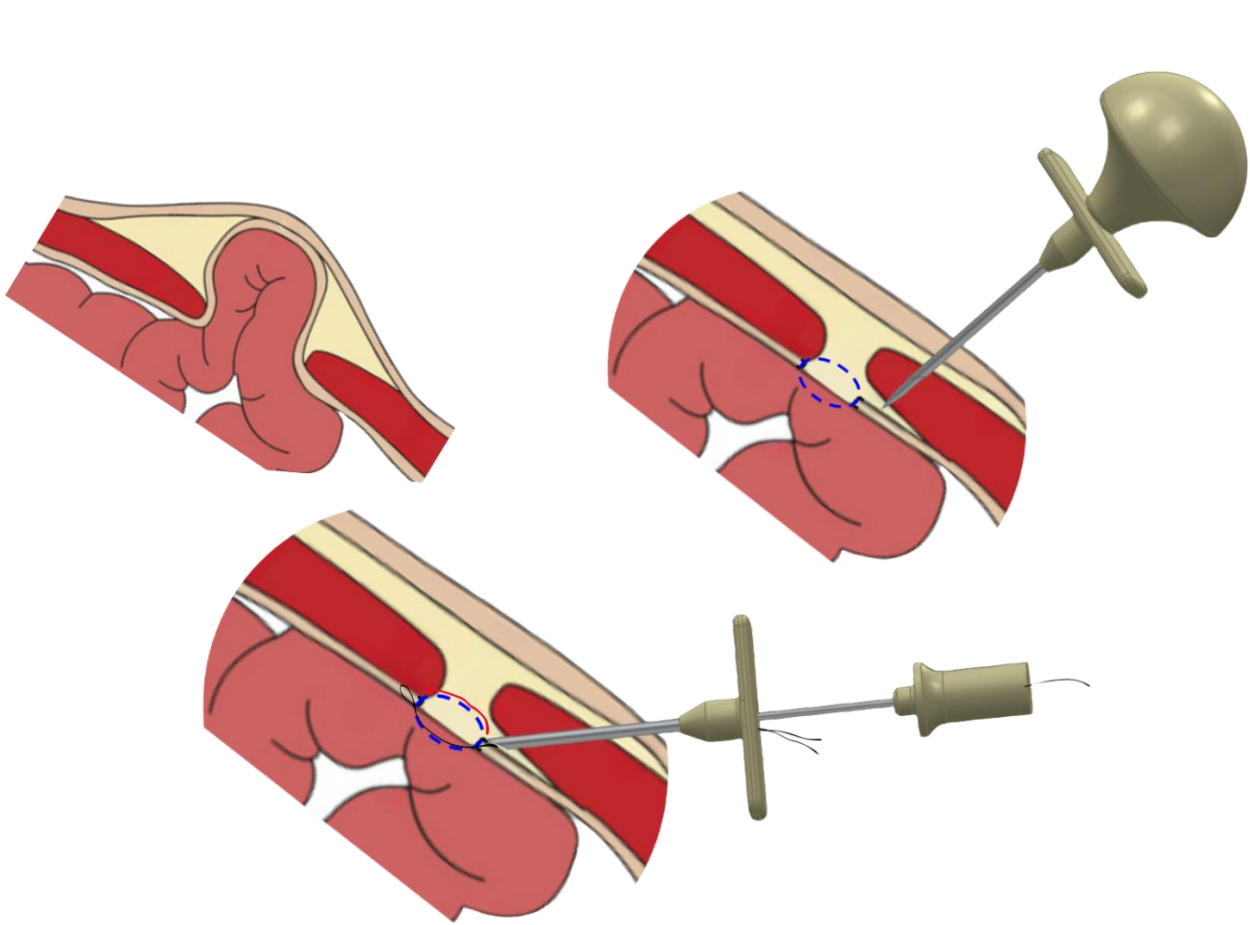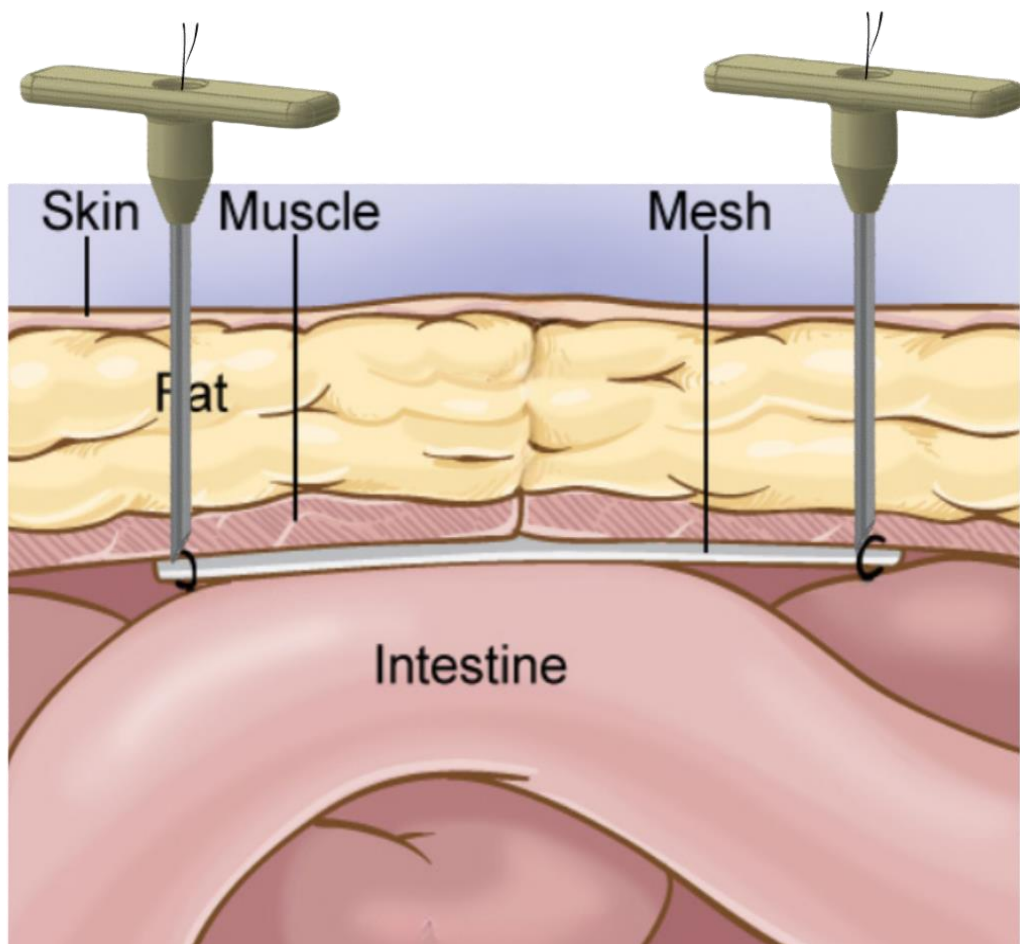# 腹腔鏡無網片式疝氣針
Advanced Percutaneous Internal Ring Suture Needle Set

DESCRIPTION & INTRODUCTION

APIRS (Advanced Percutaneous Internal Ring Suture Needle Set) is an innovative device that delivers suture stitches for the repair of abdominal wall hernias under laparoscopic inspection. By using APIRS, the indirect inguinal hernia could be quickly and safely repaired in the day-surgery manner leaving nearly no operative sacr. For the other types of hernia, the APIRS helps to secure the meshes which decrease the post-op pain and recurrent rate.

Product / Results	APIRS	Mesh by Laproscopy	Mesh by Open Surgery
Surgical Wound	invisible	1cm*3	6~10cm
Post operative inguinal Pain	0%	2%	10%
Wound swelling/seroma	0%	5%	8%
Mesh Infection	0%	3%	5%
Length of Hospital Stay (Day)	0~1	2~3	3~7
Resume to daily life (Day)	1~2	3~7	7~14
Surgical Time (Min.)	20	120	60

Treatment for indirect ingunial hernia by using APIRS to ligate the hernia sac

Treatment for direct inguinal hernia by using APIRS to secure the mesh

Comparison of inguinal hernia repair between APIRS and mesh insertion

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PATENT NUMBER

EFS ID: 48503459
Applcation Number: 63535048

腹部電腦斷層身體組成分析
Body Composition Quantification System using Abdominal CT

DESCRIPTION & INTRODUCTION

This technique utilizes quantitative analysis on abdominal CT axial images at the L3 vertebral level to infer body composition metrics. A deep learning model is utilized to automatically segment five abdominal muscle groups (rectus abdominis, later wall muscles, psoas muscle, quadratus lumborum and posterior paraspinous muscles), calculating the areas and densities of muscle, visceral fat and subcutaneous fat, metrics of myosteatosis (normal-attenuation muscle area, low-attenuation muscle area, and inter-/intra-muscular adipose tissue), waist circumference, and radiomics features of bone density. The AI models and analysis modules are integrated into a comprehensive software platform.
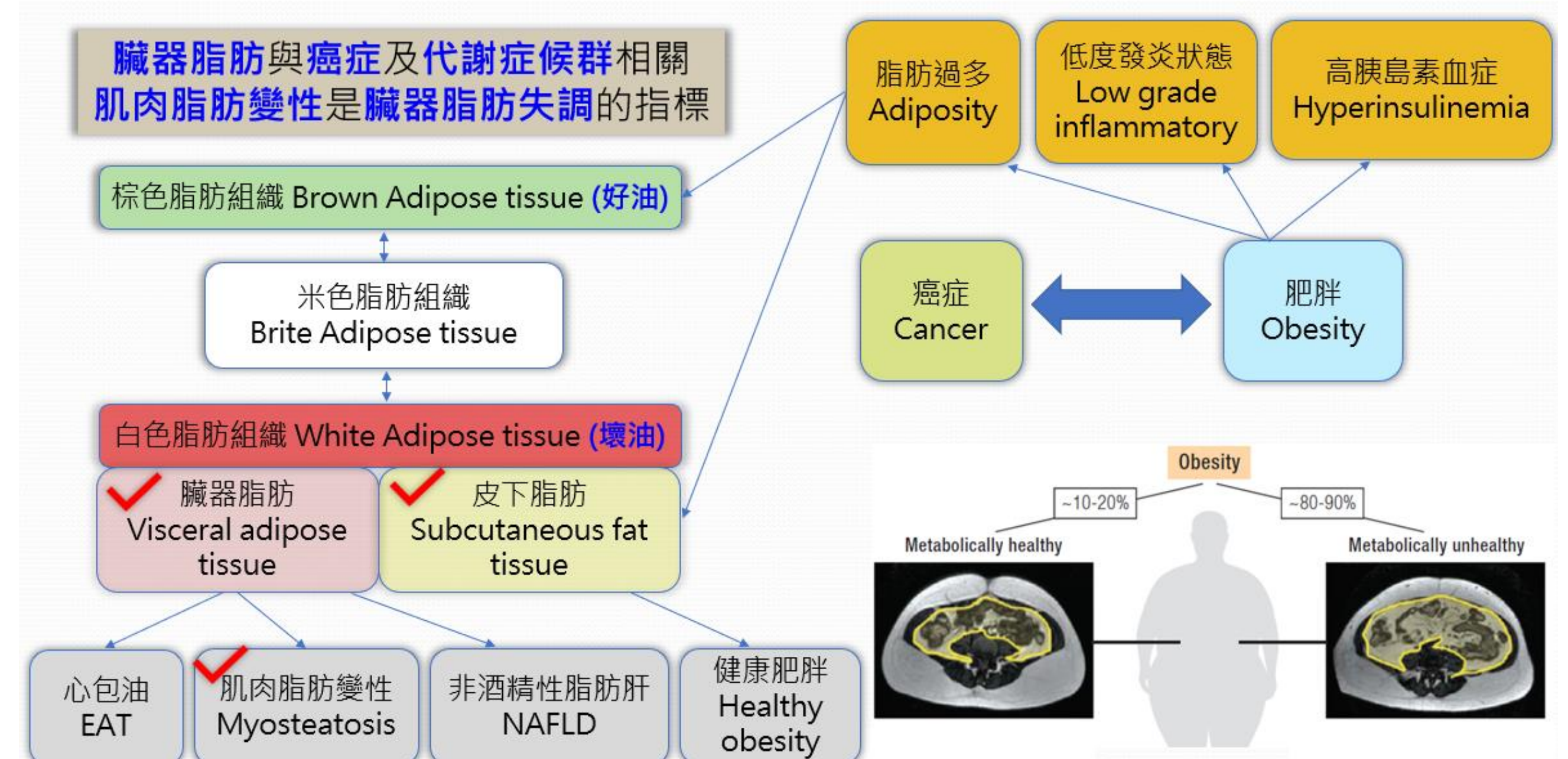
X400 faster
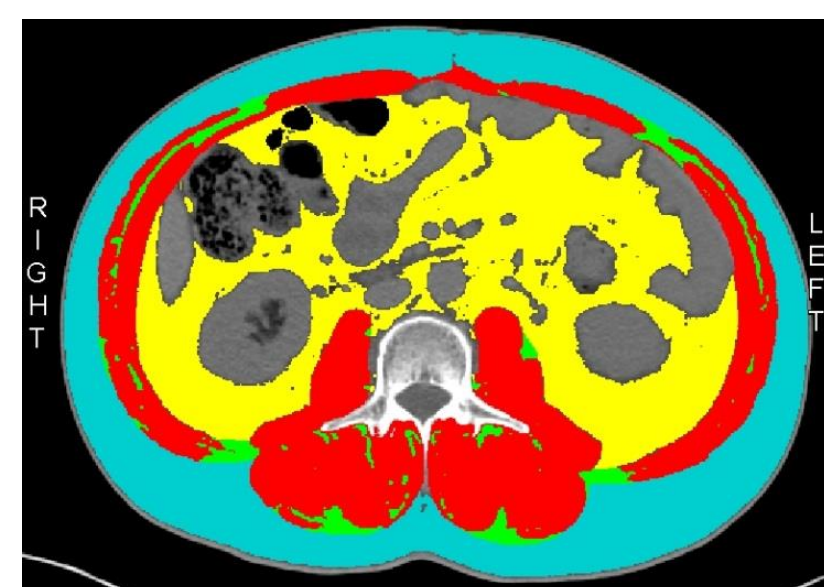
Semi-auto segmentation SliceOmatic®
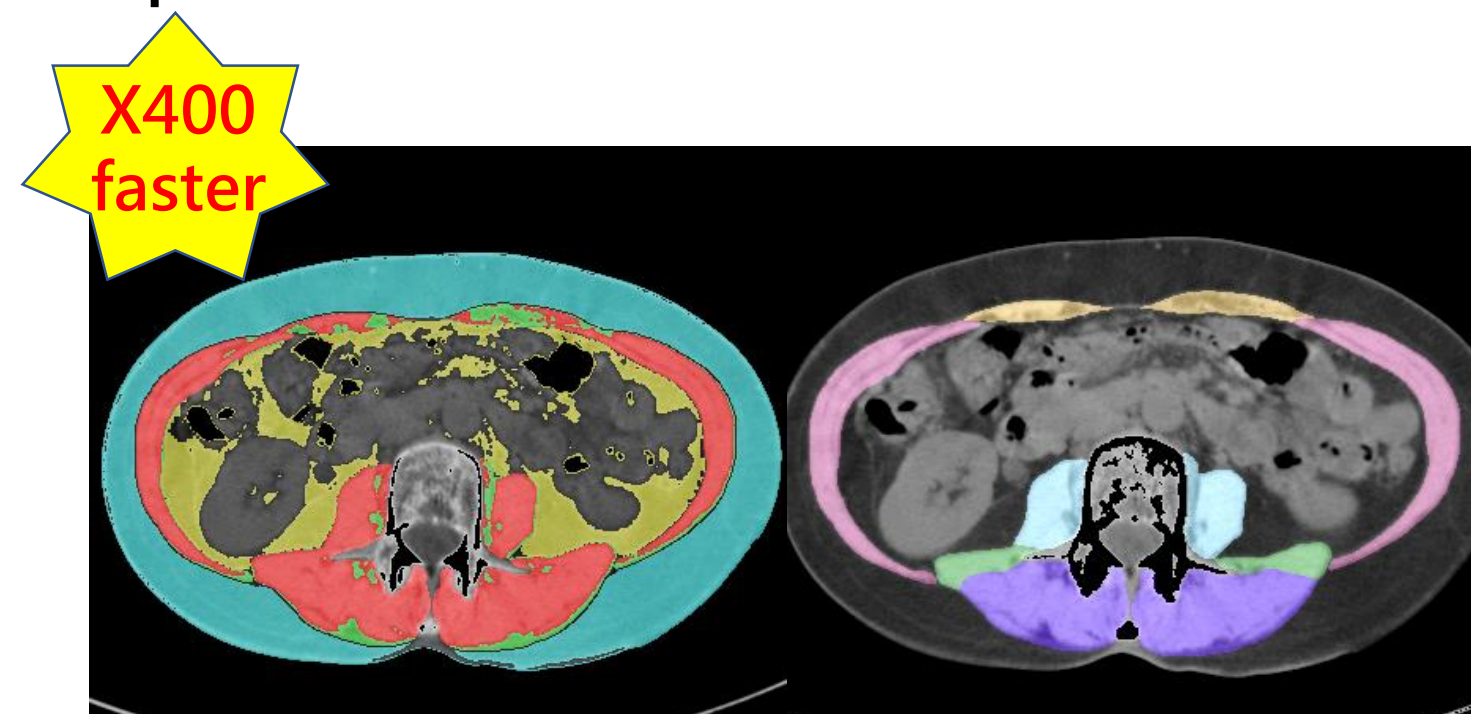
Auto segmentation Abdominal muscle groups analysis software®

AI tools should be further developed and promoted for body composition assessment through a subscription-based business model in cancer-specialized hospitals to enhance the quality of care. Moreover, cancer drug manufacturers can use this tool in their clinical trials and for the health checkups of the elderly, enabling early detection and treatment of sarcopenia. An ecosystem of co-beneficial business models can be established by collaborating services from the sports, fitness, nutrition, and healthcare industries.

臟器脂肪與癌症及代謝症候群相關
肌肉脂肪變性是臟器脂肪失調的指標

棕色脂肪組織 Brown Adipose tissue (好油)

米色脂肪組織 Brite Adipose tissue

白色脂肪組織 White Adipose tissue (壞油)

臟器脂肪 Visceral adipose tissue

皮下脂肪 Subcutaneous fat tissue

心包油 EAT

肌肉脂肪變性 Myosteatosis

非酒精性脂肪肝 NAFLD

健康肥胖 Healthy obesity

脂肪過多 Adiposity

低度發炎狀態 Low grade inflammatory

高胰島素血症 Hyperinsulinemia

癌症 Cancer

肥胖 Obesity

Obesity
~10-20%   ~80-90%
Metabolically healthy   Metabolically unhealthy

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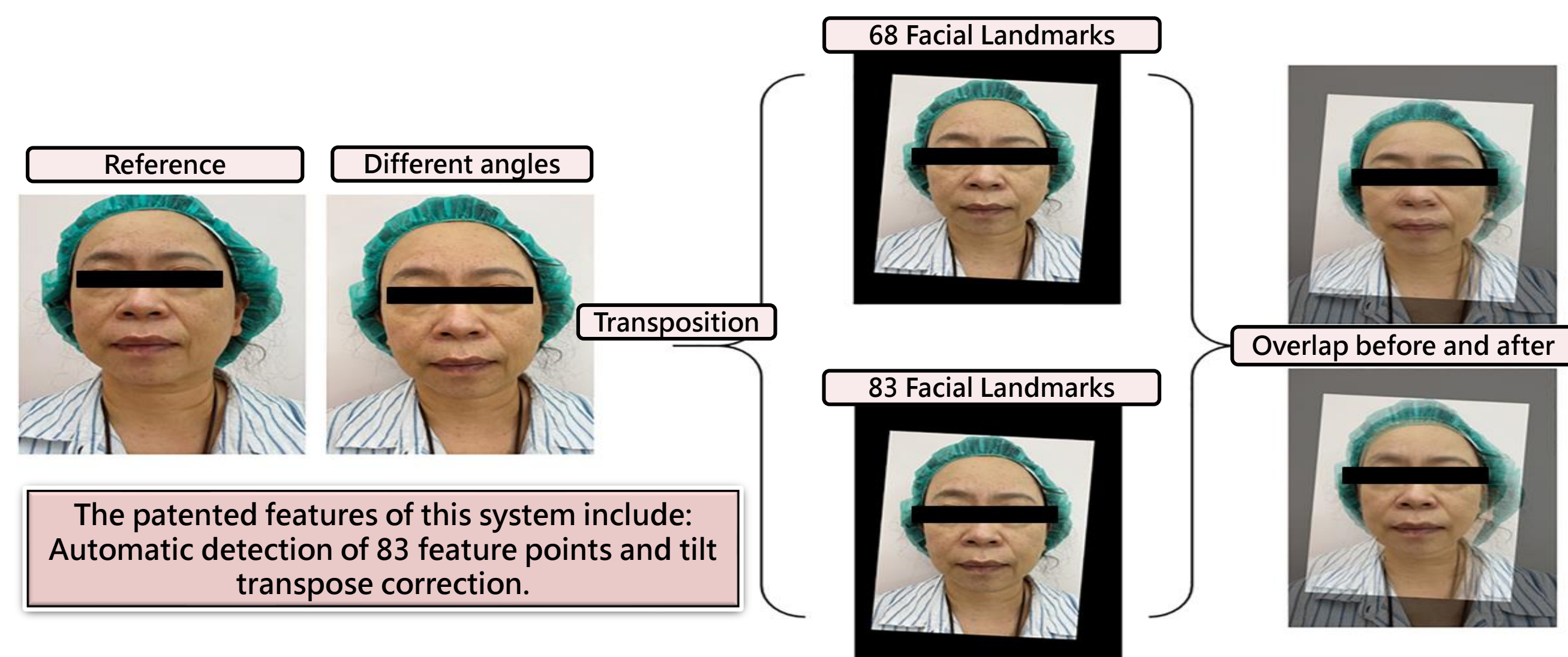mcjameswu.mr@gmail.com

PATENT NUMBER

臺灣發明專利證書號碼 I797976
臺灣發明專利證書號碼 I797672
美國、歐盟、日本、韓國發明專利申請中

以深度學習為基礎之色素性疾病精準檢測與評估系統
Smart Healthcare Image Recognition for Pigmentation Disorders

僵直性脊椎炎人工智慧輔助評估
AI-assisted Assessment of Ankylosing Spondylitis

DESCRIPTION & INTRODUCTION

Mission: Leveraging state-of-the-art AI image recognition technology, this system aids individuals with skin pigmentation disorders and dermatological conditions in self-managing their skin health at home. It provides accurate measurement, tracking, and comparison of changes, delivering precise analysis and treatment suggestions. It offers precise analysis and treatment suggestions, aiming to streamline care and aid medical professionals in quicker assessment.

Reference | Different angles | 68 Facial Landmarks | Overlap before and after
Transposition
83 Facial Landmarks

The patented features of this system include: Automatic detection of 83 feature points and tilt transpose correction.

Annotations from three doctors (Years of experience: | Annotations through image recognition system:

SSM Score: 0.9172 | SSM Score: 0.9194 | SSM Score: 0.9192

Doc.1(1Y) | Doc.2(10Y) | Doc.3(15Y)

- Image recognition and facial lesion identification.
- Addressing complex lesion scenarios and locations for precise analysis.
- Supporting multi-angle photo rotation for objective lesion recognition.
- Big data storage for continuous lesion tracking and monitoring.
- Providing timely information for medical interventions and treatment.
- Enhancing medical collaboration and treatment effectiveness for patients and physicians.

DESCRIPTION & INTRODUCTION

An electronic device and method for evaluating ankylosing spondylitis are provided. The method involves obtaining a spinal image, positioning models, and several symptom classification models. The spinal image is input into the positioning model to get the coordinates of the upper and lower edges of a vertebra, which are then marked on the spinal image. A captured image is created from these points and input into the symptom classification models to obtain classification results. A vertebra score is determined from these results, and a revised ankylosing spondylitis score is calculated and outputted.

X-ray Image → Localization model (PoseNet) → Find location of vertebra image each vertebra
Step1: Localization

Classification model (DenseNet) → Score of the image → Sum of score =mSASSS
Step1: Classification

ASDAS-CRP
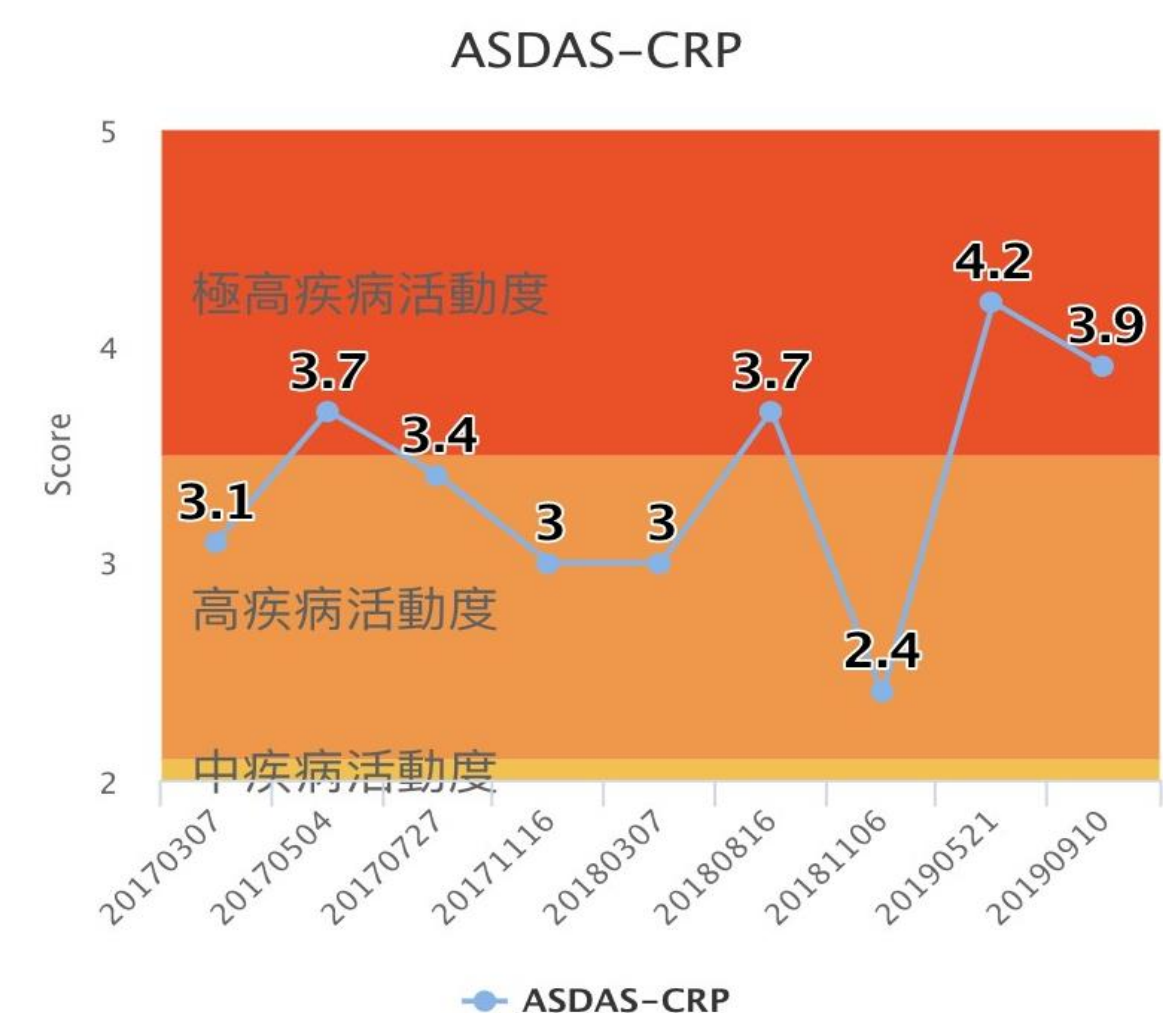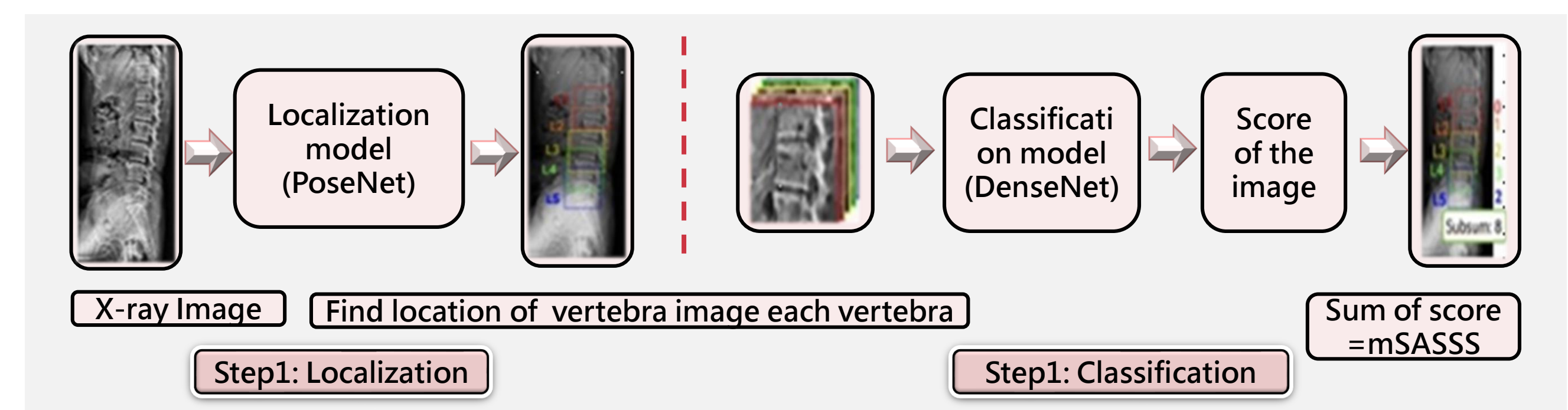
- **A major innovation**: The world's only AI-driven automatic scoring and practical application for spinal structural pathology.
- **Feature 1**: Electronic self-assessment for patients
- **Feature 2** : World's first automated calculation of disease activity ASDAS.
- The highest disease control rate in a single hospital worldwide, with the lowest incidence of CKD among patients.

AeroHi 高濃度氧氣吸藥面罩
AeroHi, High-Concentration Oxygen Inhalation Mask

DESCRIPTION & INTRODUCTION

The "AeroHi" high-concentration oxygen inhalation mask, derived from a non-rebreathing mask design, addresses the clinical challenge of using inhalable medications. It features a special fluid dynamics system that enhances medication nebulization. Preliminary tests show minimal medication residue and significantly improved nebulization efficiency, providing stable high-concentration oxygen while delivering inhalable medication. This ensures that critically ill patients receive safe and effective inhalation therapy.

Usage Scenario: Provides stable inhalation therapy while the patient uses high-concentration oxygen.

Foldable Chamber
Allows patients to use the mask in any position while maintaining the nebulizer cup in a vertical position for efficient medication nebulization. It also moderates airflow, enabling effective drug inhalation.

Movable Sealing Cap
The movable sealing cap allows healthcare providers to insert and use the nebulizer cup directly, ensuring quick and intuitive use without the risk of losing the cap.
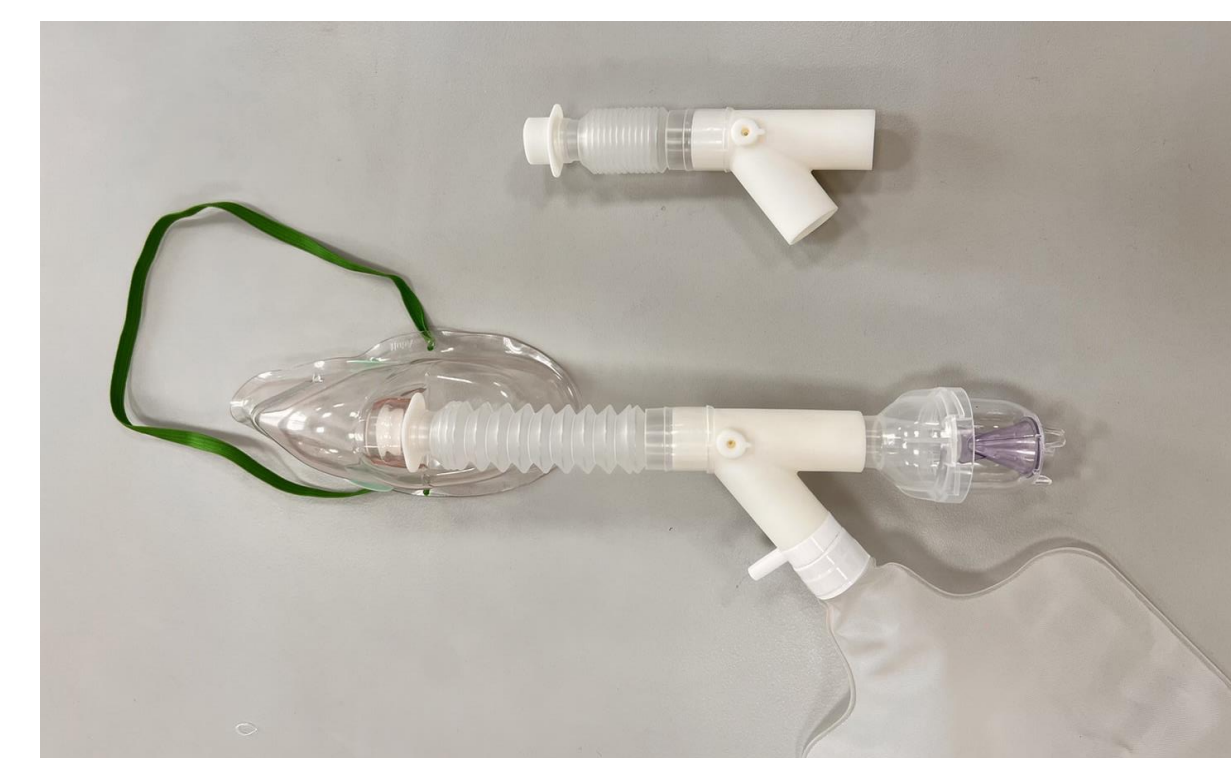
MDI Adapter
Increases the range of medication forms that can be inhaled, allowing patients with pulmonary diseases to receive timely and appropriate treatment.

Product Illustration 1:
"AeroHi" special design utilizes unique fluid dynamics to enhance medication nebulization.

Product Illustration 2:
Compatible with small volume nebulizer(SVN) and Metered-dose inhaler(MDI).

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## PATENT NUMBER

中華民國新型專利 證書號：M655360

虛擬洗手助教系統
Virtual hand washing teaching assistant system


DESCRIPTION & INTRODUCTION

Combining image recognition and guided teaching, by breaking down the cleaning steps, it guides users to correctly complete all the steps required for cleaning. It uses images to recognize the items in front of the sink and provide cleaning instructions for the items.

Through teaching and continuous image recognition, the supply of detergent and water is controlled. Through the image return of the physical camera, the object recognition and cleaning teaching are combined to provide the location and method of cleaning guidance for the item, and combined with voice interaction to provide a further step.
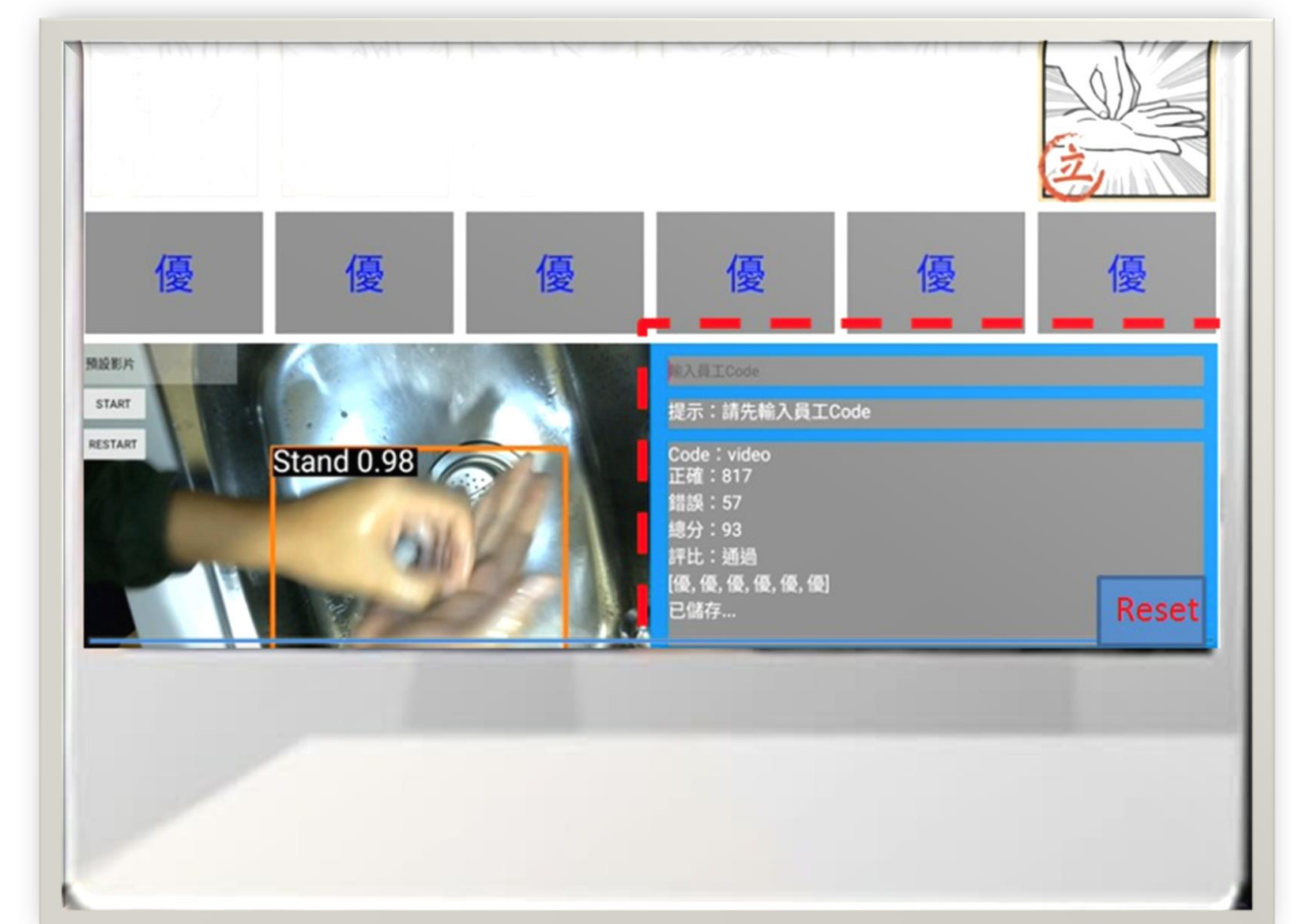
Four major functions of edutainment:

1. Operate the six major hand washing actions through computer voice guidance.
2. During the process, there will be an AI recognition system to help confirm whether the hand washing action is correct?
3. After completion, the system will give a general evaluation report to let the operator know how to improve.
4. The overall evaluation report can be stored on the zero-end for teachers and students to compare before and after.
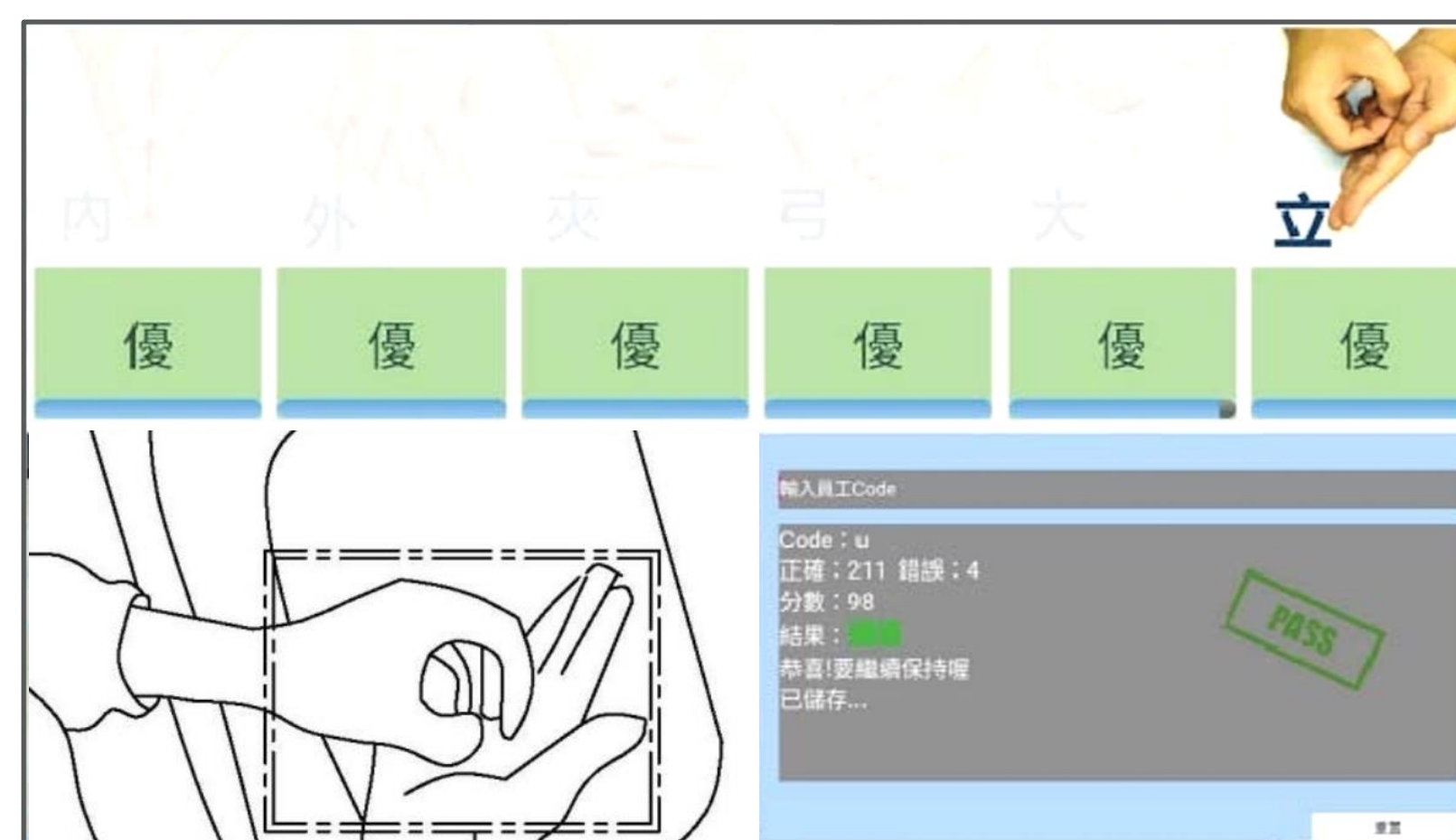
Passed clean hand washing test

Failed hand washing test

CONTACT US

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PATENT NUMBER

TW Patent No. M648198

智慧醫療解決方案提供者
Total solution provider of Smart medical system

ETERNAL® LIFE SCIENCE

DESCRIPTION & INTRODUCTION

長興材料長期以來致力於生醫檢測原料、關鍵重組蛋白材料的開發,並進一步應用發展成醫療器材。公司自行研發且銷售了數百萬份的 COVID-19 快速檢測試劑與登革熱等傳染性疾病檢測產品,逐步累積了產品開發經驗與市場信任。下一階段,公司將專注於開發創新的**「傳染性疾病」**、**「癌前病變」**、**「慢性疾病」**檢測產品,並將產品延伸至**「POCT 即時定量檢測系統」**的使用,以提供未來智慧醫療照護的市場需求。

ETERNAL has a long-standing commitment to developing biomedical testing raw materials, key recombinant protein materials, and their application and development into medical equipment. From self-developed COVID-19 rapid detection reagents, which have sold millions of units, to testing products for infectious diseases like dengue fever, we have steadily accumulated product development experience and market trust. In the next stage, we will focus on developing innovative testing products for **infectious diseases**, **precancerous lesions**, and **chronic diseases**. We will also expand our product offerings to **POCT (point-of-care testing) utilizing real-time quantitative detection systems** to address the demands of future smart healthcare.

系統整合
System integration

檢測項目代工
ODM/OEM

檢測POCT系統
POCT system

傳染疾病篩檢
infectious diseases

客戶夥伴合作
Customer Partner Cooperation

即時檢測工具
Real-time detection test

慢性疾病監控
Chronic disease

癌前病變篩檢
Precancerous lesions

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CK-MB | CRP | cTnI | D-dimer | NT-proBNP

CK-MB

$y = 1.0224x + 0.6149$
$R^2 = 0.9944$

Eternal's POCT device

Automatic Biochemical Analyzer
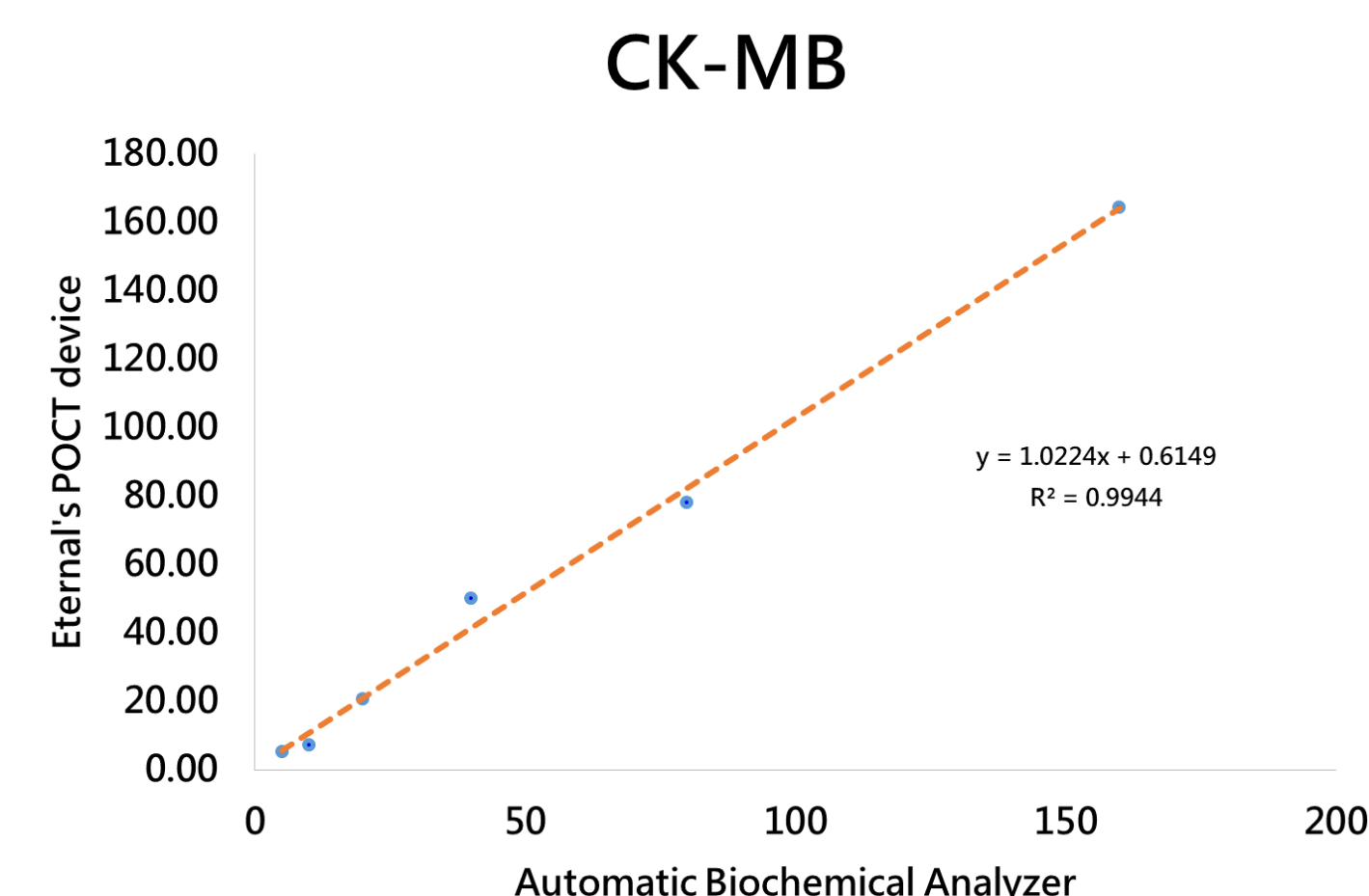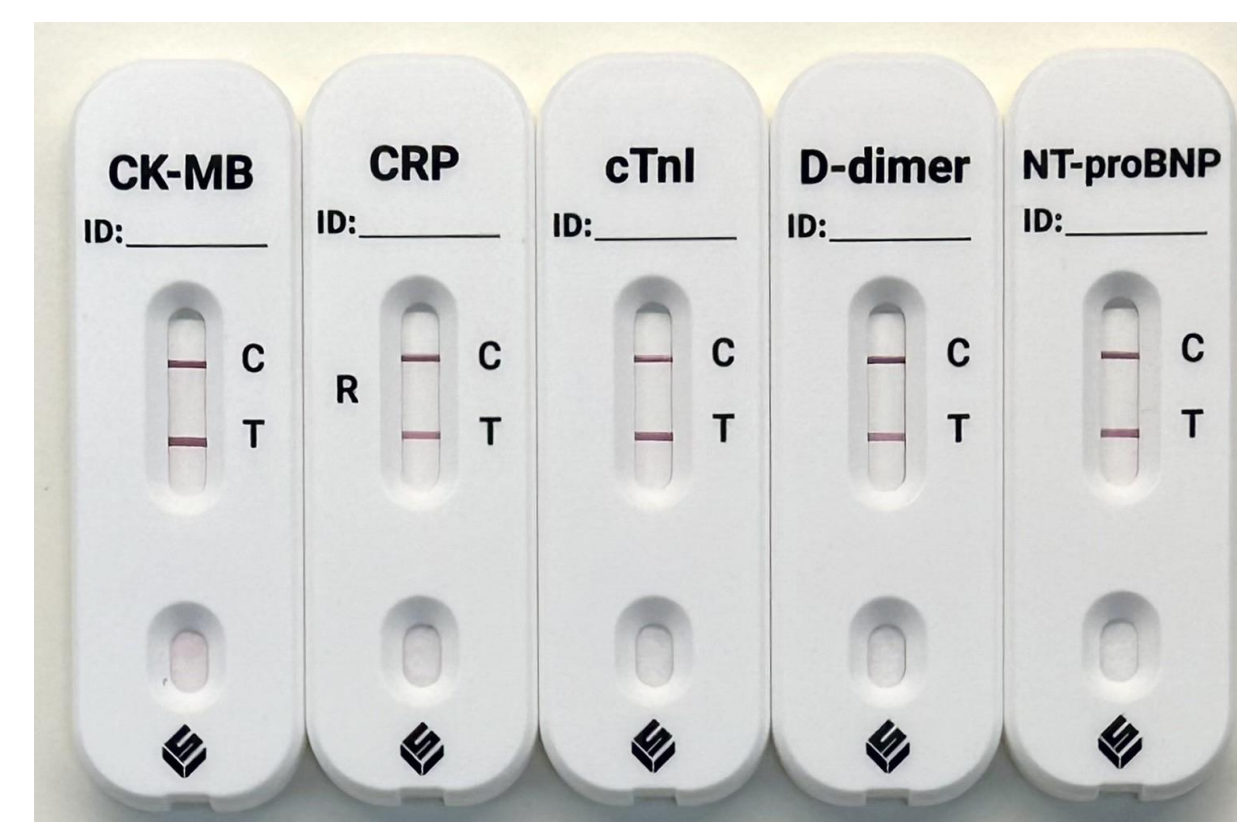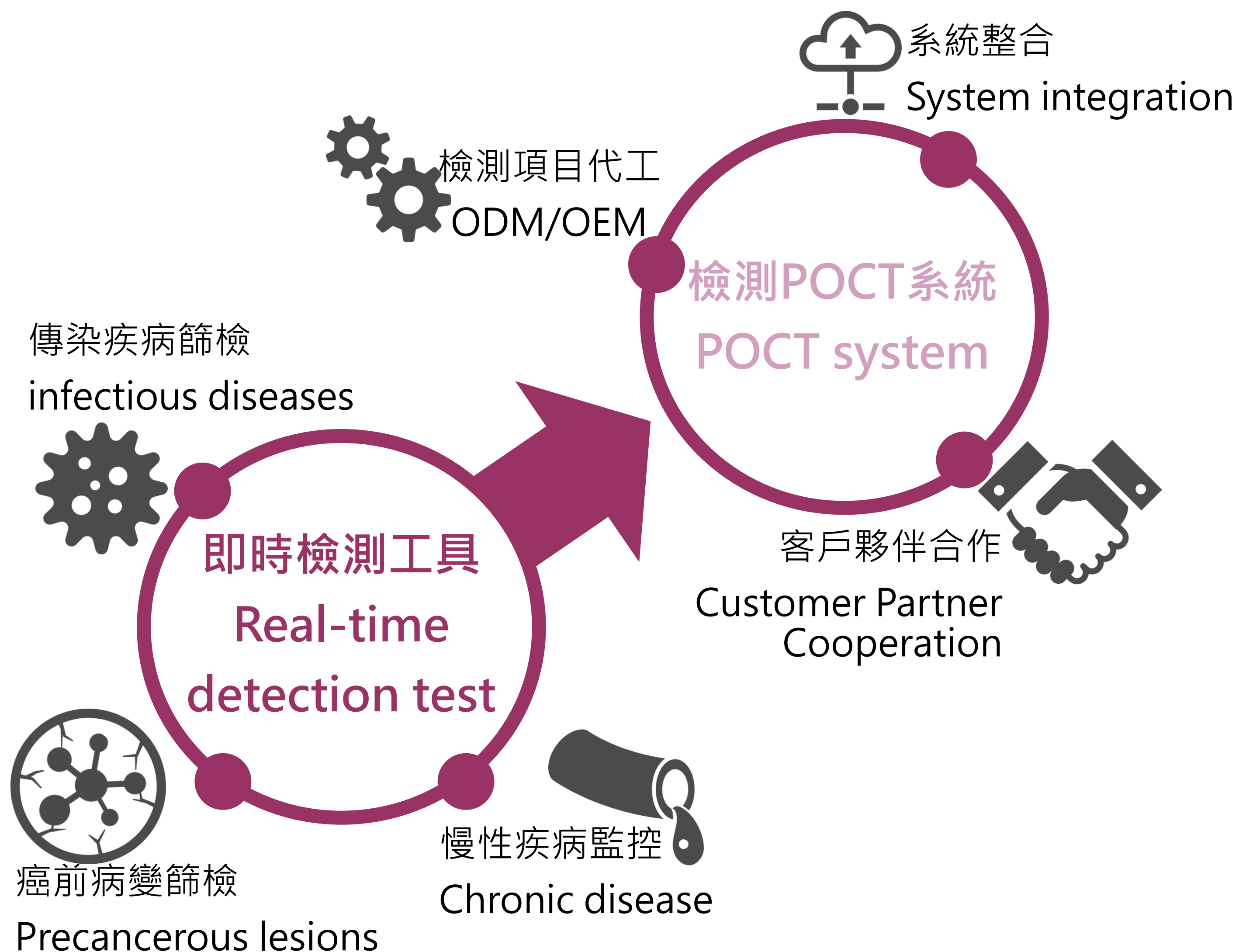
Eternal 長興材料 ETERNAL MATERIALS | Elements of Infinite Possibilities