

Antimicrobial

Low-Toxic Silver Nanoparticles (Ag/NSP)

— antimicrobial coating /anti-MRSA /anti-biofilm /SERS sensors/
other medical uses —

A New Ag Species with High Antimicrobial Efficacy and Safety

— (press release 2009)— the invention of silicate-supported AgNP

銀彈900奈米矽片銀及其細菌捕捉



林江珍教授奈米矽片銀「銀彈900」
發表會上接受媒體訪問



銀彈900 - 抗菌除臭噴劑

Antimicrobial Spray

(commercial product in Taiwan)



奈米銀之應用 – (耐熱及製程穩定/可作成粉末及母粒) Surface Antimicrobial Fabrics and Textiles

Ag/PET Pellets

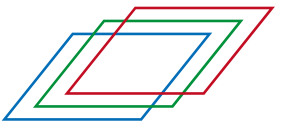
Ag/PP Pellets



多元應用 (紡織物、膜、塗料...等)

高穩定性 (熱、光、製程、氧化)

—矽銀之發明 (2009)—Summary of the New Ag Species



J&A Tech
多鏈科技

(新抗菌奈米材料之特色)

1. 物理性:
 - a. 製程可操控銀粒子大小 (5 – 30 nm diameter ; 遠小於傳統製程之銀粒子) ; 提高了應用之有效性
 - b. 高穩定性 (可避免傳統銀粒子之缺點: 熱/光之不穩定; 或容易氧化成銀離子退色或 AgO 變色)
 - c. 可製成三產物形態: 水溶液、水膠態、固体粉末; 可用於塗料添加或表面coating
 - d. 可製成高濃度母粒 (PP、PET...pellets); 便利下游應用之分散簡易性
2. 抗菌有效性: 高於傳統製程之銀粒子; 使用(低劑量)
3. 應用有效多元性及特殊性: 抗黴菌、anti-MRSA、anti-biofilm、surface coating (醫材; 骨塑鋼材 implants; 紡織品/PET紡織/glass表面/醫院環境/3C產品...)、水質處理(補捉機制)、除臭...
4. 低毒安全性 (low cell cytotoxicity and no genotoxicity)

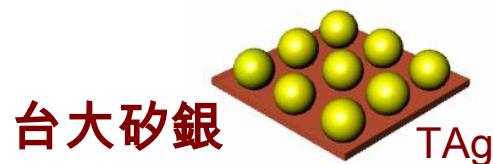
Safety Ranking: 矽銀 (TAg) >> 傳統的銀粒子 (AgNP) >> 銀離子(Ag-ions in Silver sulfadiazine)(trade name, Silvadene, SS)

[奈米矽銀]之應用 - 抗菌性佳及傷口癒合快速 —台大矽銀之發明 (2009)— [Nano-Si-Ag] for wound healing or against infection

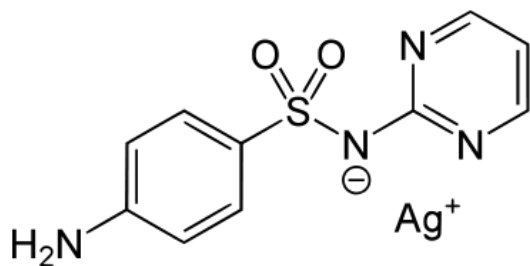
Chia-Yu Chu*, Fu-Chuo Peng, Ying-Fang Chiu, Hsing-Chuan Lee, Chien-Wen Chen, Jiun-Chiou Wei and Jiang-Jen Lin*, 2012.

Nanohybrids of Silver Particles Immobilized on Silicate Platelet for Infected Wound Healing, PLoS One, 7, e38360

比較市面最好之商標品 SS



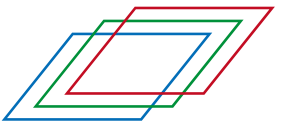
Silver sulfadiazine (Silvadene)
銀磺胺乳膏



已開發: 1. 已於2014年取得台灣發明專利 第 I 462754 號“親水抗菌膜”to A.T.P. CO., LTD.)
2. 數項敷材產品已取得國家第一類醫療器材許可證並已於市面上販售抗菌皮膚敷料(已獲藥字號燒燙傷藥膏)

Adverse effects(缺點): hypersensitivity(過敏), discoloration of the skin(皮膚變色) and silver accumulation in organs (器官殘留)... 傷口癒合可能變慢

藥/保健外敷用膏 Personal Health Cares



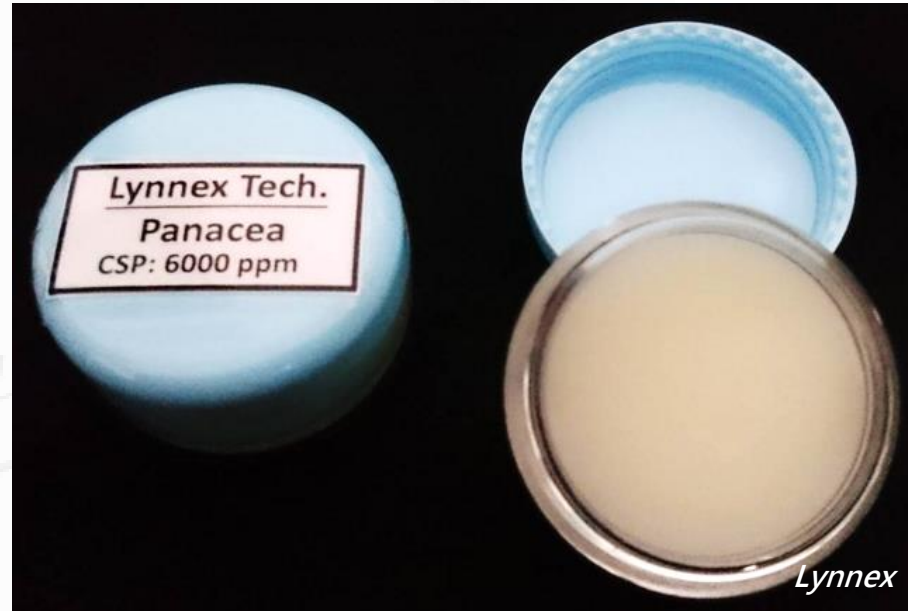
J&A Tech
多鏈科技

- C-Pian mouthwash
漱口水



- 天然 natural
- 無毒 nontoxic
- 抑菌 antimicrobial
- 除臭 deodorant
- 抗病毒 anti-virus
- 牙周病 gum disease

- C-Pian Skin Cream
外敷用膏



- 抑菌 antimicrobial
- 舒緩疼痛 (外敷) skin-irritation
- 消炎止癢(外敷) anti-itch
- 凝血/止血敷料 blood-clotting/hemostatic

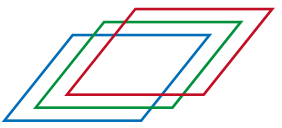
有效性: 超級細菌---抗藥性金黃色葡萄球菌

(Methicillin-resistance Staphylococcus aureus (MRSA))

- C-Pian Skin Silver-Cream
(external use only)



- 殺菌 antimicrobial
- 燒燙傷 anti-burn
- 蚊蟲咬傷 after bites



J&A Tech
多鏈科技

多鏈科技股份有限公司

402台中市南區興大路145號 中興大學 創新育成中心 Room 212

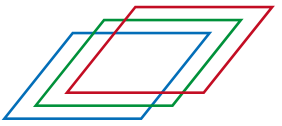
Tel. 04-2285-6293

jjlinoffice@gmail.com

jiangjenlin@gmail.com



多鏈科技股份有限公司
J&A Technology Corporation



J&A Tech
多鏈科技

J&A Technology Co.
Room 212, Innovation Incubator, National Chung Hsing
University, Taichung (40227), Taiwan

Tel. 04-2285-6293

jjlinoffice@gmail.com

jiangjenlin@gmail.com



多鏈科技股份有限公司
J&A Technology Corporation