

*『Hi Fresh』 It's a True Miracle !*

*Always Together with Fridge !*

*Best Science for Health Life !*



# Hi Fresh

July 19, 2019



# Hi Fresh

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2. Summary & Contents
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# Introduction & Information



It is the world's first / best food preservation enhancement device designed to recover / improve the original taste and ingredients of all the foods we eat using LST technology, and to promote freshness and absorption and release in the body.



# Summary

- ❖ Equipment of 『Hi Fresh』 is the best bio-science and unique technology.
  - : All kind of general foods and foods stuffs(water, fruits, meat, fishes, juice, wine, liquor, oil, noodles, bakery etc.), any processed general foods, cosmetics and more agriculture farm industry, and distribution industry, seeds, fishes farm industry, and distribution industry . . . for Hi Fresh value at long time maintenance with preservability of flavor.
- ❖ Always together connecting with fridge(refrigerator)
  - Hi Fresh 1100, Hi Fresh 1100plus, Hi Fresh 1200



# What is the 『Hi Fresh』?

- ❖ This Hi Fresh equipment is all kind of edible water, vegetables, fruits, and meat, fishes and all kind of foods and food stuffs etc., all of biotics body's function of cell going to metabolism's energy become to activity and then body of biotic energy and characteristics go to enhance, and more going to extend for fresh value, also life cycle to be maintenance for long term.



# LST ?

- ❖ LST(Life Signal Transduction) is best science and unique technology been to combined of technology.
- ❖ LST is a life of metabolism's energy to be transducing with promotion for signal converter as an optimizing.



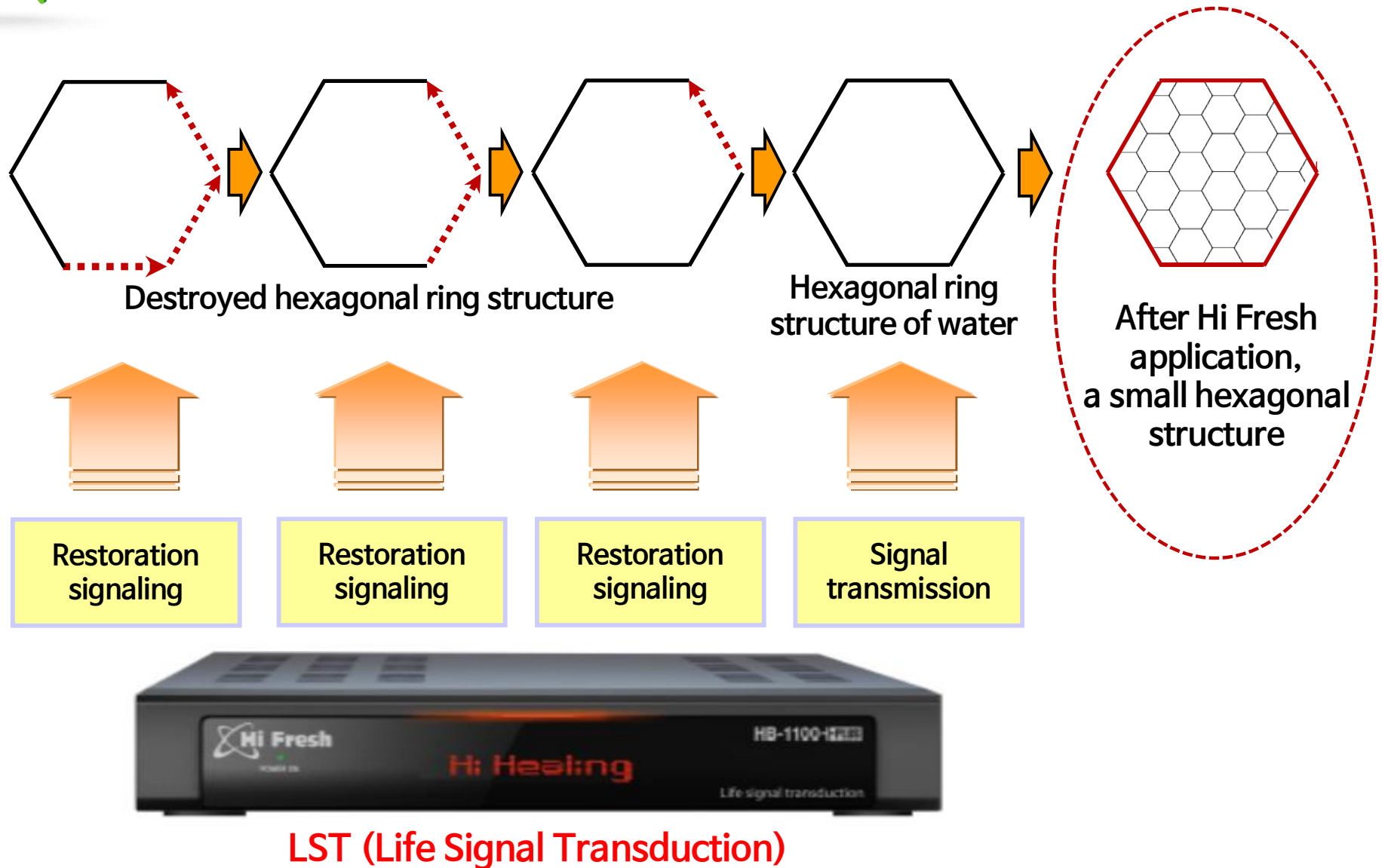


# Function & Effectiveness

1. All kind of edible water, natural juice and processed juice, liquor, wine, beer, fruits, vegetables, meats, fishes . . . All kind of bio-somebody has a contain of water (moisture) become to connected of hexagonal shape and going to stabilizing with achievement, and more maintain (maintenance) to long period for freshness level at optimized and prevent to decay with oxidizing.
2. Restore of moisture cell for hexagonal shape.
  - : All kind of edible foods & water cell to become with change to hexagonal shape and then absorption & excrete to waste matter from body.



## ■ Moisture Cell Restoration Process







# Function & Effectiveness

3. Taste of flavor & nutrient
  - Restore to original taste of flavor
  - To get rid of strange(odor, bad) smell
  - To be preservation & maintenance for nutrient material
4. Maintenance for fresh value to be enhance.
  - All kind of edible food & food stuffs, and water cell into restoring for energy with freshness's value of maintenance
5. Function of fermentation's effectiveness
  - Don't be decay(decompose, rotten) for all of foods & food stuffs and milk and dairy products, meat, wine, liquors change to fermentation
6. Odor(bad, strange smell) to be get rid of fridge



# Application's Scope & Field

1. Edible Water
2. Natural juice & processed juice
3. All kind of fruits & vegetables
4. Meats & fishes for butcher's shop
5. Wine, liquors, beer
6. Milk & dairy industry
7. All kind of edible foods & food stuffs
8. Rice & Wheat flour, other grains
9. Noodles & bakery industry  
& restaurants
10. Seeds for agriculture farm & industry
11. Fish farm industry
12. Egg farm industry
13. Floriculture farm & industry &  
high level vegetable( tomato,  
strawberry, paprika etc.)
14. Edible oil
15. Coffee farm & processed industry
16. Sugar syrup processed industry  
→ to be change to honey meal
17. Livestock farm & butcher industry  
(pig, cattle, sheep, chicken, duck)
18. Cosmetics storage  
(user & factory)
19. Cigarette & tobacco for storage
20. Bean-source factory



## ■ Restaurant (in Thailand)





## ■ Fruits and vegetables

- ① experimental group : LST treated  
② control group : untreated } Comparison of states after a certain period of time

### [ cherry tomato ]

8 days at room temperature



①

②

- ① LST treated : Maintain freshness  
② untreated : Fungus formation & spread

### [ paprika ]

20 days at room temperature



①

②

- ① LST treated : Maintain freshness  
② untreated : Fungus formation & spread





## ■ Egg & garlic

### [ garlic ]

30 days at room temperature



①

②

- ① LST treated : Maintain freshness
- ② untreated : Browning appears

### [ egg ]

5 days at 4°C



①

②

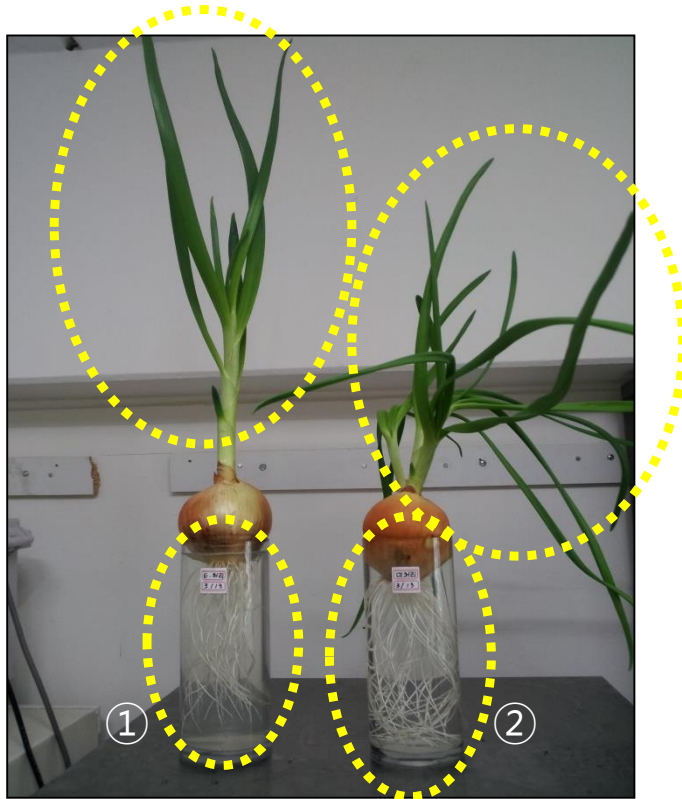
- ① LST treated : Egg yolk becomes dense  
and egg-specific smell disappears
- ② untreated : Egg yolk weakens and smells



## plants

### [ onion ]

40 days at room



- ① LST treated : Good growing condition(leaves)
- ② untreated : Fading...

### [ oriental orchids ]

Growth of more than 3 years in LST treated water







## ■ Packaged food long-term storage test

### ❖ Milk & dairy products



Shelf life is over 23 months



29

22

19



21 months





## ■ Lettuce farm test (Kimje, Korea)



- Installed in water tank, fan in plastic house, cold storage
- Extension of harvest period in seedlings

- Lettuce is not soft, crisp and fresh
- Average yield more than doubled





## ■ Storage test (Strawberry)

day - 0



day - 7



day - 12



- Freshness of strawberry is maintained more than twice



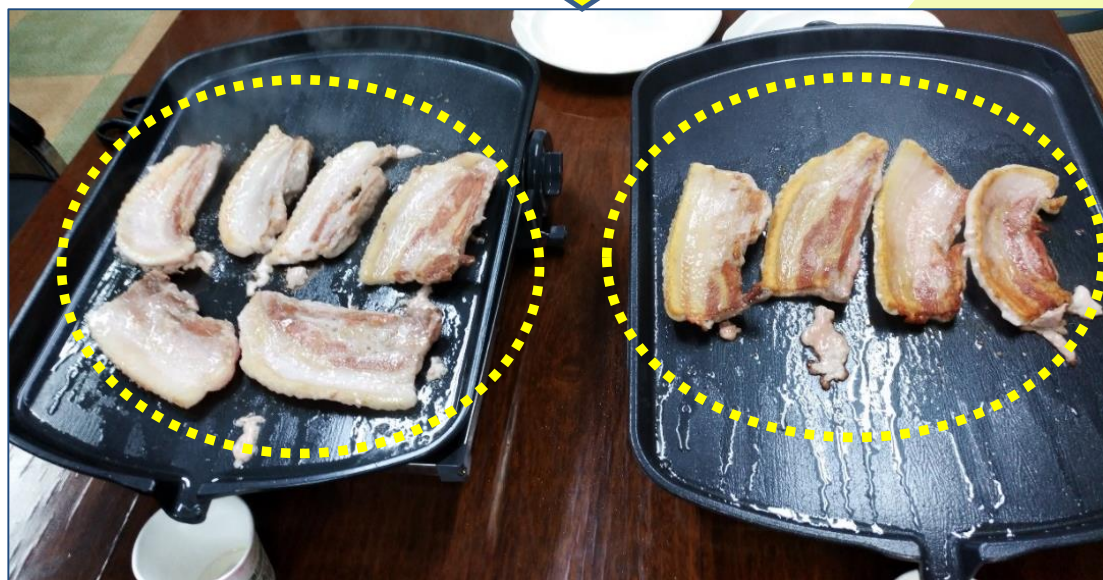


## ■ Comparison of roast pork belly



LST treated

untreated



Left (LST treated) : After the meat is stored in a refrigerator equipped for 24 hours

Right (untreated) : Keep in refrigerator for 24 hours

- ✓ LST treated meat
  - Not burning, less smoke
  - Clear oil, less transfer of oil
  - Keep gravy after cooling
- ✓ Untreated meat
  - The meat is burning and there is a lot of smoke
  - Cloudy dark brown oil, large amount of oil
  - After the meat cools, the meat becomes hard

[ Difference in oil ]

LST treated

untreated





## ■ Storage test (egg)



Untreated (control)

Treated (experimental)

- **After 5 days in the refrigerator**
  - : Yolk (egg yolk) is round and rising  
(Fresh egg yolk is round and high, color is dense, old eggs are flat and spread, soft and thin)
- **Egg long term storage test**
  - : Normal Refrigerator (control) vs Refrigerator equipped with Hi Fresh (Experimental group)  
(Comparison of height and width of egg yolk, kept fresh about 3 weeks.)



day -5



day -19

[ control ]

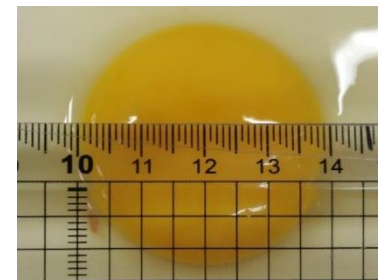
[ experimental ]



4.1 cm



3.8 cm



3.9 cm



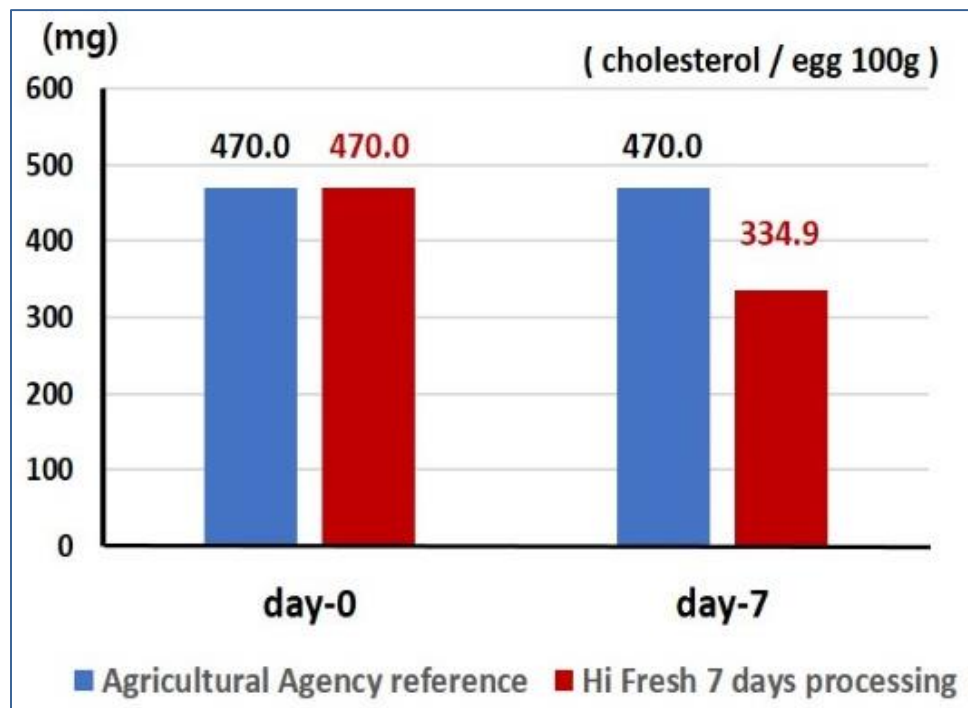
3.4 cm





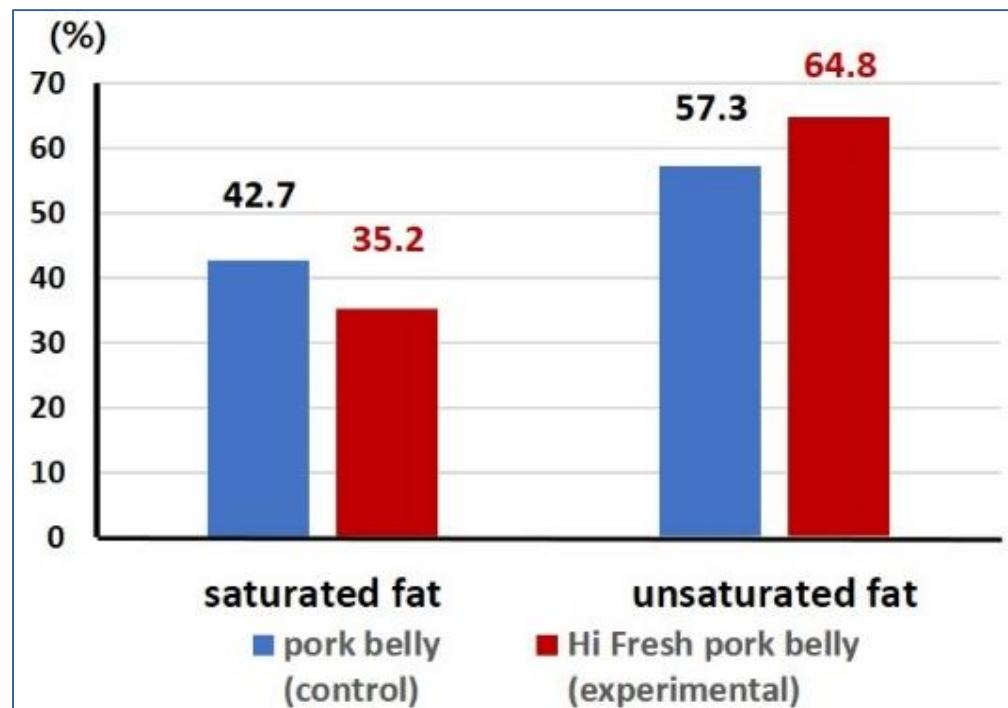
## ■ Cholesterol / unsaturated fat

### ❖ Comparison of Egg Cholesterol Contents (7 days LST treatment)



after 7 days LST treatment,  
cholesterol decreased by **28.7%**

### ❖ Comparison of Pork Saturated / Unsaturated Fat Composition (2 days LST treatment)



saturated fat reduced by about **18%**





## ■ Cooking oil comparison experiment



LST treated



untreated



### ❖ Cooking oil

- Extended use period of more than 30%
- Smoke ( $\text{CO}_2$ ) generated less, the difference in pans
- A fire occurs in oil after a certain temperature (untreated oil)
- There is a distinct difference in texture and taste
- Rancidity is delayed



[ After use, the difference inside the pan ]

LST treated

untreated







## ■ Other experiments

- rice cake (10 days at room temp.)
- banana (14 days at 4°C)
- chili pepper : It absorbs a lot of water and produces a lot of pepper



- potato







## ■ Other experiments

❖ Homemade wine, sauce ripening, Radish, Wood cultured ginseng, Sweet potato . . .



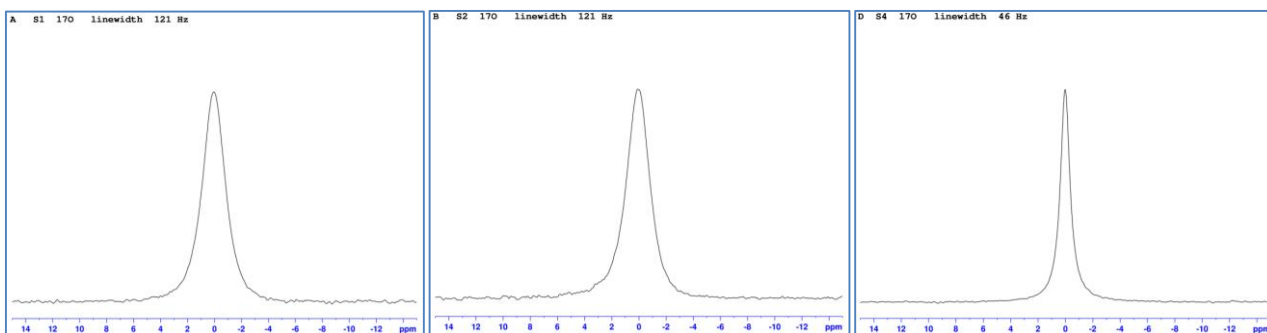


# ■ molecular structure(cluster) of water

## Analysis of molecular structure(cluster) of water

- Korea Basic Science Institute (January 14, 2019)
- Analytical samples : tap water, mineral water (untreated), mineral water (LST treated)
- Analysis equipment : DA208 500MHz  
( FT-Nuclear Magnetic Resonance Spectrometer )
- Results

Sample	Result (Measure, Hz)	Remarks
Tap water	121	
Mineral water (untreated)	121	
Mineral water (LST treated)	46	



검 수 확 인 증					
실험일자	2019.01.14	실험번호		실험장	핵심실
검수일자	2019.01.14	검수번호	2019-WB-00049	검수장	최성태
분석물질	일반물				
기대일	DA208 500MHz FT-Nuclear Magnetic Resonance Spectrometer				
시료명	A B C D	시료수	4		
시행분석기간	2019-01-14 ~ 2019-01-31	이동료	asklso (전화 : 070-8960-asklso)		

취와 같이 기대일을 실험을 완료합니다.

2019. 01. 14 일

한국기초과학지원연구원장

◆ 부속사항 ◆

1. 시료, 분석 방법 및 분석 결과에 대해 이견이 없음을 증명합니다. 이견이 있는 시료는 시료분석이후에 분석이 불가능함을 증명해 주시기 바랍니다.

□ 내부자료

① 분석방법(표준시험방법) ② 분석결과 (과제결과) ③ 분석결과 (과제결과) ④ 분석결과 (과제결과)

⑤ 분석결과 (과제결과) ⑥ 분석결과 (과제결과) ⑦ 분석결과 (과제결과) ⑧ 분석결과 (과제결과)

2. 분석결과에 대해 이견이 없음을 증명합니다. 이견이 있는 시료는 시료분석이후에 분석이 불가능함을 증명해 주시기 바랍니다.

□ 분석결과 : 분석결과

□ 내부자료 : TEL : 02-8605-8821 FAX :

3. 이견이 있는 시료는 이견이 있는 시료 분석결과 (분석, 분석, 분석)에 대해 분석결과 (분석, 분석, 분석)를 증명해 주시기 바랍니다. 그 결과를 증명해 주시기 바랍니다.

4. 분석결과에 대해 이견이 있는 시료 분석결과 (분석, 분석, 분석)에 대해 분석결과 (분석, 분석, 분석)를 증명해 주시기 바랍니다. 그 결과를 증명해 주시기 바랍니다.

5. 이견이, 분석결과 (분석, 분석, 분석)에 대해 분석결과 (분석, 분석, 분석)를 증명해 주시기 바랍니다. 그 결과를 증명해 주시기 바랍니다.





# Special Effect of Hi Fresh

## Restoration of moisture

- Growing oriental orchids in processed water for many years
- The water in the aquarium can be changed for over a year

## Restoration of taste

- The taste of oligosaccharides(product) change the taste of honey
- There is no smell of raw egg and the taste becomes complacent
- The texture of pork(fat) is improved

## A healthy diet

- Pork saturated fat is lowered, and unsaturated fat is increased
- The cholesterol content of eggs is greatly reduced

## Maintain freshness

- Extend the shelf life of all foods more than twice
- Fresh food intake and economy

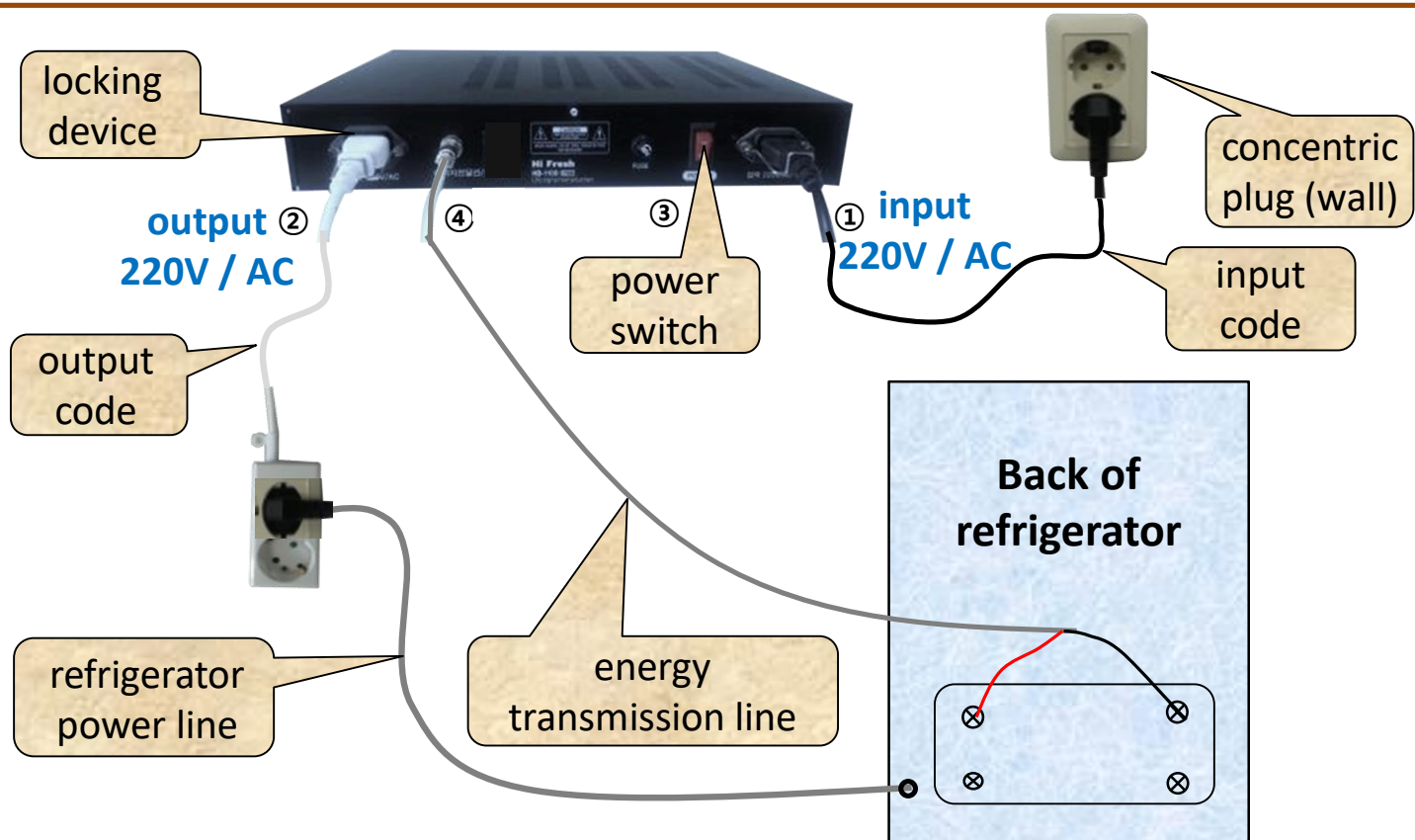
## Odor removal

- After installing 『Hi Fresh』, the unpleasant smell in the refrigerator disappears immediately



# How to installation & operation

## ✓ Installation & connecting information of map



### [ How to install ]

Simply connect the device to the power source and connect the energy transmission line to the back of the refrigerator for easy installation.

### [ How to operation ]

Easy touch to s/w



Equipment body



① AC input cord



② AC output cord



④ Energy transmission line





# Hi Fresh products line-up

## Hi Fresh for Home



### ■ Hi Fresh HB-1100

- size : 340(W) x 290(D) x 65(H)mm / weight : 5.5Kg
- allowable power : 1.5KW / power consumption : 2.2W



### ■ Hi Fresh HB-1100Plus

- size : 380(W) x 320(D) x 65(H)mm / weight : 6.3Kg
- allowable power : 2.2KW / power consumption : 2.2W

## Hi Fresh for restaurant



### ■ Hi Fresh HB-1200

[ refrigerator for business use ]

- size : 420(W) x 370(D) x 115(H)mm
- weight : 11.5Kg
- allowable power : 3.3KW
- power consumption : 2.4W





# Hi Fresh products line-up

## Future line-up

A. 340mm –



B. 340mm –



C. 340mm –



D. 340mm –





# Who's to use

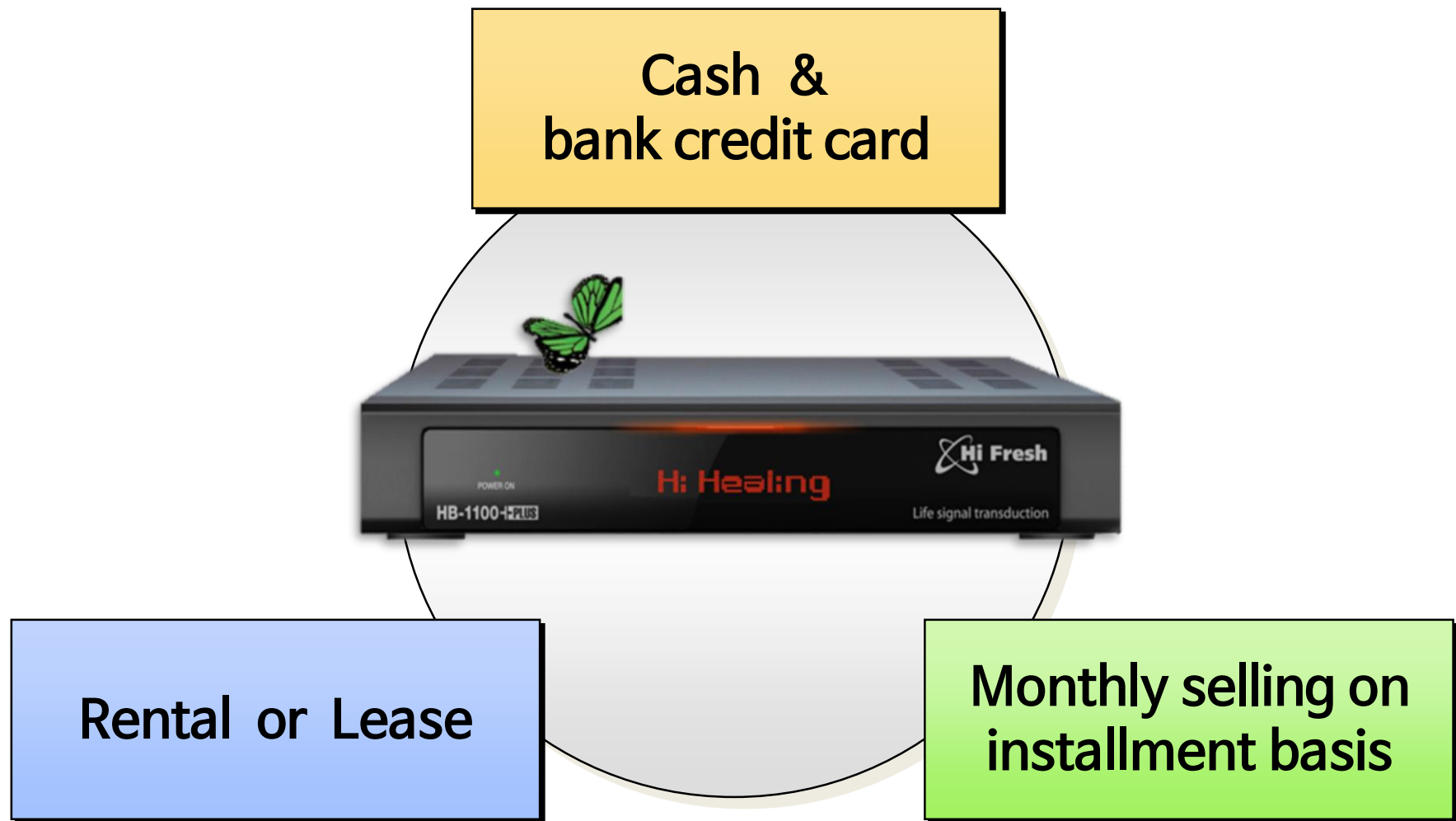
- ✓ Home Fridge
- ✓ All of restaurants
- ✓ Cafeteria & bar
- ✓ Drugstore
- ✓ Cosmetic & beauty shop
- ✓ Grocery store & food store
- ✓ Butcher's
- ✓ Beverage store
- ✓ bakery







# How to sale ?





# Patent information

## ❖ Patent certificate (Korea)

**특허증**  
CERTIFICATE OF PATENT

특허  
Patent Number 제 10-1728803 호

출원번호  
Application Number 제 10-2016-0045627 호

출원일  
Filing Date 2016년 04월 14일

등록일  
Registration Date 2017년 04월 14일

- Korean Patent Registration : No. 10-17288803
- The title of the invention  
: DEVICE FOR PRESERVABILITY ENHANCEMENT  
BASED ON CELLULAR WATER ACTIVATION

위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.  
This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.



2017년 04월 14일

특허청장  
COMMISSIONER,  
KOREAN INTELLECTUAL PROPERTY OFFICE

최동규

## ❖ Patent certificate (China)

中华人民共和国国家知识产权局  
100000

100088  
北京市海淀区知春路6号恒创国际大厦18层18A13  
北京汇泽知识产权代理有限公司 张秋越

发文日:  
2016年04月29日

申请号或专利号: 201610274315.4 发文序号: 2016042901205430

**专利 申请 受理 通知书**

根据专利法第28条及其实施细则第38条、第39条的规定, 申请人提出的专利申请已由国家知识产权局受理。现将确定的申请号、申请日、申请人和发明创造名称通知如下:

- China Patent Registration : No. 201610274315.4
- The title of the invention  
: DEVICE FOR PRESERVABILITY ENHANCEMENT  
BASED ON CELLULAR WATER ACTIVATION

摘要附图 每份页数:1 页 文件份数:1 份  
专利代理委托书 每份页数:2 页 文件份数:1 份  
经证明的在先申请文件副本首次译文 每份页数:1 页 文件份数:1 份  
实质审查请求书 每份页数:1 页 文件份数:1 份

提示:

1. 申请人收到专利申请受理通知书后, 认为其记载的内容与申请人所提交的相应内容不一致时, 可以向国家知识产权局请求更正。
2. 申请人收到专利申请受理通知书后, 再向国家知识产权局办理各种手续时, 均应当注明、准确地写明申请号。

审查员: 自动受理

审查部门: 专利局初审及流程管理部

2010101  
2010.2

纸件申请: 国知著录, 100050 北京市海淀区前门桥西土城路6号 国家知识产权局受理处  
电子申请: 应当通过电子专利申请系统以电子文件格式提交相关文件。除另有规定外, 以纸件等其他形式提交的文件视为未提交。



# Patent information

## ❖ International patent application

Electronic Acknowledgement Receipt	
EFS ID:	13994563
Application Number:	16093441
International Application Number:	PCT/US2016/004070
Confirmation Number:	1062
Title of Invention:	DEVICE FOR PRESERVABILITY ENHANCEMENT BASED ON CELLULAR WATER ACTIVATION
First Named Inventor/Applicant Name:	Sang won JUNG
Customer Number:	97149
Filer:	Robert Burns Israelson/Claine Higby
Filer Authorized By:	Robert Burns Israelson
Attorney Docket Number:	M2523.102270501
Receipt Date:	12-OCT-2018
Filing Date:	
Time Stamp:	15:58:47
Application Type:	U.S. National stage under 35 USC 371
Payment Information:	
Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$395
RAM confirmation Number	101518N1F3W15192806
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

受理番号: MAN0086JP PCT/KR2016/004070 (P.700) 提出日: 平成30年10月12日 1/1  
 【書類名】 国内書面  
 【受理番号】 MAN0086JP  
 【提出日】 平成30年10月12日  
 【あて先】 特許庁長官殿  
 【出願の表示】  
 【国際出願番号】 PCT/KR2016/004070  
 【出願の区分】 特許  
 【発明者】  
 【住所又は居所】 大韓民国 61489 クァンジュ トンゲ ヤンリムロ 1  
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 【特許出願人】  
 【住所又は居所】 大韓民国 08377 ソウル クロダグ ティジトルロ 3  
 3-ギル 28, 306 ホ, (クロードン, ウリム イービー  
 ズ センター 1-チャ)  
 【氏名又は名称】 ハンビット イーアンドビー  
 【氏名又は名称原語表記】 HANBIT E&B  
 【代理人】  
 【識別番号】 100166545  
 【弁護士】  
 【氏名又は名称】 折坂 茂樹  
 【手数料の表示】  
 【振替番号】 00023799  
 【納付金額】 14,000円  
 【提出物件の目録】  
 【物件名】 明細書の翻訳文 1  
 【物件名】 請求の範囲の翻訳文 1  
 【物件名】 要約書の翻訳文 1  
 【物件名】 図面の翻訳文 1



### Acknowledgement of receipt

We hereby acknowledge receipt of the form for entry into the European phase (EPO as designated or elected Office) as follows:

Submission number	6827607
PCT application number	PCT/KR2016/004070
EP application number	1668715.4
Date of receipt	19 October 2018
Receiving Office	European Patent Office, The Hague
Your reference	T 118 0306 EP
Applicant	
Country	
Documents submitted	package-data.xml application-body.xml SPECTRAEPO-1.pdf(English translation - T 118 0306 EP.pdf (28 p.)) ep-euro-pat.xml epl1200.pdf (5 p.)
Submitted by	CN=Joachim Knauser 52554
Method of submission	Online
Date and time receipt generated	19 October 2018, 13:27 (CEST)
Message Digest	40:8C:C2:09:78:B6:AE:C5:F7:27:CB:72:A8:6C:5D:7F:06:82:05:E2

Correction by the EPO of errors in debit instructions filed by eOLF  
 Errors in debit instructions filed by eOLF that are caused by the editing of Form 1038E entries or the continued use of outdated software (all forms) may be corrected automatically by the EPO, leaving the payment date unchanged (see decision T 1525/02).

Acknowledgement of receipt - application number PCT/KR2016/004070

Page 1 of 2

Application in U.S.A.  
(16093441)

Application in Japan  
(MAN0086JP)

Application in E.U.  
(6827607)





# Patent information

## ❖ Certification of Trademark Registration

**상표등록증**  
CERTIFICATE OF TRADEMARK REGISTRATION

등록 제 40-1095974 호  
Registration Number

출원번호 제 40-2014-0019671 호  
Application Number

출원일 2014년 03월 25일  
Filing Date

등록일 2015년 03월 26일  
Registration Date

상표권자 Owner of the Trademark Right  
(주)한빛이엔비(110111-4\*\*\*\*\*)  
서울특별시 구로구 디지털로33길 28, 306호(구로동)

상표를 사용할 상품 및 구분  
List Of Goods  
제 11 류  
냉각장치 및 기계등 8건

**Hi Fresh**  
Life signal transduction

- Trademark registration : No. 40-1095974



특허청장  
COMMISSIONER,  
KOREAN INTELLECTUAL PROPERTY OFFICE



**상표등록증**  
CERTIFICATE OF TRADEMARK REGISTRATION

등록 제 40-1065983 호  
(REGISTRATION NUMBER)

출원번호 제 2013-0075876 호  
(APPLICATION NUMBER)

출원일 2013년 11월 14일  
(FILING DATE:YY/MM/DD)

등록일 2014년 10월 23일  
(REGISTRATION DATE:YY/MM/DD)

상표권자  
(OWNER OF THE TRADEMARK RIGHT)  
(주)한빛이엔비(110111-4\*\*\*\*\*)  
서울특별시 구로구 디지털로33길 28, 306호(구로동)

상표를 사용할 상품 및 구분  
(LIST OF GOODS)  
제 11 류  
냉각장치 및 기계등 8건

**L S T**  
엘에스티

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