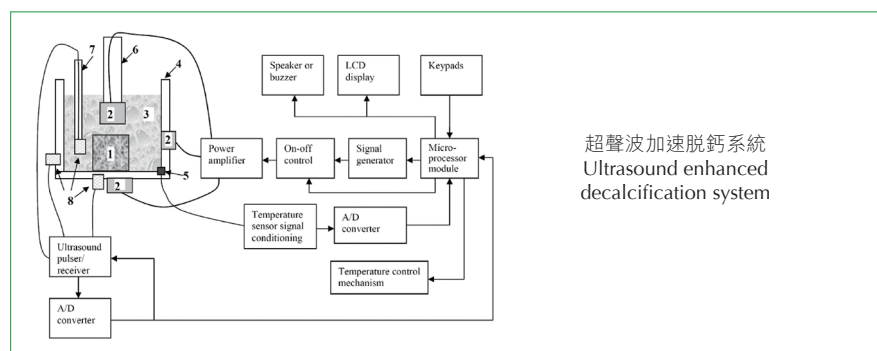


高速超聲波脫鈣系統 Rapid Ultrasonic Decalcifier (RUD)

嶄新的設備及方法用以加速整個脫鈣過程

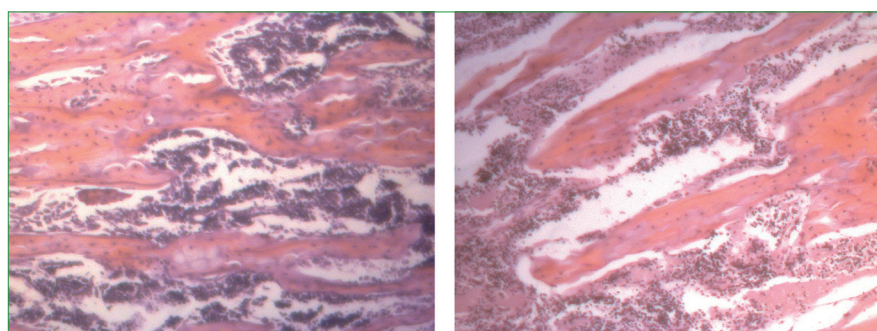
A device and methods designed to accelerate the process of decalcification

這是由香港理工大學康復治療科學系及醫療科技及資訊學系的科研專才所研製出一個嶄新的脫鈣方法，並獲得香港特別行政區政府創新及科技基金的資助。此方法主要是包括一個超聲波機器及一種泡沫溶液，可以於數小時至數天內把一根骨頭內的鈣質完全除掉。傳統的脫鈣需時數月，使用這個嶄新的脫鈣方法可大大縮短脫鈣的時間。除此以外，這個嶄新的脫鈣方法還配備了一個脫鈣終點偵查系統。



最新超聲波加速脫鈣機
The latest model of the decalcifier

H&E 染色
H&E stained sections



超聲波脫鈣
Ultrasonic decalcification

傳統脫鈣
Traditional method

Professions from Department of Rehabilitation Sciences and Department of Health and Informatics Technology of The Hong Kong Polytechnic University have developed a new technique and agent for decalcification. With the use of a custom-made ultrasound machine and the foaming agent developed by the team, decalcification of a whole bone could be completed within few hours to few days. This greatly reduces the time required for decalcification when compared to the traditional method which costs months for the whole process to finish. The system also bears an end point detection function using ultrasound at a different frequency.

Principal Investigator

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專利申請編號及國家：11/257,118 (美國) 200610100756.9 (中國)

特色與優點

- 快速脫鈣
- 避免因長時間脫鈣引致訊息遺失
- 提早分析及診斷
- 不會破壞組織的形態
- 脫鈣終點偵查及警報系統避免過度脫鈣

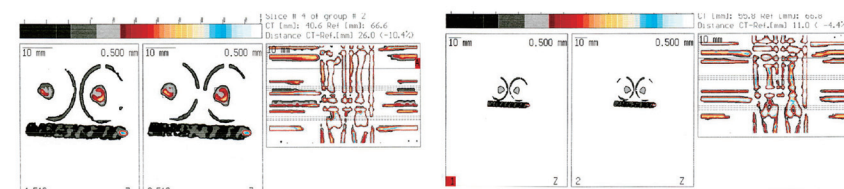
應用

- 組織學上快速脫鈣
- 骨頭同種異體移植上快速脫鈣

獎項

- 第38屆瑞士日內瓦國際發明展銀獎(2010年4月)
- IENA德國紐倫堡世界發明展銅獎(2006年11月)

Results on decalcification with and without the introduction of ultrasound on rats' femur.
Monitored by peripheral quantitative tomography (pQCT)



超聲波脫鈣

Ultrasonic decalcification

傳統脫鈣

Traditional method

Percentage of bone mineral loss in 24 hours (%)

	US treated	Traditional method	p value
Mid shaft	38.41 ± 7.23	24.89 ± 7.68	*0.000
Distal	24.38 ± 7.29	6.59 ± 16.48	*0.002
Total	31.40 ± 10.09	15.73 ± 15.67	*0.000

Patent Application No: 11/257,118 (US), 200610100759.9 (China)

Special Features and Advantages

- Fast decalcification
- Avoided lost of signalling during long decalcification process
- Early stage analysis / diagnosis
- No artefacts or detrimental effects on tissue morphology
- Non-invasive end point detection and alarming system prevent specimens from over-decalcified

Applications

- Fast decalcification for histological uses
- Fast decalcification for preparing bone allograft

Awards

- Silver Award, the 38th International Exhibition of Inventions of Geneva, Switzerland (April 2010)
- Bronze Award, International Trade Fair >> Ideas-Inventions-New Products (November 2006)