



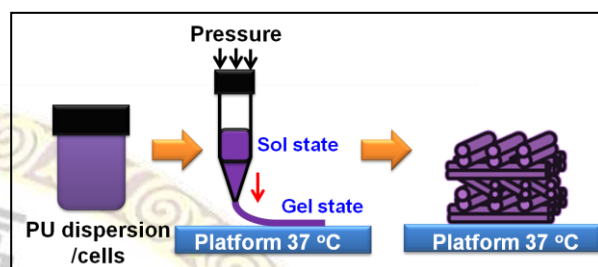
## 具有生物相容性之可降解彈性水凝膠(美國 CIP)

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簡歷：<http://www.pse.ntu.edu.tw/members/bio.php?PID=8>

市場及需求：醫療器材、組織工程



**技術摘要：**本發明係以兩種生物可降解多元醇作為軟鏈段，在特定比例下所合成出之聚胺酯可於 37 度時從溶膠態(sol state)轉換成凝膠態(gel state)，此可用來含入細胞並進行三維列印支架製作，列印後之成品具有良好的細胞存活率。

**優勢：**

- (1) 一般含細胞水膠需使用交聯劑進行交聯以維持形狀，本開發之 PU 分散液不須使用交聯劑便可形成水膠同時並含入細胞並進行列印。
- (2) 本 CIP 案之 PU 水凝膠可於 37 度時從溶膠態轉換成凝膠態，細胞包入水凝膠後仍有良好的細胞存活率。

**競爭產品：** Polytek 74-20 (Polytek Development Corp., USA)

**專利簡述：**

- (1) 本技術已有美國專利證書號: US 9,808,556B2。

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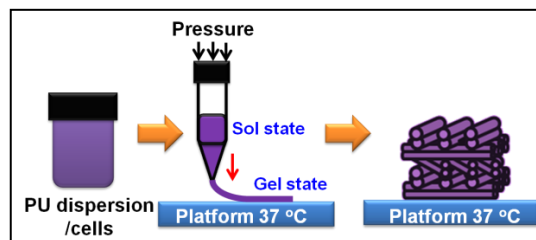


## Biodegradable and biocompatible elastic hydrogels (U.S. CIP)

**PI :** Prof. Shan-hui Hsu  
Institute of Polymer Science and Engineering,  
National Taiwan University.

**Experience:**

<http://www.pse.ntu.edu.tw/members/bio.php?PID=8>



**Market Needs:** Medical device/ Tissue engineering

**Our Technology:** A waterborne polyurethane (PU) was synthesized based on two biodegradable oligodiols. The sol-gel transition was observed for the PU dispersions when placed at 37°C. The PU dispersions could be easily mixed with cells and injected by a 3D printer. Cells remained alive and proliferating in printed hydrogel scaffold.

**Strength:**

- (1) Hydrogel which is soluble in water should be cured by adding toxic crosslinkers. Our PU dispersion could be mixed with cells and deposited layer by layer using 3D printer without any toxic crosslinker or photoinitiator.
- (2) PU dispersion could undergo sol-gel transition when the temperature is raised to 37°C. Cells could be encapsulated into PU hydrogels and demonstrated good viability and proliferation.

**Competing Products:** Polytek 74-20 (Polytek Development Corp., USA)

**Intellectual Properties:**

- (1) U.S. Patent No.: US 9,808,556B2

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