

# Coating wire

## Orthodontic customized appliance

E-wirligner Co,. Ltd.



# INVISIBLE

E-wireligner are completely invisible

The E-wireligner orthodontic appliance  
are placed behind the teeth

# Contents

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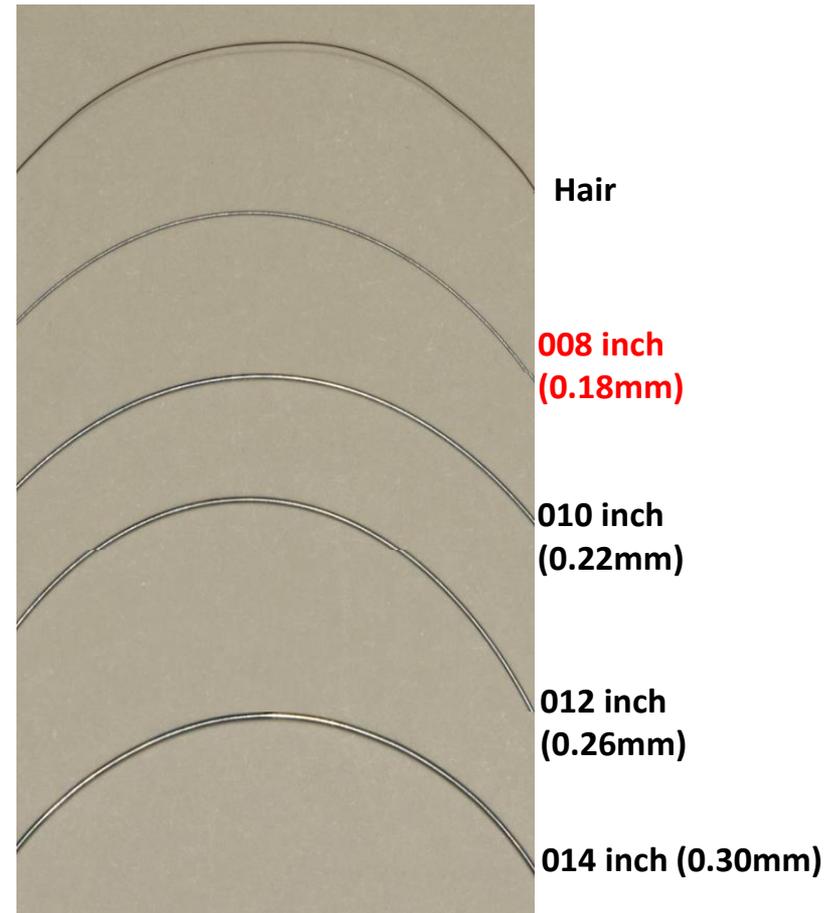
<b>1</b>	<b>Business Overview</b>	<b>2 page</b>
<b>2</b>	<b>The Excellence of Technology</b>	<b>12 page</b>
<b>3</b>	<b>E-wireligner Co., Ltd. Competence</b>	<b>17 page</b>

# 1 Business Overview : Technology Introduction

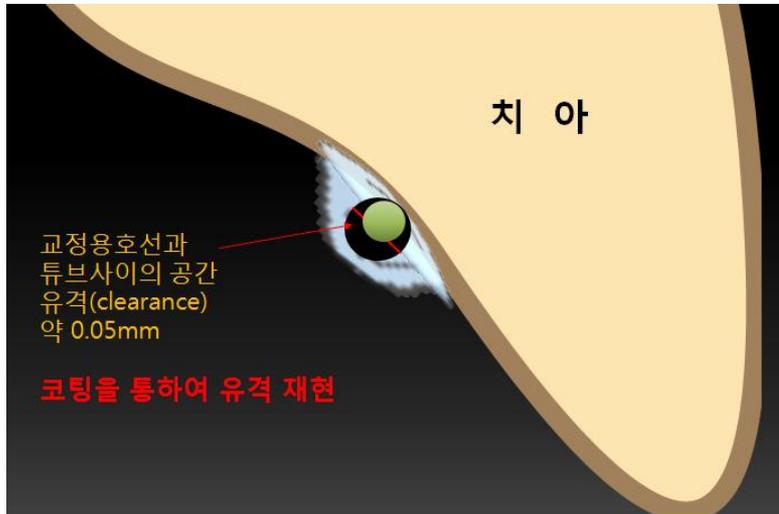
## Coating Ni-T wire

- **Memory Alloy Wire of Hair Thickness**
  - Biocompatible Orthodontic Force
  - Light Continuous Force

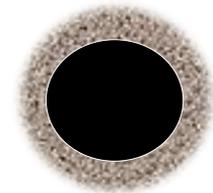
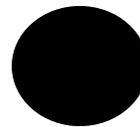
구 분	내 용
제품명	NiTi wire
Size	0.006"~0.012" NiTi wire
재 질	Memory Alloy Wire (Ni-Ti alloy)
기존 와이어의 단 점	Existing orthodontic treatment has an excessive amount of orthodontic force required for orthodontic treatment, and the pain felt by the patient is severe.
가는 와이어	<b>At least 0.006 "wire is not visible due to the thickness of hair, so it meets aesthetics, only the minimum correction force required for orthodontic treatment reduces the patient's pain</b>



### • Reproducing play through coating



### Coating with Water soluble material



The general Hair thickness shape memory alloy Wire

E -NiTi Wire



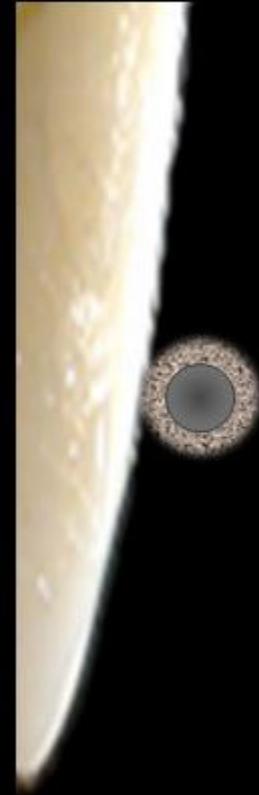
- water soluble coating material
- Non toxic, harmless
- Easy to handle
- Designed to provide clearance

# 1 Business Overview : Technology Introduction

How to Use Coated Wire



Place C wire on etched tooth surface

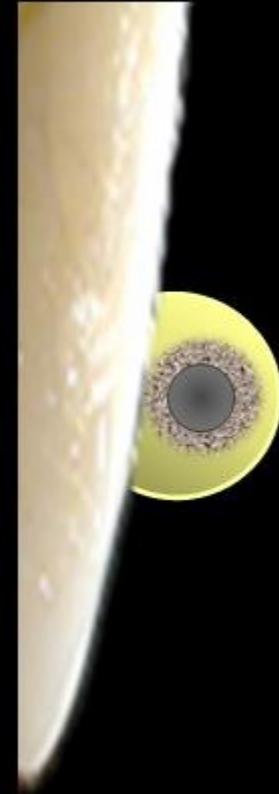


# 1 Business Overview : Technology Introduction

How to Use Coated Wire

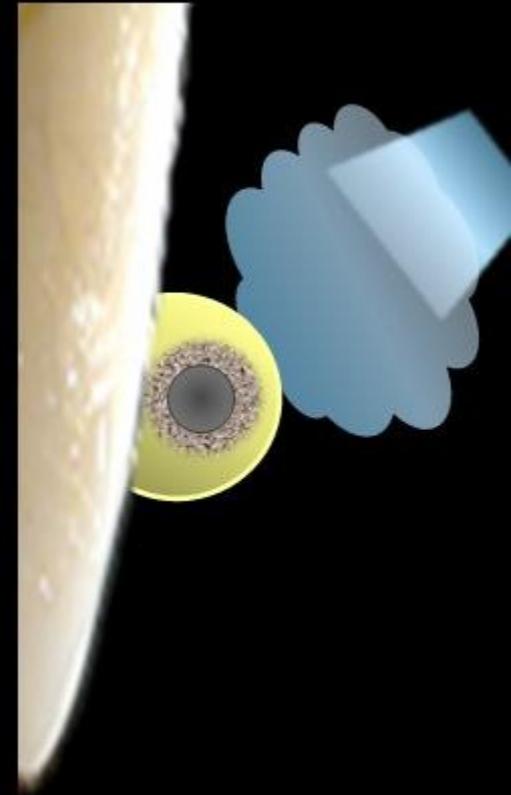


Apply resin one by one



# 1 Business Overview : Technology Introduction

How to Use Coated Wire



Rinse thoroughly to remove coating material  
Gently check bonded resin provides clearance

# 1 Business Overview : Technology Introduction

How to Use Coated Wire

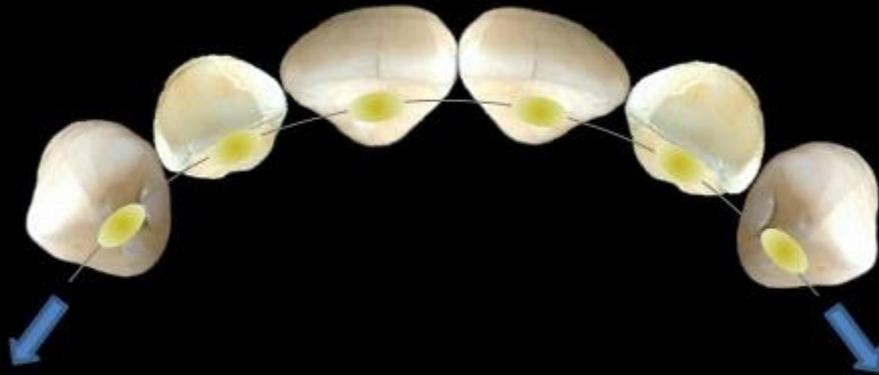


Rinse thoroughly to remove coating material  
Gently check bonded resin provides clearance

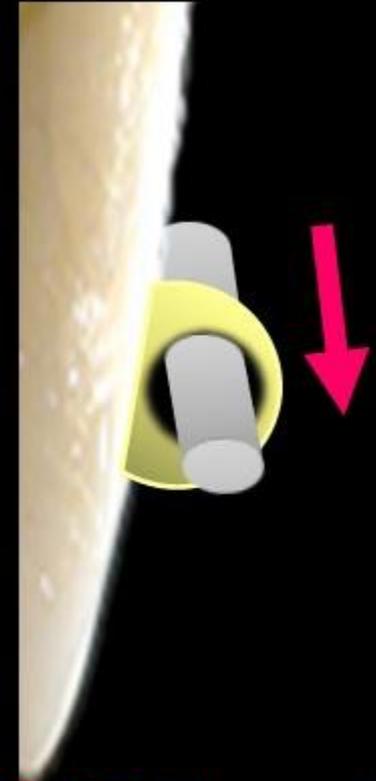


# 1 Business Overview : Technology Introduction

How to Use Coated Wire



wire returns to original shape  
by sliding mechanism with clearance



와이어가 유격(clearance)을  
미끄럽게 빠져나오면서  
생체친화적인 힘 발휘

Biocompatible with wires slipping through free play

# 1 Business Overview : Technology Introduction

Wire-Positioner prototype development \_ content

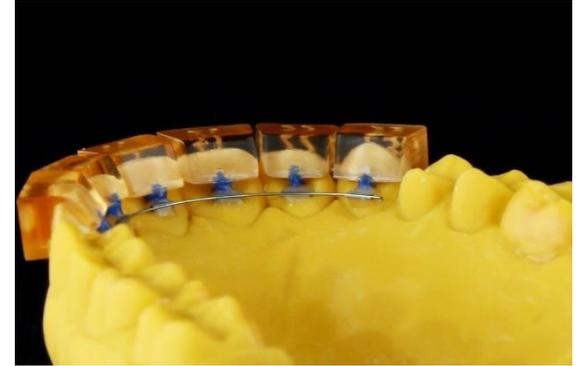
- Wire-Positioner manufacturing with 3D printing technology



**Intraoral Scanner**



**Digital Set-up**



**E-wireligner  
Appliance**

In a setup model that's aligned up to match the treatment target,

Create positioners to position the ideal wire

"Coating Wire + Wire Positioner"

Patient-specific calibration device

# 2 Contents

<b>1</b>	Business Overview	2 page
<b>2</b>	The Excellence of Technology	12 page
<b>3</b>	E-wireligner Co., Ltd. Competence	17 page

## 2 The Excellence of Technology

- Example of using Bracket Appliance



- Example of using commercialized product (coating wire and positioner) 본 사업화



# 2

## The Excellence of Technology

Comparison between this product and existing products



**Bracket Appliance**



**Clear Aligner**



**E-wireligner**

<b>Esthetics</b>	Non-esthetic	Esthetic	<b>Esthetics</b>
<b>Pain</b>	pain	Less pain	<b>Almost no pain</b>
<b>Comfortable</b>	Uncomfortable Difficult to pronounce	Uncomfortable	<b>Comfortable</b>
<b>Othodontic Treatment Priod</b>	4~8months	1years	<b>3~6months</b>
<b>Appliance price</b>	200~300\$	1000~2000\$	<b>300~500\$</b>
<b>Remarks</b>	Doctor controlled device	Patient dependent device	<b>Doctor controlled device</b>

## 특허증

CERTIFICATE OF PATENT

특허 제 10-1547795 호  
Patent Number출원번호 제 10-2015-0035958 호  
Application Number출원일 2015년 03월 16일  
Filing Date등록일 2015년 08월 20일  
Registration Date

발명의 명칭 Title of the Invention

치아 교정을 위하여 및 그를 구비한 치아 교정기 및 그의 치아 교정 방법

특허권자 Patentee

이화여자대학교 산학협력단(274171-0\*\*\*\*\*)  
서울특별시 서대문구 이화여대길 52 (대현동, 이화여자대학교)

발명자 Inventor

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서울특별시 강남구 우정로 92, 208동 1401호 (삼성동, 벅스북문리안빌딩)

## 특허증

CERTIFICATE OF PATENT

특허 제 10-1551608 호  
Patent Number출원번호 제 10-2015-0071001 호  
Application Number출원일 2015년 05월 21일  
Filing Date등록일 2015년 09월 02일  
Registration Date

발명의 명칭 Title of the Invention

치아 교정을 위하여 및 그를 구비한 치아 교정기 그리고 그의 치아 교정 방법

특허권자 Patentee

이화여자대학교 산학협력단(274171-0\*\*\*\*\*)  
서울특별시 서대문구 이화여대길 52 (대현동, 이화여자대학교)

발명자 Inventor

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서울특별시 강남구 우정로 92, 208동 1401호 (삼성동, 벅스북문리안빌딩)

## 특허증

CERTIFICATE OF PATENT

특허 제 10-1405771 호 출원번호 제 10-2012-0056103 호  
Patent Number Application Number Filing Date Registration Date

2012년 05월 25일 2014년 06월 02일

발명의 명칭 (TITLE OF THE INVENTION)

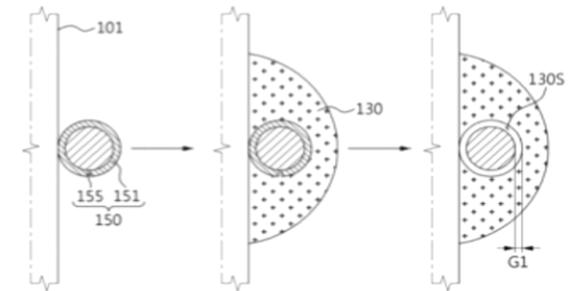
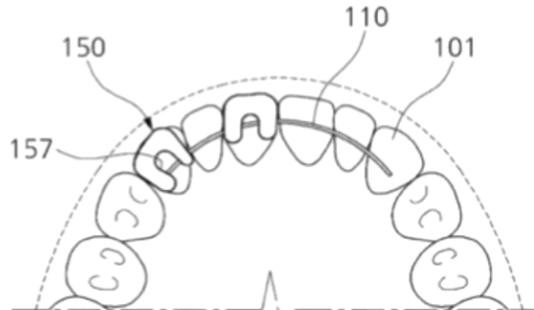
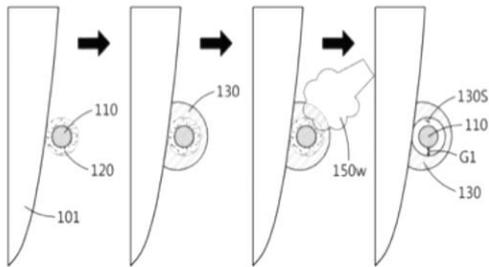
교정 브라켓 및 그를 구비한 치아 교정기

특허권자 (PATENTEE)

이화여자대학교 산학협력단(274171-0\*\*\*\*\*)  
서울특별시 서대문구 이화여대길 52 (대현동, 이화여자대학교)

발명자 (INVENTOR)

등록시정환에 기재



- 치아 교정용 와이어 및 그를 구비한 치아 교정기 및 그의 치아 교정 방법

- 와이어 포지셔닝 유닛 및 그를 구비한 치아 교정기 그리고 그의 치아 교정 방법

- 치아 교정용 와이어 및 그를 구비한 치아 교정기 그리고 그의 치아 교정 방법

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## Intrusion of Palatally Displaced Maxillary Lateral Incisors Using Nickel Titanium Closed-Coil Springs

YOUN-SIC CHUN, DDS, MSD, PHD  
MINJI KIM, DDS, MSD, PHD  
SUN HO LEE, DDS, MSD  
GRACE ROH, DDS

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## Correction of Palatal Maxillary Lateral Incisor Using a Tube System

SUN HYUNG PARK, DDS, MSD, PHD  
YOUNG KEE LEE, DDS  
YOUN SIC CHUN, DDS, MSD, PHD

In young patients with severe maxillary crowding, the buds of the permanent lateral incisors are often in crossbite with the adjacent teeth. If insufficient space is available for these incisors to erupt, palatal displacement can occur.

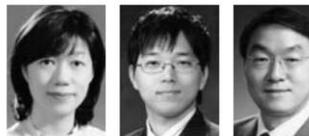
Treatment usually involves creating adequate space and then aligning the teeth with a removable or fixed appliance. If the palatally displaced maxillary lateral incisors cause occlusal interference with the opposing teeth, a bite-opening device such as a biteplane or composite bonded to the posterior teeth may be used temporarily to provide vertical clearance for tooth movement. Although such bite-opening devices are more often indicated for older patients,<sup>1</sup> they can also be used in children with deep overbites. Removable bite plates require patient cooperation, however, and bonding composite to the molars can cause pain in occlusion.

At the Ewha Womans University dental clinic, a system referred to as Ewha Tubing Mechanics

(ET) crucial as the can

Proc

1. J  
2. J  
3. J  
\*Or  
\*\*M  
\*\*\*S  
\*\*\*\*T  
2724



Dr. Park

Dr. Lee

Dr. Chun

### Case Report

pISSN 2234-7518 • eISSN 2005-372X  
http://dx.doi.org/10.4041/Jpod.2013.43.4.201

THE KOREAN JOURNAL OF  
ORTHODONTICS  
**KJO**

## Correction of palatally displaced maxillary lateral incisors without brackets

Kyung-Hee Choi  
Yoonjung Lee  
Minji Kim  
Youn-Sic Chun

This article describes the orthodontic treatment of a 25-year-old Korean female patient with anterior crowding, including palatally displaced lateral incisors. Her facial profile was satisfactory, but 3.5 mm of maxillary anterior crowding

### Case Report

pISSN 2234-7518 • eISSN 2005-372X  
https://doi.org/10.4041/Jpod.2017.47.4.268

THE KOREAN JOURNAL OF  
ORTHODONTICS  
**KJO**

Department of Clinical Orthodontics,  
Graduate School of Clinical Dentistry,  
Ewha Womans University, Seoul, Korea

## Maxillary molar derotation and distalization by using a nickel-titanium wire fabricated on a setup model

Jong Moon Jung  
Youn Joo Wi  
Hyun Mo Koo  
Min Ji Kim  
Youn Sic Chun

Division of Orthodontics, Department  
of Dentistry, Ewha Womans University  
Mokdong Hospital, Seoul, Korea

The purpose of this article is to introduce a simple appliance that uses a setup model and a nickel-titanium (Ni-Ti) wire for correcting the mesial rotation and drift of the permanent maxillary first molar. The technique involves bonding a Ni-Ti wire to the proper position of the target tooth on a setup model, followed by the fabrication of the transfer cap for indirect bonding and its transfer to the patient's teeth. This appliance causes less discomfort and provides better oral hygiene for the patients than do conventional appliances such as the bracket, pendulum, and distal jet. The treatment time is also shorter with the new appliance than with full-fixed appliances. Moreover, the applicability of the new appliance can be expanded to many cases by using screws or splinting with adjacent teeth to improve anchorage.

[Korean J Orthod 2017;47(4):268-274]

**Key words:** Molar derotation, Appliance, Bracket, Tooth movement

Received April 15, 2016; Revised September 7, 2016; Accepted September 8, 2016.

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The authors report no commercial, proprietary, or financial interest in the products or companies described in this article.

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### CLINICIAN'S CORNER

## Molar uprig based on a

MoonHee Kim,\* Minji Kim,  
Seoul, Korea

Molar uprighing is an in the potentially pathology for molar uprighing hav movement. This article based on a setup mode 2014;146:119-23)

A mesially tilted molar tooth is a common clinical situation. Treatment approaches have been loop designs, tip-back spring terms, and open-coil spring systems are widely applied v ances.<sup>1-3</sup> However, most of force and cause unwanted teeth.<sup>6</sup> In addition, the ar cannot be predicted with the an option for simple, accu uprighing.

### CLINICAL APPLICATIONS

1. In the initial model, the ideal position in consi with the opposing teet
2. The nickel-titanium spring is fabricated on the setup model. A round 0.014-in nickel-titanium sectioned wire is bonded passively to the model

270

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\*Resident, Division of Orthodontics, Department of Dentistry, Ewha Womans University Medical Center, Seoul, Korea.

Assistant professor, Department of Clinical Orthodontics, Graduate School of Clinical Dentistry, Ewha Womans University, Seoul, Korea.

Professor, Division of Orthodontics, Department of Dentistry, Ewha Womans University Medical Center, Seoul, Korea.

All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest, and none were reported.

Supported by the Ewha Global Top 5 Grant 2011 of Ewha Womans University.

Address correspondence to: Youn-Sic Chun, Department of Clinical Orthodontics, Graduate School of Clinical Dentistry, Ewha Womans University, 911-1 Mok-dong, Yangcheon-gu, Seoul, Korea. 158-710; e-mail, yschun@ewha.ac.kr.

Submitted, December 2012; revised and accepted, May 2013.

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http://dx.doi.org/10.1016/j.jpo.2013.05.013

### CASE REPORTS

Patient 1 was a 45-year-old male complaint of a mesially tilted m second molar and a missing mandibul (Fig 5, A).

An orthodontic mini-implant (dia length, 6 mm; Jeil Medical, Seoul, Ko between the roots of the first and s and was attached to the mandibul

6. The sequential nickel-titanium sp diameters that were fabricated on s can be applied.

<b>1</b>	<b>Business Overview</b>	2 page
<b>2</b>	<b>The Excellence of Technology</b>	12 page
<b>3</b>	<b>E-wireligner Co., Ltd. Competence</b>	17 page

# 3 E-wireligner Co., Ltd. Competence

## History

2018년

- 2016.12: Established (374 million won)
- 2018.09: Homepage Open
- 2018.10: Registered as a research institute
- 2019. 09: Angel Funding to attract Angel Investment

## 공동연구, 협력기관

### 주관연구기관



- 코팅 와이어 제품 시제품 제작
- 코팅 와이어 시제품 실험 및 임상 연구
- 와이어 포지셔닝 개발 및 시제품 제작
- 사업총괄 및 마케팅전략 수립

### 협력업체



- 연구 개발을 위한 원재료 조달

### 공동연구 대학교



- 식품소재의 구조학적, 유변학적 파라미터 수집 및 소재선전을 위한 기초연구
- 와이어 코팅 방식 개발 및 연구
- 와이어 코팅 가공기기 설계

### 공동연구 대학교

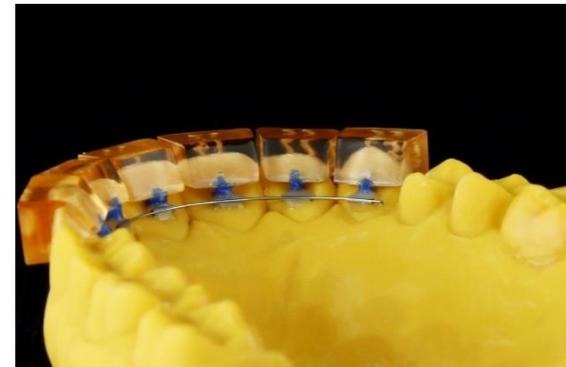


- 점탄성 식품 소재를 이용한 섬유화 기기 제작 및 구현
- 교정와이어 표면에 코팅된 식품소재의 미세 분석

## Employee Profile

name	Career
Chun Youn-Sic	Representative, Professor, Ewha University Many research projects, many inventions, many papers
Myung Ji-Yun	General Manager, Orthodontic Dentist Conducted related tasks on equipment-linked 3D printing material development, qualified as a Chinese dentist

## 제품



### 1 Leadership Competency

#### Chairman and director of domestic and overseas academic society

- Current Korean Orthodontic Society, Education, Planning Director, Councilor
- Professor, College of Medicine, Ewha Womans University
- Professor, Graduate School of Clinical Dentistry, Ewha Womans University
- Former Ewha Womans University Medical Center Dongdaemun Hospital Department of Dentistry
- Former Ewha Womans University Graduate School of Clinical Dentistry
- Former Professor, Department of Dentistry, Ewha Womans University Medical School
- Former Ewha Womans University Medical Center Mokdong Hospital Department of Dentistry

#### Orthodontics

#### Domestic and overseas intellectual rights and papers

- Five recent SCI (E) class papers
- In the past 5 years, we have registered 3 patents, 5 patents, and 4 overseas patents
- Trademark, service mark

### 3 Expertise in orthodontics

### 2

### Experience in conducting research and government tasks

#### Government task management and experience

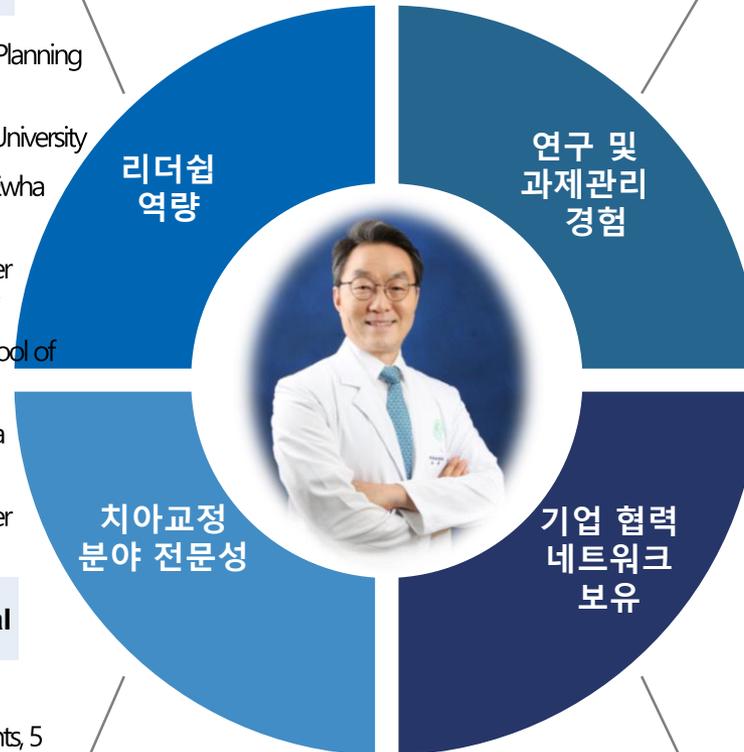
- Investment-linked public technology commercialization business growth support project (development of orthodontic appliance that resolves pain and nonsymmetry)
- Development of multi-directional intracavitory X-ray imaging system for automatic diagnosis of intra-oral lesions
- Developed automatic diagnosis type multi-directional intracavitory X-ray imaging system

#### Ewha Womans University Technology Land and Industry Collaboration Foundation

- All communications: Marketing support
- Ewha Womans University Technology Land Corporation and Industry-Academic Collaboration Foundation: Investment Promotion and Administrative Support

### 4

### Holding company cooperation network



## 이와이어라이너(E-wireligner) 임상 케이스



Before —> E-wireligner —> After 3 Month



Before —> E-wireligner —> After 3 Month

### Clinical experience

- 3년간
- 총 200케이스 이상

### Research Achievements

- SCI(E)급 논문 5건
- 국제학술대회 발표 3건

### professional ism

- 교정 전문의 개발 기술
- 치과의사 인력 구성