



# Soft Tissue Augmentation by Needle-Free Injection

Tech ID: 22795 / UC Case 2006-213-0

## CONTACT

University of California, Santa  
Barbara Office of Technology &  
Industry Alliances  
[padilla@tia.ucsb.edu](mailto:padilla@tia.ucsb.edu)  
tel: 805-893-2073.

## INVENTORS

- ▶ Arora, Anubhav
- ▶ Mitragotri, Samir S.

## OTHER INFORMATION

### KEYWORDS

needle-free injection,  
  
indpharma

### CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Other
- ▶ **Medical**
- ▶ Delivery Systems
- ▶ Devices

### RELATED CASES

2006-213-0

BRIEF DESCRIPTION

A needle-free injector that allows for the injection of more viscous materials such as collagen, hyaluronic acid, and other polymers that are useful as dermal fillers.

BACKGROUND

For the past few decades, patients have had a variety of options for augmenting soft tissue to fill undesired lines, wrinkles, folds, and scars. Originally, collagen was used for such soft tissue augmentation. More recently, hyaluronic acid in a variety of formulations has gained in popularity. Use of needles and similar instruments puts health workers and patients at risk of infection through inadvertent needle-sticks or other equipment misuse. Additionally, needles and syringes are difficult to sterilize, and the use of improperly sterilized syringes and needles greatly increases the risk of blood-borne disease transmission among patients. Jet injectors are typically used for intramuscular injection of typically freely-flowing liquid drugs. There is still the need to adapt a liquid jet injector for fairly accurate sub-dermal injection of viscous materials for soft tissue augmentation.

DESCRIPTION

Researchers at the University of California, Santa Barbara have developed a needle-free injector that allows for the injection of more viscous materials such as collagen, hyaluronic acid, and other polymers that are useful as dermal fillers. This technology is particularly useful for augmenting skin using a needle-free jet injector to fill lines, folds, and wrinkles in skin with dermal fillers.

ADVANTAGES

- ▶ Needle-free
- ▶ Disposable
- ▶ The quantity of tissue augmentation material can be adjusted according to the depth of the lesion

APPLICATIONS

- ▶ Soft tissue augmentation
- ▶ Wrinkle treatment
- ▶ Scar treatment

This technology is available for licensing.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8021323	09/02/2011	2006-213

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Synthetic Platelets \(SynPlats\) to Treat Internal & External Bleeding](#)
- ▶ [Polymer-Drug Conjugates for the Co-delivery of Synergistic Chemotherapy Drugs](#)

- ▶ [Multiple Nanoemulsions and Complex Nanoparticles for Encapsulation and Release](#)
- ▶ [Systems, Methods and Devices for Rapid Tissue-Based Diagnosis](#)
- ▶ [Mucoadhesive Devices for Oral Delivery of Various Active Agents](#)

