



# MEDIHUB BROCHURE

Realizing Pain-Free Injections



**i-JECT**

Pain-Free Digital  
Automatic Syringe



**MEDIHUB**

# About MEDIHUB

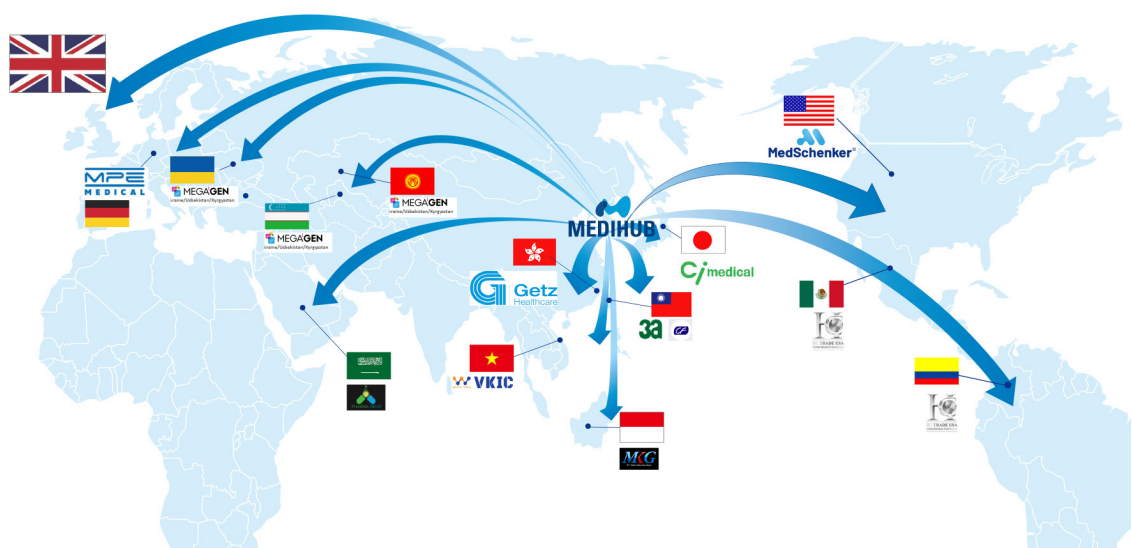
Established in 2017, we have been passionately pursuing our business under the slogan 'Realize Pain-Free Injections'. With strong determination, we will pave the way into global smart healthcare through the digital transformation of injections.

## VISION

Achieve smart healthcare through digital transformation of injections

## MISSION

We aim to provide digital medical devices and systems for smart injections which are safe and easy-to-use for both patients and medical professionals.



# Problem & Solution

## Pain Points

Injection pain, risk of medical accidents and inconveniences of using manual syringes



### PATIENTS



- Fear of injection pain
- Risk of drug abuse  
(No Quantitative Injection)



### DOCTORS



- Burden on wrists
- Risk of medical accidents



### HOSPITALS

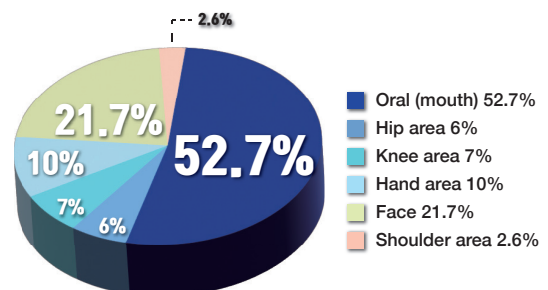


- Device maintenance
- Inventory management

## Solution

Medihub developed an exclusive, patented pain relief algorithm to solve the injection pain in dental local anesthesia through joint R&D with the Seoul National University Dental Hospital.

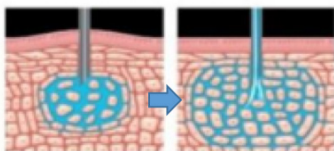
**PCGT(Pain Control Golden Time) 10 seconds.**



Medihub developed an exclusive, patented pain relief algorithm to solve the injection pain in dental local anesthesia through joint R&D with the Seoul National University Dental Hospital.

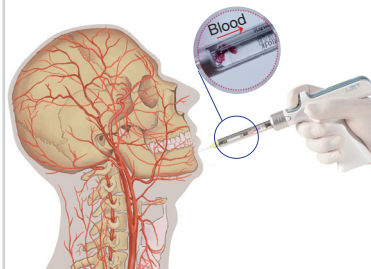
### PATIENTS

- ▶ Minimize injection pain through optimal anesthetic deposition
- ▶ Can use thinner needles (31G)



### DOCTORS

- ▶ Automatic aspiration
- ▶ Blood pressure check function

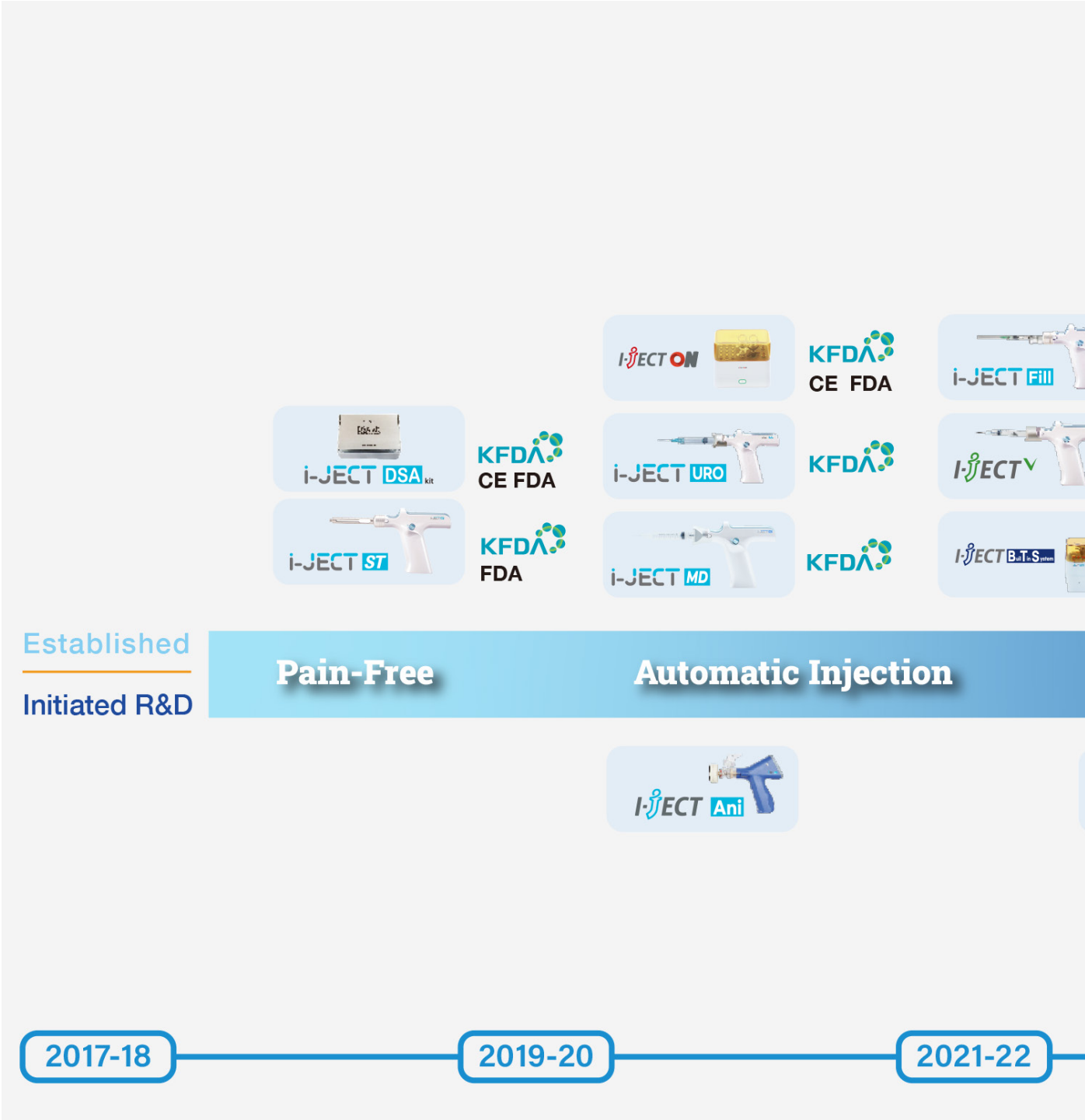


### HOSPITALS

- ▶ Maintenance service
- ▶ Optimal inventory management automatic ordering



# Road to Digital Transformation

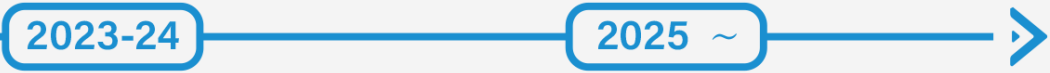




Commercialized & Launched Products



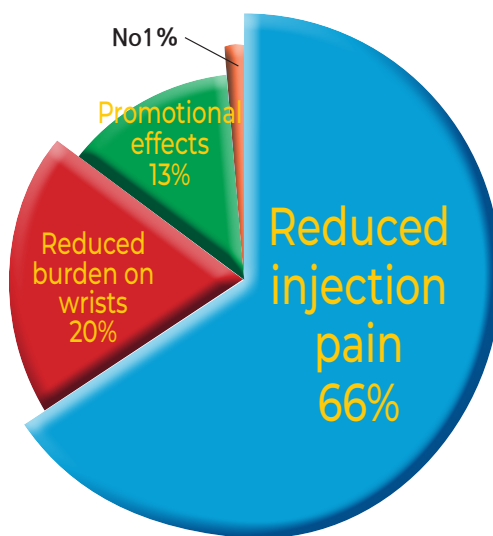
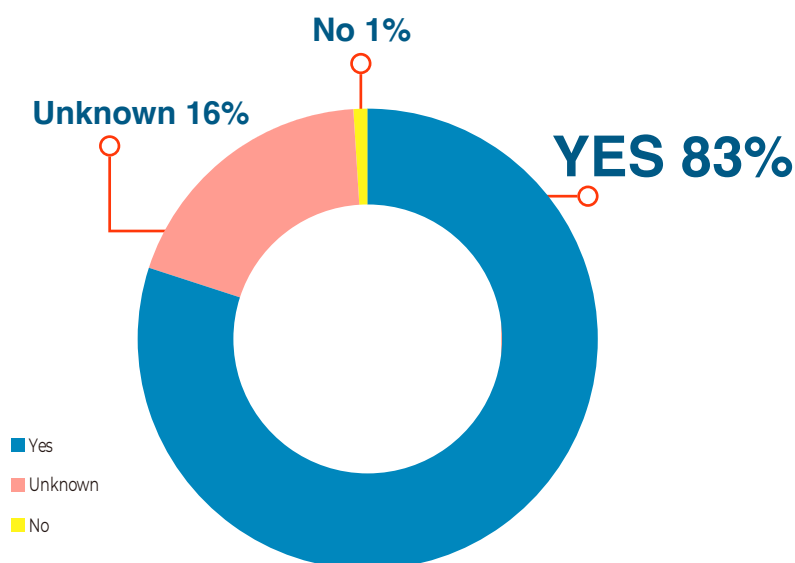
In R&D



# i-JECT, a Satisfying Solution

Did Patients' Satisfaction Increase with i-JECT?

What satisfies you the most about i-JECT?



Source: Google Survey with 198 Dentists Who Have Used i-JECT

Total Solution to Injection Pain

i-JECT

Alternate  
Factors

✓ i-JECT's  
Solutions

Main Reasons of  
Injection Pain

✓ i-JECT's  
Solutions

Needle  
Penetration

Can Use Thinner  
(31G) Needles

Anesthetic  
Deposition

Stable and Precise  
Speed & Pressure

Temperature  
of Anesthetic

Relieves Cold Pain  
with Warmer

Operator's  
Ineptitude

Programmed  
Injection Algorithm

Manual  
Aspiration

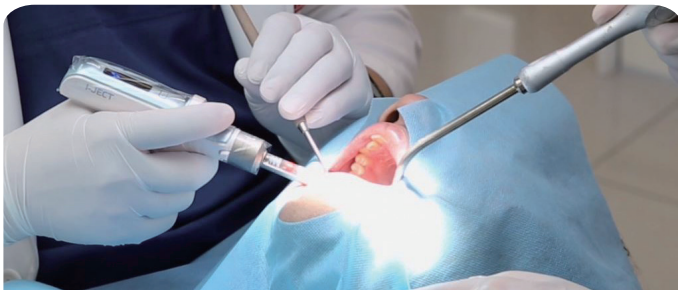
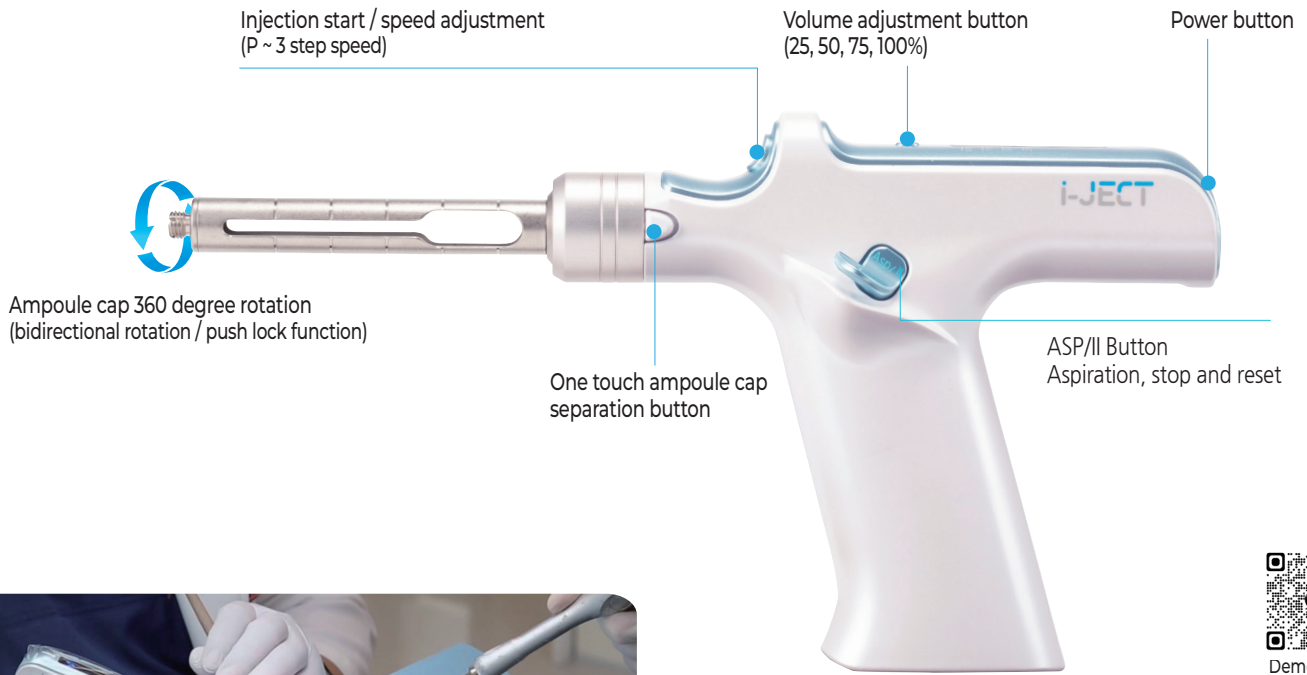
Automatic  
Aspiration

## Product introduction

# i-JECT **ST**

PATENTED

## Digital automatic anesthesia syringe for doctors and patients

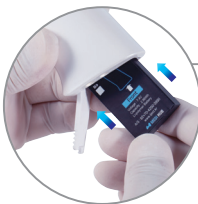


Example of i-JECT's clinical usage



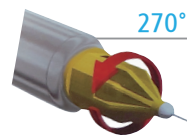
### Auto-Aspiration

Automated aspiration function enables safe and convenient verification of the needle's accidental vessel puncture.



### Replaceable batteries

(2 batteries included)



### i-JECT exclusive needle

- 4X fast clamping speed with single-turn
- Reduces risk of infection from needle punctures



### Hygienic plastic covers

Maintains hygiene and prevents contamination  
(1Box : 300EA)

i-JECT MD **PATENTED**

## A New Paradigm of Injections

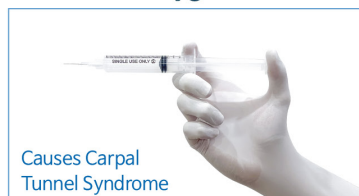
### Pain-Relief Digital Automatic Syringe



#### i-JECT MD's Grip



**VS**



#### Program Modes



**S Mode** : 5cc syringe mode



**L Mode** : 10cc syringe mode



**A Mode** : Auto-Aspiration

#### Main Functions



Safe with  
Auto-Aspiration



Reduces Physicians'  
Occupational Pain  
(Hand/Shoulder)



Reduces Injection Pain  
of Patients



Prevents overdosing  
(Precision amount injection)

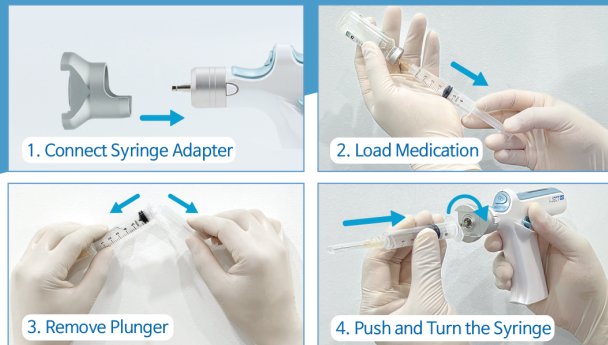


Can be Used  
for Biopsies

## How-to-Use

### i-JECT MD Disposable Safety Syringes

1. Push the Syringe Adapter (5cc/10cc) until it clicks.
2. Load medication into the syringe and remove the plunger.
3. Push the loaded syringe into the Syringe Adapter.



### i-JECT MD Disposable Safety Syringes



For 5cc (Luer Lock Type)



For 10cc (Luer Lock Type)



Adapter for 5cc



Adapter for 10cc

\* Can install proper adapters depends on the dosages.

## Applicable Fields of i-JECT MD



Dentistry



Plastic Surgery,  
Dermatology



Internal Medicine



Urology



Ophthalmology



Hematology



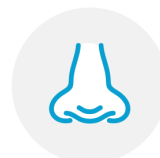
Hair Transplant /  
Hair Restoration



Pain Clinics



Orthopedic Surgery



Otolaryngology

## Feedback from Users

“

i-JECT, with its pain reduction effect and ergonomic design, allows me to perform injections easily at my practice.

An Otolaryngologist at \*\* Hospital

”

“

i-JECT doesn't cause any edema, and it prevents drug abuse by reducing injection amount up to 40%.

A Urologist at \*\* Clinic

”

“

i-JECT solved my greatest concern as a doctor, to reduce the pain patients feel from injections.

Sung Joo Hwang, M.D.  
Dr.Hwang's HairHair Clinic

”



## Product introduction

# i-JECT Fill

## Cosmetic Dermal Filler Injector

Less pain and bleeding with assurance of symmetric injections **PATENTED**

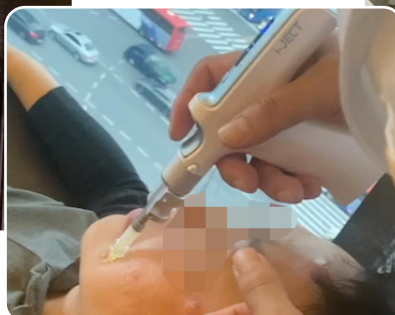


### Usages of i-JECT Fill in facial filler injections

①



②



③



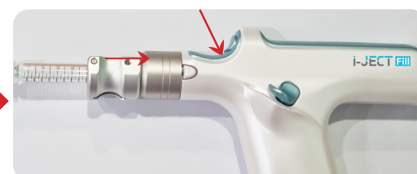
### Instructions for Use



1. Remove the handle of prefilled syringe



2. Fasten the syringe to the dedicated adapter at right groove (arrow).



3. Fasten the adapter and press the start button for injection.

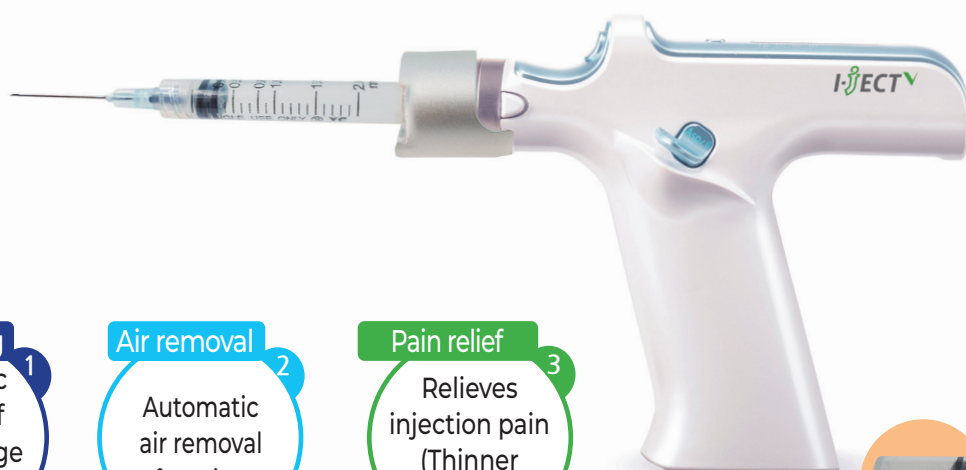


4. To set the injection Q'ty mode, press Q'ty button and hold while stand-by mode.



## Convenient Vaccine Injector for Humans and Animals

Conveniently administer precise dosage of vaccines with i-JECT V **PATENTED**



### Automatic loading <sup>1</sup>

Automatic loading of exact dosage and injection

### Air removal <sup>2</sup>

Automatic air removal function

### Pain relief <sup>3</sup>

Relieves injection pain (Thinner needles)



Use up vaccines without waste with exclusive LDS disposable syringes

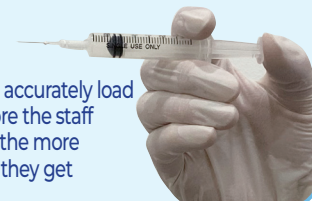
### Comfortable Grip

I-JECT V offers comfortable and stabilized grip to help medical staff's ease of use.

### i-JECT grip



### Disposable syringe grip



VS

- Hard to accurately load
- The more the staff injects, the more fatigue they get

NO	Important test items	Manual syringe		i-JECT V Automatic syringe		Remark
1	Loss due to residual amount of vaccine	0.1060cc		0.0317cc		Loss reduction to 1/3
2	Loading fixed quantity of vaccine	0.603cc		0.535cc		Loading accuracy, 13% improved
3	Vaccine dose accuracy	Suitable	Fail	Suitable	Fail	Conformity Criteria (0.5cc ± 0.01)
		2	8	10	0	
4	Vaccine loss when air is removed	0.05cc		0.0084cc		Reduced loss by 1/6
5	Skill level, medical staff	Interrelated		Not interrelated		Solved manpower shortage
6	Stress of medical staff	High		Low		Improving working environment for medical staff

Test reports comparing i-JECT V and manual syringe on the precision of vaccine loading and loss rates

## Product introduction

**I-JECT** Built in System **PATENTED**

# Dental Chair Built-in Pain-Free Automatic Syringe



## Two grip types

### ① Pen grip



### ② With supplementary handle



## Example of i-JECT BTS Installation



# Turn On The New Warmth

Maintains optimal temperature to solve Cold Pain

PATENTED

**I-JECT** Built in System

Digital Warmer & UV Sterilizer



▲ Preventing contamination by UV sterilization of needle insert point



OPTION

Proved  
COVID-19  
virus  
sterilization!



Voice notification

- Start sterilization (When closing the cover)
- Sterilization is complete (Sterilization Completion time : 3 minutes)

Internal UV  
sterilization function

Example of dental chair installation





Product introduction

# i-JECT ON

**hu Huons**

Joint development with  
the #1 local anesthetic  
market leader in Korea

## Optimal temperature control of cartridges and syringes for doctors and patients.

**PATENTED**



- ① Manual syringe 6EA  
(Compatible with i-JECT ampoule cap and manual syringe.)
- ② Lidocaine ampoule 12EA
- ③ Transparent tray  
(Detachable and washable)

\* Devices on pictures are not included except transparent tray.



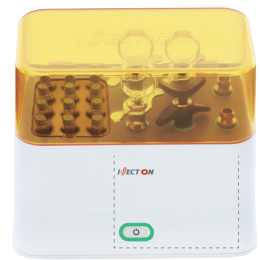
▲ i-JECT ON  
Introduction Video



Voice notification

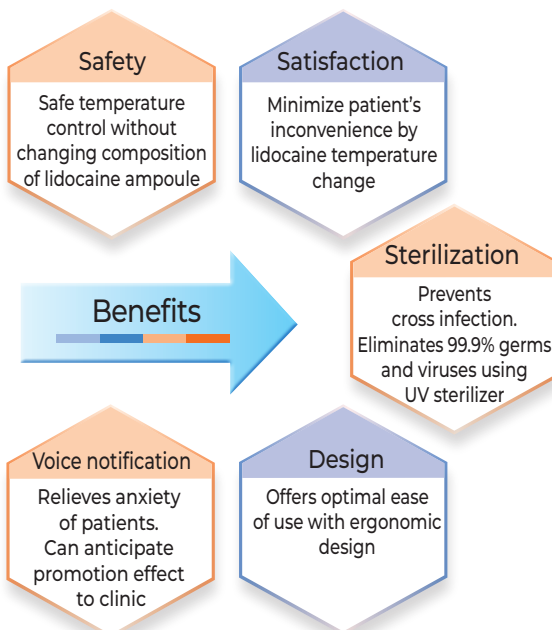
- (Blue) Start sterilization
- (Green) Sterilization is complete

**UV Sterilization**



Verified **99.9% COVID-19**  
virus sterilization

**Ergonomic design**



i-JECT ON's UV-C LED has been verified to sterilize  
99.9% of **COVID-19** virus

### COVID-19 Sterilization evaluation result

- SARS-CoV-2 (COVID-19 Virus) sterilization evaluation using Semicon Light's UVC LED.
- SARS-CoV-2 evaluation referral institution Jeonbuk National University Zoonosis Research Institute (BSL3)
- Evaluation result : 99.9% Sterilization

Jeonbuk National University  
Zoonosis Research Institute

No	Test Item	Distance	Test Condition	Sterilization Rate	Remark	
					Before Test	After Test
1	UV3535-PA.2	2cm	120	99.9%		
2	UV3535-PA.2 2NB	11cm	1500	99.9%		
3	UVC6060 110-350	3cm	1	99.9%		
		5cm	3	99.9%		
		10cm	3	99.9%		

(Jeonbuk National University Zoonosis Research Institute comment)  
+ Same effect to COVID-19 mutant viruses.



# Tips for using 'i-JECT ON'

## 1 Warms 12 lidocaine ampoules simultaneously

Optimal warming without changing



\*Put the lidocaine ampoule's needle insertion part facing down to prevent contamination

## 2 Detachable and washable lidocaine ampoule tray

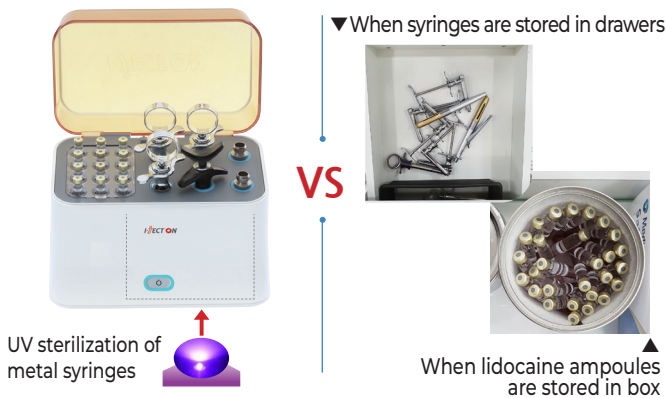
Convenient management with washable and detachable tray



\*Serializable with low temperature Plasma and E.O gas

## 3 Simultaneous warming and UV sterilization of metal syringes

Store safe and warm



## 4 Product Specification

Category	Item	Details
Function	Warming method	Heating Panel
	Warming temperature°C	25~30°C
	Warming time	20~30minutes
	Sterilization method	Ultraviolet UV C-LED method(5V)
	Sterilization operating conditions	When the cover is opened : ultraviolet rays UV OFF When closing the cover : ultraviolet rays UV ON (Sterilize for 3 minutes and turn off automatically)
Size	W × D × H (mm)	200 × 174 × 185 (mm)
Temperature	Storage Temperature	Room temperature
Certification	Medical Device License	Grade 2 (a medical warmer, an ultraviolet sterilize)

## 5 Additional function: Improved flowability



Resin for molar teeth has bad flowability. But after warming using i-JECT ON, flowability improved resulting in the soft injection of the resin for molar teeth.

Dr. Jung-Soo Kim, DDS.

## Product introduction

# i-JECT DSA kit

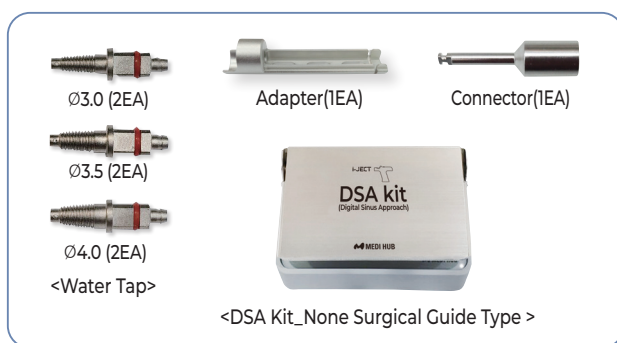
DSA(Digital Sinus Approach)

PATENTED



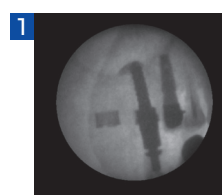
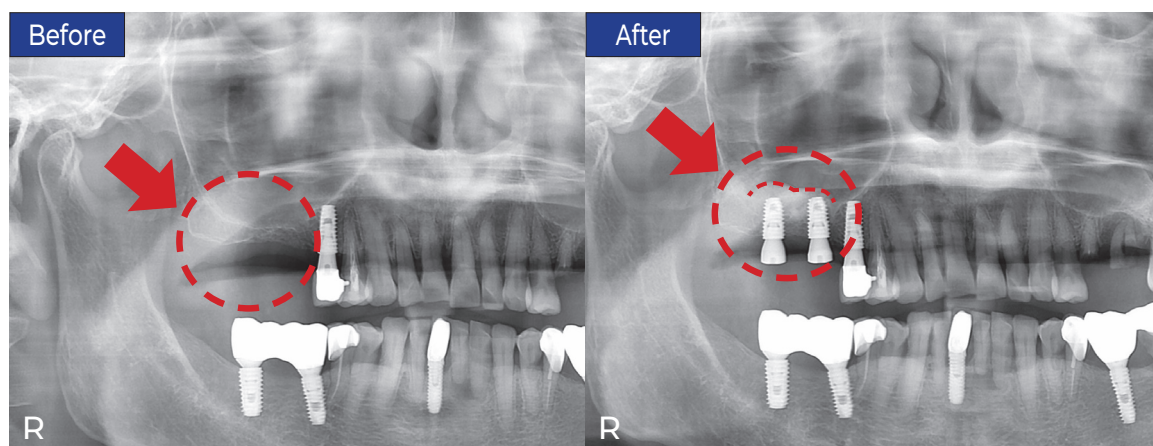
◀ Watch clinical procedure video

**Safety :** Safely perform hydraulic lift with the function of precise & constant saline solution injection without damage to maxillary membrane  
**Convenience :** Press a button to automatically inject; avoid the unstable manual injection of conventional syringes

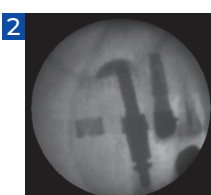


▲ DSA kit(None Surgical Guide) <Components>

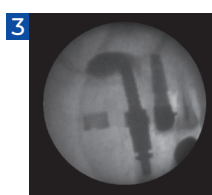
## Case study of clinical procedure using i-JECT DSA kit (Digital Sinus Approach)



▲ DSA kit  
Sinus Lifting start 10 seconds  
(i-JECT injection speed: 2 stage)



▲ 40 seconds later



▲ 50 seconds later  
Perfect maxillary sinus hydraulic lift with  
DSA(Digital Sinus Approach) kit

▲ CT SCAN image Before  
and after clinical  
procedure using i-JECT

▲ Total Injection Time :  
About 90 seconds

# i-JECT Dedicated Needle(For Dental)

## i-JECT Exclusive needle



Setting time for i-JECT exclusive needle: 1.3sec.

## Conventional needle



Setting time for conventional needle : 4sec.

VS

### Competitiveness of i-JECT exclusive needles

1

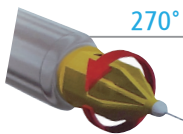
4X faster clamping speed than conventional needles

2

Eliminates needle thread damage caused by multiple turns

3

Single-turn needle removal minimizes the risk of infection from needle puncture

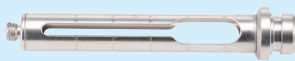


### i-JECT exclusive needle

- 4X fast clamping speed with single-turn
- Reduces risk of infection from needle punctures



## Accessories



Metal ampoule



plastic ampoule cap



Hygienic plastic covers



Ø3.0 (2EA)



Ø3.5 (2EA)



Ø4.0 (2EA)

Water Tap



Adapter



battery



No-Pain Pentube



Exclusive Needle

10cc



5cc



2cc



Disposable syringes (Exclusive)

# i-JECT Review

Experience feedback  
from dentists and doctors



[Arirang TV K-BIZ interview]



Byung-Hoon Cho, D.D.S.

Professor of Dental  
Preservation at Seoul  
National University Dental  
Hospital

**“i-JECT, reduces pain. Patients ask if they have been anesthetized even after the injection”**

**Q. What is the major benefit of using i-JECT over alternatives?**

i-JECT uses steady pressure to inject the anesthetic, to minimize injection pain for patients. Because they can hardly feel the injection, patients ask if they have been anesthetized even after the injection. Although doctors are well aware that the slow and steady speed can minimize pain, doing so is not easy using manual syringes without paying very close attention. **i-JECT conveniently automates this by slowly increasing the speed and dosage while at a stable pressure.**



Young Guen Hyun, D.D.S.

Peroplast Dental Clinic

**“i-JECT helps doctors build trust with their patients”**

**Q. What are the benefits of i-JECT?**

The patients' perception of dentists' skills depends a lot on the level of pain they feel. **Pain in dental procedures mainly comes from the anesthesia, not actual treatment.** i-JECT helps doctors build trust with their patients by relieving injection pain and maximizing treatment satisfaction for both patients and doctors.

**Q : What is convenient about i-JECT?**

Its ergonomic grip. The conventional pen-type syringe weighs more in the back which places a lot of burden. The ergonomic grip eliminates that, and its light weight and small size add even more comfort.



Moon Sub Yeom, D.D.S.

Seoul Top Dental Clinic

**“i-JECT is much easier to use than other painless syringes”**

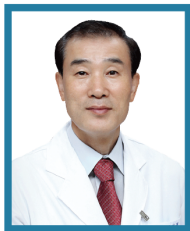
**“User-friendly painless syringe”**

If a device is not very comfortable to use, despite all its benefits, doctors are very reluctant to adopt it into practice. **i-JECT, in that perspective, is very satisfactory because it ensures user's convenience as well as patients' pain relief** i-JECT operates a long time on its battery, and when it dies it can be immediately replaced with the other one. Its exclusive needles are also safe and easy to replace.



# i-JECT Clinical Evaluations

Reports on Clinical Applications of i-JECT DSA Kit, i-JECT ST & i-JECT MD



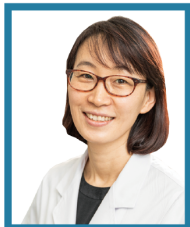
In-Cheol Ryu, D.D.S.

Seoul National University  
Dental Hospital

## Controlled Hydrostatic Sinus Lift Procedure Using the Digital Automatic Syringe in Dental Implant Surgery: Efficacy and Safety Evaluations

**Summary:** After clinical applications, the digital automatic syringe i-JECT and DSA Kit were found to be effective and safe in delivering the hydrostatic sinus lift procedure, which is the least invasive method in performing the dental implant surgery. The test group and the control group did not show statistically significant differences.

To be published in 1Q 2023



Yu Jin Kim, M.D.

Department of Plastic and  
Reconstructive Surgery,  
Gil Medical Center,  
Gachon University  
College of Medicine

## Pain relief of Local Anesthetic Injection using Digital Automatic Anesthetic Injector

**Summary:** The digital automatic anesthetic injector was found to reduce pain and the amount of local anesthetics used without side effects in local anesthetic injections before excision surgeries compared to the manual method.

Presented at the Annual Conference of Korean Society of Plastic and Reconstructive Surgeons in Nov. 2021



Sung-Joo Hwang, M.D.

Hwang's Hair Hair Clinic

## Effects of Injection Site Pain Level Using Automated Injection Device (i-JECT) for Local Anesthesia versus Traditional Manual Injection

**Summary:** After clinical applications of the automated injection device i-JECT on 128 patients, it improved the pain score than the conventional manual injection method. It was also found to reduce pain and fatigue in shoulders and wrists.

Presented at the Annual Conference of Korean Society of Hair Restoration Surgery in Aug. 2022



# Team & Advisors

## Our Team



**CEO & Founder**  
**Maro Yeom**

- Director, Korea Dental Industry Association
- Director, Micro NX
- Medical Journalist, Weekly Journal
- M.S. (ongoing) in Pharmacology from School of Medicine, Cha University



**CTO**  
**Taeho Yoon,**  
D.D.S., Ph.D.

- Associate Professor, Hamdan Bin Mohammed College of Dental Medicine, UAE
- Associate Professor, Tufts University School of Dental Medicine



**CMO**  
**Jung-Woo Choi,**  
Ph.D.

- Dong-A Pharmaceuticals Strategy & Planning
- Ph.D. in Pharmacology from School of Medicine, Cha University



## Advisory Board



**Byung Hoon CHO**

D.D.S., Dental Advisor

- Seoul National University Dental Hospital : Dept of Conservative Dentistry
- Former Chairman, the Korean Academy of Conservative Dentistry



**Young Soo KO**

M.D., Medical Advisor

- Urologist, Korea University College of Medicine
- Top Urology clinic



**Sung Joo HWANG**

M.D., Medical Advisor

- Director of Korean Hair Research Society
- Professor of Dermatology, Kyung-Buk University Hospital



**Jae-Ho KIM**

Ph.D., IPO Advisor

- KRX Expert Consultant



**Seung Il LEE**

MBA, Business Advisor

- MBA from KAIST
- BA in Economics, SNU
- CEO of BioTNS Co., Ltd.
- Former Director of Financial Dept, Osstem Implant



**Hye-Won SHIN**

Ph.D., US Affairs Advisor

- Biomed Engineer
- Director of Asian American Community Outreach at UCI
- CSO, Chief Global Affairs Officer at Riid Medical Group



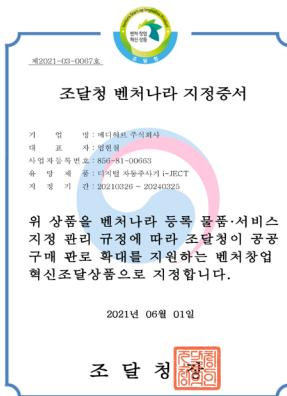
# Awards

2022



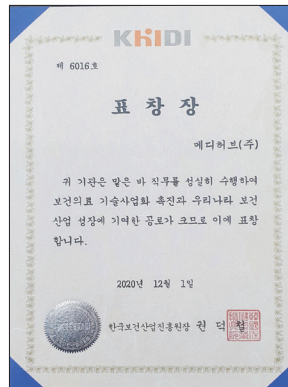
Certified as an Excellent Company

2021

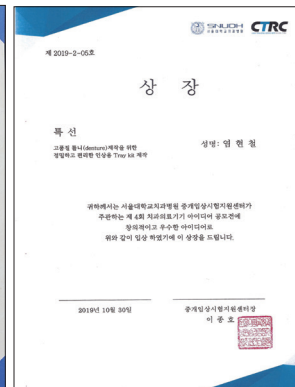


Appointed as a Public Procurement Venture

2020



Korea Medical Device Association Commendation



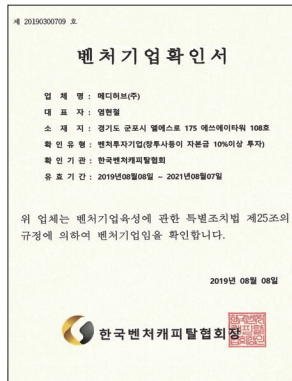
Award from Seoul National University Dental Hospital

2020



Certified for ISO 13485

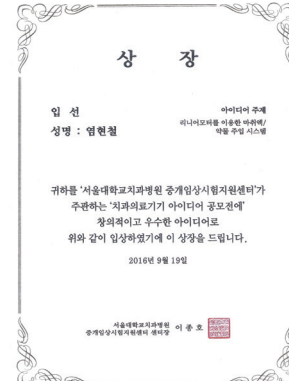
2019



Certified as a Venture Business



Award from the Federation of Korean Industries



Award from Seoul National University Dental Hospital

2019

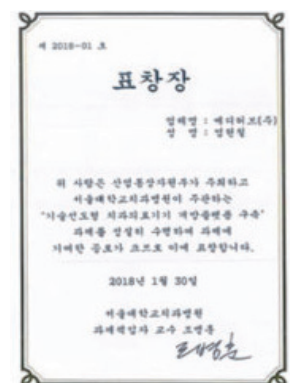


Certificate of GMP in Korea

2018

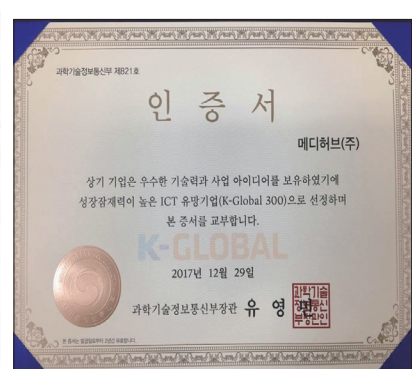


Certified as a KRX Startup Company



Commendation from Seoul National University Dental Hospital

2017



Korea Health Industry Development Institute Commendation

Realizing  
Pain-Free  
Injections





## Pain-Free Digital Automatic Syringe i-JECT



HQ & Factory : (15808) #108, #201, #203 SA Tower, 175, LS-ro, Gunpo-si Gyeonggi-do, Republic of Korea

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Web : [www.medihub.co.kr/en](http://www.medihub.co.kr/en)