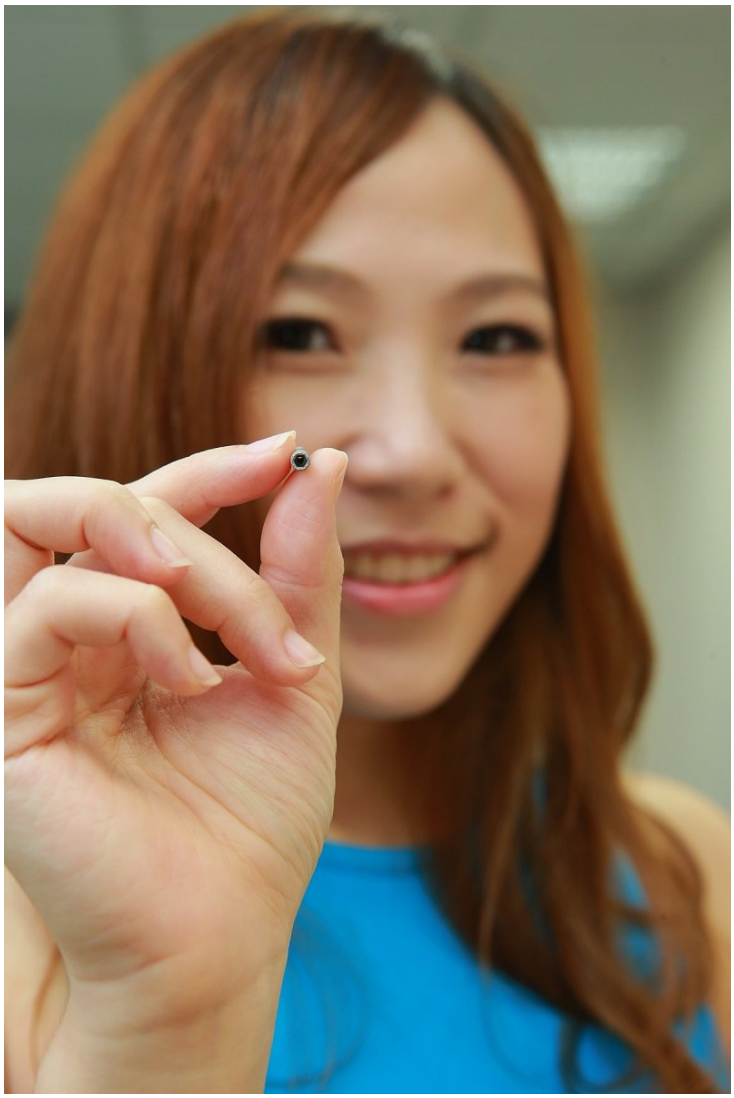

Singapore: Taiwan's Industrial Technology Research Institute (ITRI) celebrated BIO Day on August 30th with a focus on personalize treatment medicine and preventive healthcare, along with an exhibition of biomedical R&D achievements.

Some of the technologies dispayed at ITRI included serum-free medium for mesenchymal stem cells, which allows a Labrador Retriever with limited mobility to walk freely after 21 weeks; the 3D Printed Hollow Bone Nail, a customizable porous bone nail in which medicine can be added to for speedier recovery; and an implantable transparent biomaterial, which is the future

solution to recover from burns. Through these technologies, ITRI hopes to open up future opportunities for Taiwan's biomedical industry.

With the increasing trend of an aging population, health care is slowly shifting from disease treatment to prevention, or preventive medicine, with a greater focus on the personalization of medical practices.

Dr Yio-Wha Shau, general director, ITRI's Biomedical Technology and Device Research Laboratories, indicated that with the development of medicine and the change in population structure, the frequency of cancellous bone, joint degeneration, retinopathy, and other illnesses is increasing. Biotechnology is now targeting this population aging trend through the research and development of personalized treatment and medical materials.

Dr Shau stated that the ITRI Biomedical Technology and Device Research Laboratory is the best partner for Taiwan's biotech and pharmaceutical companies when it comes to new drug development. The GMP factories in ITRI'S center of Excellence for drug development have collaborated extensively with the pharma industry, and the win-win partnership will continue to boost value in the future.

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Dr Shau indicated that the recent years, biomedicine has made significant progress in the development of complex medical materials. For instance, the high-transparency, high water content implantable biomaterial does not require removal from the body, as it is biodegradable. It provides similar characteristics to the original tissues structure, making it a suitable wound dressing material for speedy healing and minimal scarring and can be used as cornea repair materials.

Furthermore, this serum-free medium can assist cultured cells in growing to be big and strong. Previously, similar technology was in the hands of big international firms, but now ITRI has developed mesenchymal stem cells that can be implanted in animals. ITRI expects to build a GMP pilot plant by the end of this year that is dedicated to the medical applications of cells, in hopes of bringing this cell regeneration experience to people in the future.