



Automatic Needle-free Injector

ATOM GUN

Intradermal



Vaccinate
Beginning of New Revolution

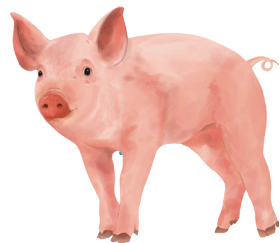
Antibody formation rate *Great* ↗
Drug side effects *Freedom* ↘

information

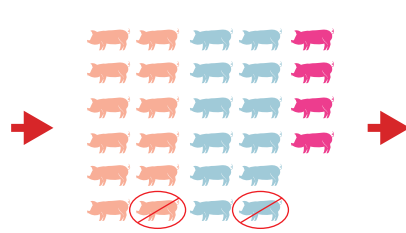


Still injecting needles? We're **losing** so much!

Example of annual loss of ideal meat

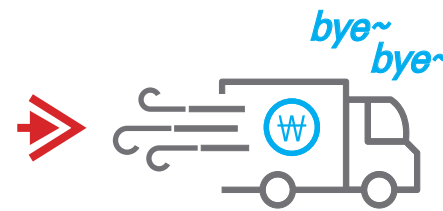
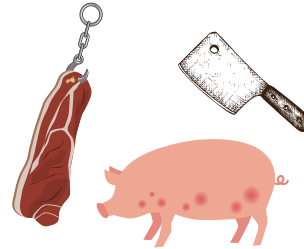


100 sow farm



49.9% Slaughter and abnormal meat detection

MSY 20 X Abnormal meat occurrence frequency X Penalty amount per head =



About \$15,000 !
Farmhouse loss

End up **losing** money
tremendously !
It can be avoided !

2020 Atom Gun product demonstration: Namsan



Pigs, as livestock for consumption, are legally required to be vaccinated for disease prevention and food safety purposes. Among these, the 'swine fever vaccine' has been typically causing numerous instances of abnormal muscle (muscle abscesses), due to its unique side effects, resulting in significant economic losses for farms every year. After years of searching for a solution, recent overseas research cases and domestic clinical trials have shown a 'remarkable decrease' in 'abnormal muscle occurrences' when the vaccine is administered by intramuscular injection. To align with the characteristics of mobile livestock, where needle injections are difficult to implement, a vaccination device for 'intradermal administration' has been developed. Of course, this product is not only suitable for the classical swine fever vaccine but also for numerous other vaccines that are designed for 'intradermal administration'.

HISTORY



2017.06

Development review and pre-clinical



2017.12.29

Started research project



2018.12

Completion of various clinical and prototype development



2019.01 ~ 09

Enhanced durability for commercialization



2019.09 ~ 12

Acquired various certification reports



2020.02.06 ~

Completed item approval and conducted numerous on-site clinical trials



2021. 04 ~

ATOM GUN Ver.1
released

Economic loss from suppuration

In a case study on side effects conducted by the Korea Pork Producers Association in December 2019, involving 157 farms in Korea, the incidence of abnormal meat reached 49.9%. Consequently, the economic loss was estimated to be at least \$80 million to \$295 million based on 17 million animals slaughtered per year.

Parameter	1 st vaccination	2 nd vaccination
Suppuration incidence		
Konkuk University (2012)	17.3%	
Kangwon National University (2015)	46.1%	73.2%
Korea Pork Producers Association (2019)	49.9%	
Deduction per one released pig		
Kangwon National University (2015)	\$6.4	\$13.5
Korea Pork Producers Association (2019)	\$3.7	
Estimated annual loss	\$80 million ~ \$140 million	per year \$295 million

Assumption: annual no. of pigs released: 17 million

t



X File_TV program 2016.05

KBS NEWS 2015.12

“Atom Gun” significantly reduces abnormal meat and significantly increases farm income.

ATOM GUN IS...

The 'Animal Technology Osmotic Machine,' abbreviated as GUN, is a **"JET INJECTOR"** that enables **needle-free** vaccination. Developed through numerous experiments and clinical trials considering the skin elasticity of animals such as pigs and cows, it is an **automatic injector** optimized for intradermal medication penetration.



The 'ATOM GUN' applies **optimal pressure** to achieve the desired depth for drug penetration. Our goal is to alleviate pain in livestock and establish a more standardized vaccination process, thereby enhancing antibody production.

Commonly used 23G needles in general medicine have a diameter of 0.635mm, whereas the nozzle hole size of our injector, ranging from **0.23 to 0.25mm**, is significantly finer (compared to venipuncture needles at 18G = 1.27mm).

Traditional needle injectors use the needle to create a drug penetration route in the skin and slowly administer the drug through finger pressure. In contrast, our 'spray-type injector' relies on the robust ejection pressure of the device, utilizing an extremely fine nozzle hole to achieve instant drug delivery. This approach harnesses **the drug itself** to mimic an **'instantaneous needle-like function'** (a needleless injection technique).

Initially, it penetrates skin layers in a direct line to a specific depth. Upon encountering the resistance layer, the drug **rapidly spreads horizontally** along the tissue's structure. This delivery method enables the drug to reach the target penetration layer 'evenly and swiftly,' eliminating the pain associated with needles. Injectors using this mechanism are well-recognized academically abroad, labeled as **'Jet-injectors'**.

"ATOM GUN" Ver 1.0 is

designed to administer approximately 0.55cc of medication automatically per operation.

The target penetration layer of the drug is optimized for intradermal delivery. We have completed multiple clinical trials on the antibody production rate when vaccinating pigs against foot-and-mouth disease. These trials have been conducted in numerous farms, including those in Pocheon, Jincheon, Nonsan, Hongseong, and Deoksan. The results of these trials will be announced on our website in the future. Additionally, apart from the foot-and-mouth disease vaccine, we are conducting clinical trials for various other vaccines.

We plan to supply accessories to accommodate the administration of medications in various volumes as per consumer requests.

At 'Reborn Agency,' we strive for diverse clinical trials. Inquiries are welcome!



검수번호 : 19-3964

혈청 검사 결과서

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검수일자

2019년 6월 5일 수요일

의뢰장소

리본에이전시 (박선영 님)

시료내역

말 10 점

농장명

리본에이전시

항목	검사방법	검사결과	양성률기준
FMDV-O Type-1	Blocking ELISA	Positive	PI(N) 50% 이상




검사 담당자 : 염우진

Intradermal Vaccination using ATOM GUN_Sunjin Bridge Lab

Vaccination method

- Vaccine injection in two groups of neck and back

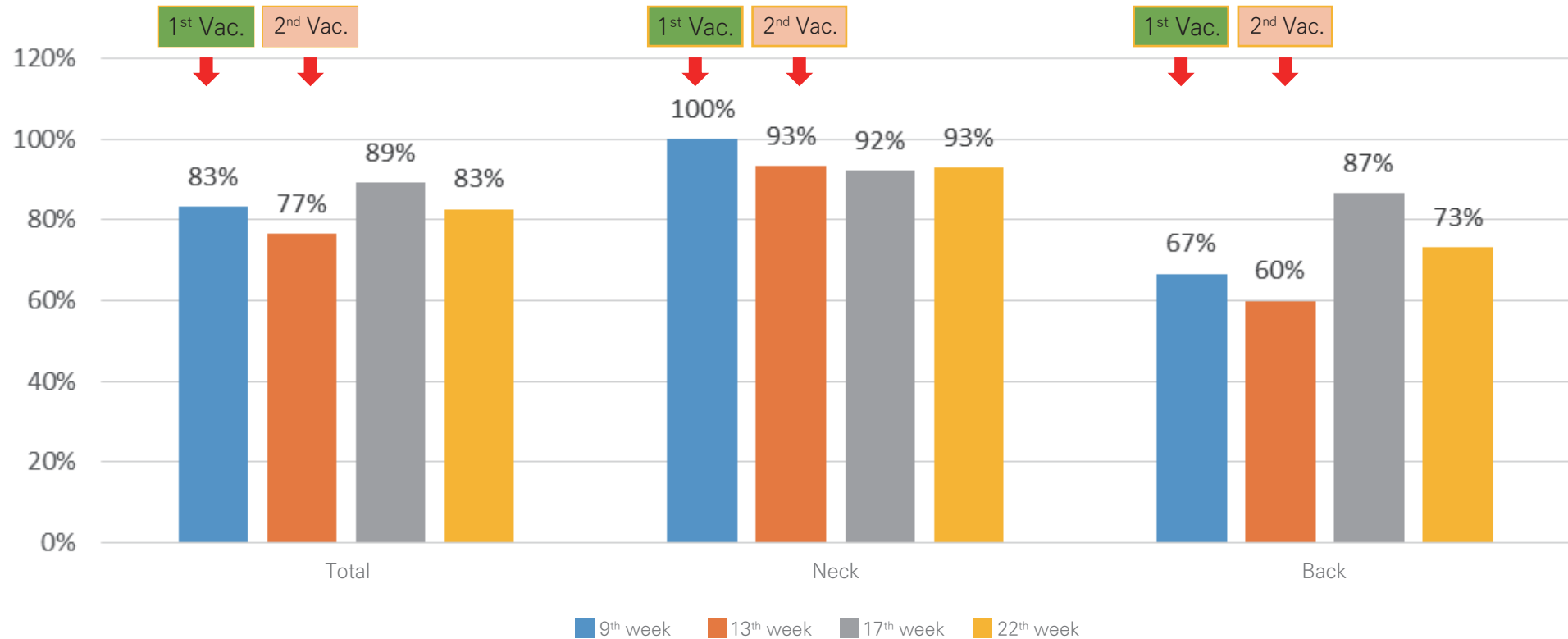
Vaccination method	Vaccine type	Period	Amount	No. of pigs	Period of blood collection
Intradermal	C vaccine Bivalent	9 th week, 13 th week	1ml per injection (0.5ml*2 times)	30	9 th week, 13 th week, 17 th week, 22 nd week

Vaccination on the neck area	Neck area after the vaccination	Back after the vaccination
		

- ▶ The vaccinated part of the body shows a bit of swelling after the vaccination. (Smaller wounds compared to other needle-free syringes)
- ▶ After a few minutes, traces of inoculation disappear.

Intradermal Vaccination using ATOM GUN_Sunjin Bridge Lab

Test results

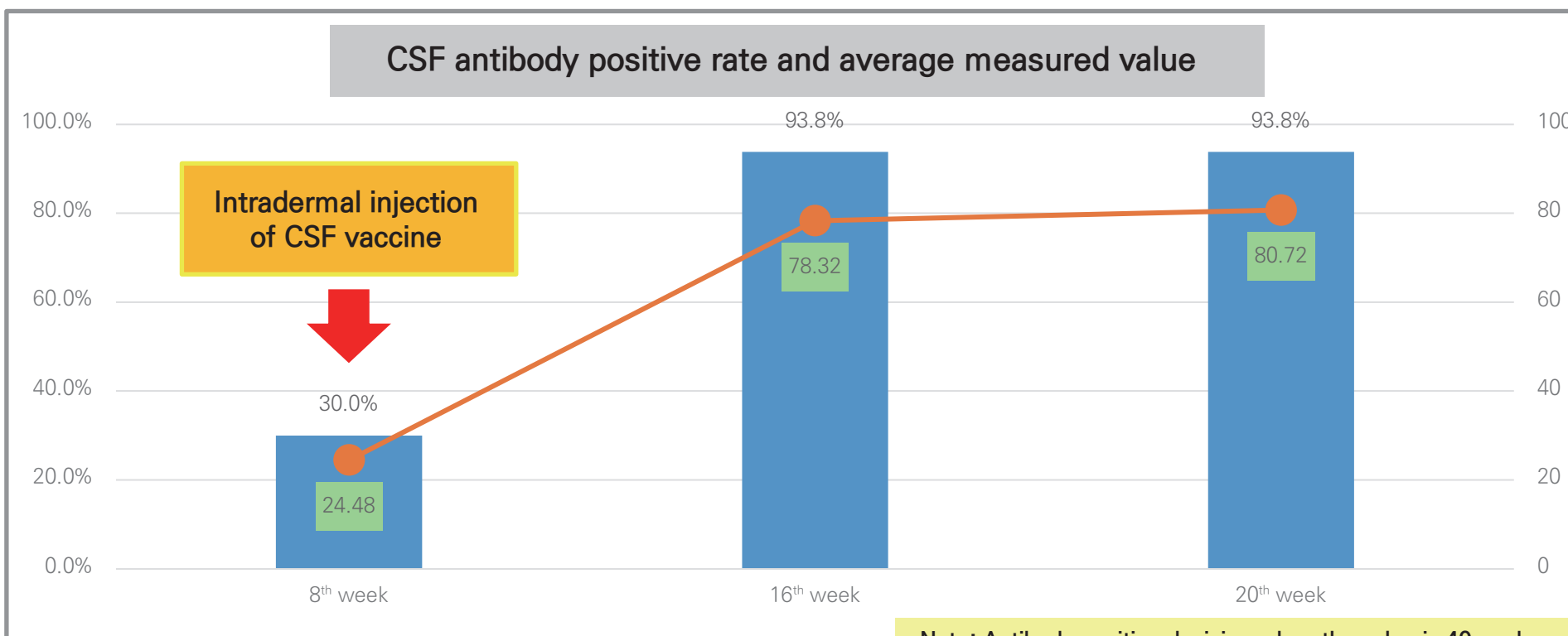


- ▶ The antibody was maintained until the late fattening period (total 83%)
- ▶ The group vaccinated in the neck showed a higher rate of antibody generation than those vaccinated in the back.

Intradermal Vaccination using ATOM GUN_Sunjin Bridge Lab

Classical swine fever (CSF) vaccination test

Category	Vaccination device	Vaccine	Vaccination period	Amount	No. of pigs	Blood collection period
Swine fever test (green mark)	ATOM (jet injector)	Combined CSF vaccine	8 th week	0.5ml	20	8 th week, 16 th week, 20 th week



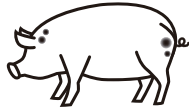
- ▶ The group received intradermal injection using the electronic injector generated antibody.
- ▶ Based on the measured antibody value, the antibody positive rate seem to be maintained until the time of release.

REBORN ATOM FMD

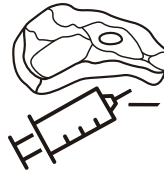
It really doesn't hurt

A

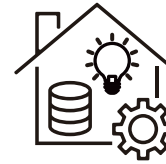
Abatement



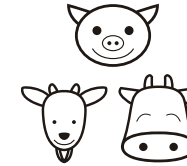
Reduces infections



Prevents broken needles from damaging the meat



Reduces the farm labor & boosts competitiveness



Improve animal welfare by reducing inoculation pain



T

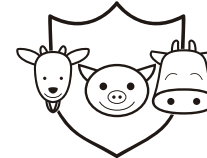
To vaccinate



Fast drug delivery effect



Uniform dose uniform results



Excellent immune response to the vaccines



Reduces the amount of vaccines



O

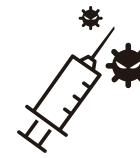
Obviate



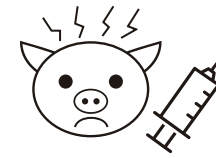
Provides safety to the operators



No more medical waste



Prevents needle-induced disease spread



Prevents stress-induced acute death, fever, miscarriage and stillbirth



M

Merit



Professional device management



Hygienic device management by heat sterilization



SUS316 material resistant to corrosion



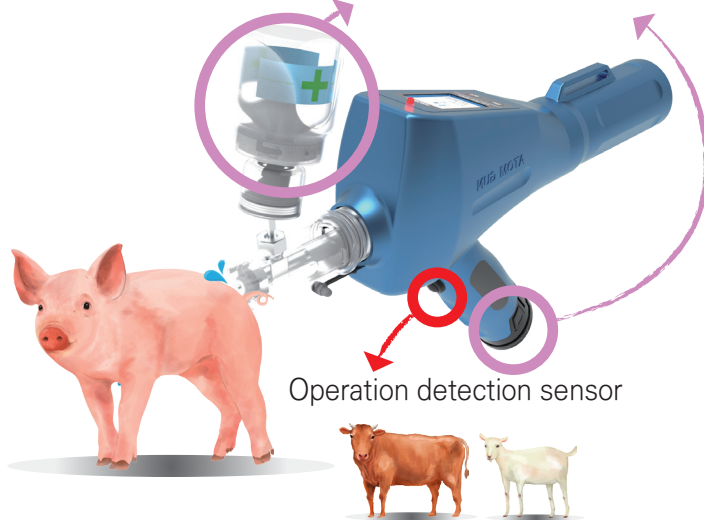
Easy to understand the pictorial illustration



HOW TO USE

STEP. 1 Preliminaries

Equipped with a 'pill bottle' and a 'battery' in the device



Operation detection sensor

Check the red lamp

Pressing the operation detection sensor continuously

Adheres the launch port to the inoculation site (Automatic injection)

Syringe leveling (Drug loading)

- Piglet: Whole body
- Sows : soft parts such as 'neck, behind ears, flanks, perineum'
- Cow : Whole body
- Goat : Whole body

STEP. 2 Drug loading



- 1 Activate the device by holding down the power button for 3 seconds after inserting the 'pill bottle' and 'battery' into the device



Operation detection sensor



- 4 During inoculation, keep pressing the "operation detection sensor".

STEP. 3 Automatic injection



- 2 After confirming on the 'Drug Preparation Screen', click on the '실행' button (Prepare drugs in the cylinder-automatic)



- 3 Once all the preparations for vaccination are complete, the screen will switch to the "operation count screen".
 - * This screen enables the management of vaccination records for each livestock farm
 - * Options include the ability to choose between cumulative records or new record entries."

When the cylinder is loaded with drugs
The lamp at the top of the screen lights up in red.

Check the 'red lamp' (drug loading is complete)

The launch port is tightly attached to the inoculation site

Automatic injection

Leveling the syringe (loading the next drug)

If you wait for a while, 'red light' comes on in 'Lamp' again.
Repeat the above operation to proceed with inoculation.

* To end the vaccination process, remove your finger from the 'job detection button' after the last injection.



Please prioritize the drug instructions for the vaccination area. Avoid areas where the muscles have developed a lot.

Tip. 1 Automatic cleaning



or

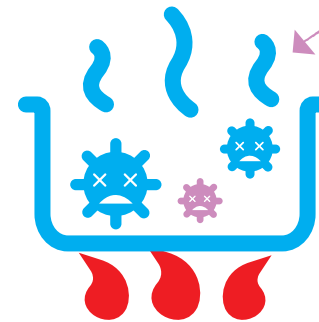


turn off the power to shut
down completely

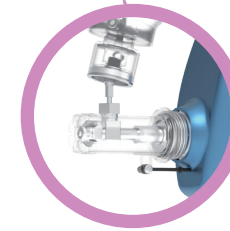
"After inoculation, remove the vials. Select the 'Cleaning Mode' screen by pressing the 'Go' button located at the bottom of the screen. Then, press the 'Run' button to initiate the 'auto cleaning' process."

To administer additional doses using a different vial, replace it and proceed with the operation

Tip. 2 Hot water disinfection



All disassembled components have been made using 'advanced special materials', enabling 'heat sterilization'.



"For those seeking a more thorough sterilization, our AtomGun is designed for easy disassembly of the 'entire area' that came in contact with the medication by simply loosening a few nuts."

Atom Gun is

Easy to use and manage!

The function is more precise and uniform!

We will always be attentive and strive to be by your side as the **'cutting-edge top worker equipment'** beloved in the field.

Constant penetration depth

**Fast drug
delivery
speed**

**Easy
operation
Easy to use**



Picture menu
2 buttons



Hot water disinfection



1,000 or more
per hour



• All vaccines for intradermal vaccination



- 0.55cc automatic vaccination



Uniform
inoculation
result

Expendables



Silicon O-Ring



Vial
spike



2 types of management tools

FIELD TEST



pig

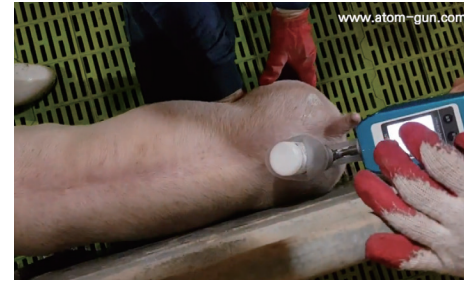
Born through various clinical trials with “Livestock Association” for many years Korean needleless syringe Atom Gun !



2020.07.07. Anseong_correction



2020.07.03. Field Test_No correction



2020.04.23. Hongseong_correction



이상육 보기편하게 오른쪽 목만 집중_무보정

2020.03.25. Pocheon_No correction



구제역백신 2차 접종

2020.02.26. Sunjin_No correction



생축 주사 후 도축&해부_정확한 피내 주입확인

2020.03.05. Pocheon_Anatomical



외국인 작업자끼리 스스로 교육하여 사용

2020.07.01. Cow Uiseong_No correction



3분교육 후 바로 사용! 통증없이 신속한 작업!

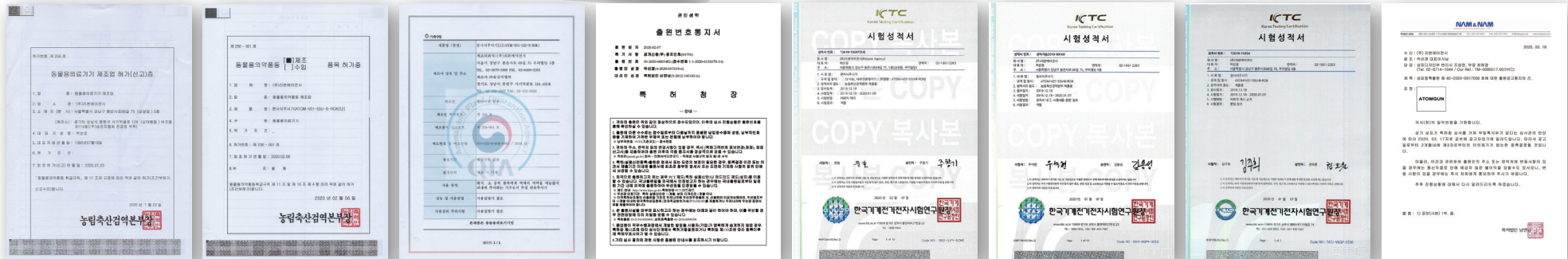
2020.07.01. Cow Uiseong_No correction

Even after popularization, we will do our best to contribute to safer quarantine and better vaccination results through ‘equipment response’ through ‘continuous national monitoring’.

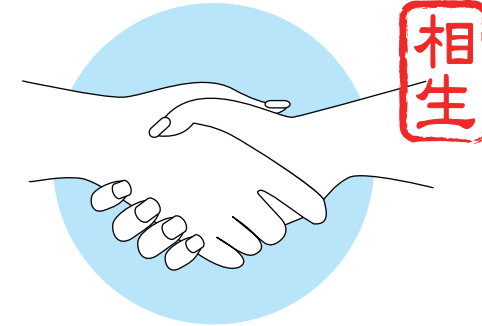
REFERENCES OF CERTIFICATION



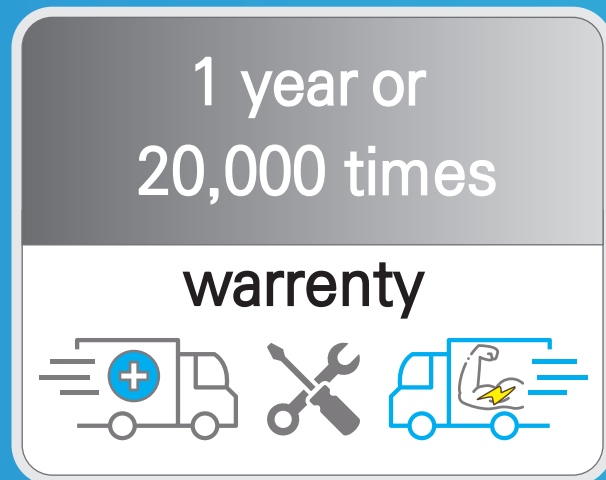
cow



Vaccinate – Beginning of New Revolution



Made in Korea



Needle Free Injector

ATOM GUN

Intradermal

All of our products are operated on a
100% “pre-order” shipping method.

It will be shipped sequentially according to the order of order
and payment completion.

We are always open for you !!

We, all the employees of the “REBORN AGENCY”,

will sincerely respond to your inquiries so that you can get all
the information you need to make **the best choice**.

Please feel free to contact us if you need any further information.