

# Liverscan: 用於肝纖維化評估的掌上式實時超聲圖像引導系統

## Liverscan: Palm-sized Real-time B-mode Ultrasound Imaging Guided System for Liver Fibrosis Assessment

方便、可靠、有效的無創性肝硬度測量

Convenient, reliable and effective non-invasive liver stiffness measurement

肝纖維化主要由飲酒、乙型和丙型肝炎、脂肪肝引起，是非常普遍的疾病，也是肝硬化、肝功能失調及肝癌等嚴重病症的元凶之一。目前，肝纖維化診斷的黃金標準是肝組織切片分析，但此法屬於有創性診斷法，除了有機會引致出血，還可能導致嚴重的併發症。為了提供更安全、更有效和更全面的診斷方案，理大的團隊開發創新的掌上式實時超聲圖像引導系統，通過無創測量肝組織的硬度評估肝纖維化的狀況。此系統具有實時圖像引導功能，能提高測量的精準度，而其便攜式無線設計令操作非常簡便。



利用系統的無線超聲探頭作無創肝硬度測量  
Operation of the wireless ultrasound probe for non-invasive liver stiffness measurement



用於肝臟硬度評估的便攜式超聲成像及彈性測量系統，其所有超聲及控制模組已結合為單一探頭  
The compact system providing ultrasound imaging and stiffness measurement system for the liver, with all imaging and control modules included in one single probe

Liver fibrosis is a very common disease which may lead to cirrhosis and ultimately loss of liver function or cancer. It is often caused by alcoholism, hepatitis B and C, and fatty liver disease. Currently, liver biopsy is a gold standard for liver fibrosis diagnosis, but it is invasive and may cause bleeding and serious complications.

To provide a safer, more effective and comprehensive diagnostic solution, the team has developed a Palm-sized Real-time B-mode Ultrasound Imaging Guided System for liver fibrosis assessment, which performs fibrosis evaluation through non-invasive measurement of liver stiffness. The innovative system features real-time image guiding that enhances the accuracy of measurement. Moreover, its portable and wireless design allows convenient operation.

### Principal Investigator

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### 特色與優點

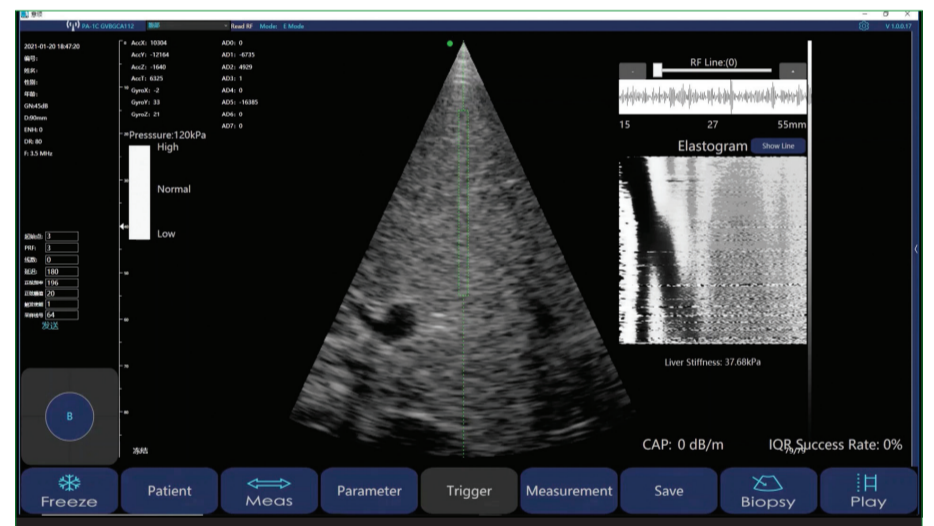
- 無創肝硬度測量
- 即時圖像引導 - 提升測量的精準度，讓操作者對測量區域進行準確的定位
- 肝組織的超聲圖像
- 無線掌上式設備
- 高成本效益

### 應用

- 肝纖維化的診斷評估
- 肝臟組織的硬度測量
- 脂肪肝等其他肝臟疾病的評估
- 為肝纖維化提供及早診斷及監測治療、預防惡化

### 獎項

瑞士日內瓦國際發明展 - 2021年網上特別版 - 銀獎 (2021年3月)



系統之軟件界面  
Software interface of the system

Patent Application No: 202010644961.1 (China)  
Patent No: ZL200910139336.5 (China), US 8,147,410 B2

### Special Features and Advantages

- Non-invasive liver stiffness measurement
- Real-time image guiding: enhances measurement accuracy, and allows accurate location of the measurement zone
- Ultrasound imaging of the liver
- Wireless palm-sized device
- High cost-effectiveness

### Applications

- Diagnostic evaluation of fibrosis
- Measurement of the stiffness of the liver
- Diagnostic assessment of other liver problems, such as fatty liver
- Possible early diagnosis of liver fibrosis and treatment monitoring to prevent progression

### Award

Silver Medal - Special Edition 2021 Inventions Geneva Evaluation Days - Virtual Event (Mar 2021)

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