

PROSTEMICS

stemcell & protein





01

Company Overview

- 01 Company Identity**
- 02 Company Vision**
- 03 Key Technology**
- 04 History**
- 05. Product Portfolio**
- 06 Business Model & Timeline**

01. Company Identity

Leading the global new/renewable bio-engineering



First in the World

The 1st registration of stem-cell conditioned media as cosmetics raw material

The 1st commercialization of stem-cell conditioned media product

1st Korean overseas export of conditioned media medical raw material

Only in Korea

Highest adipose-derived stem cell retention rate

Largest stem-cell conditioned media production

Unique non-cultivated stem cell treatment technology

ASF™
(Medical Treatment)

**Key
technology**

AAPE
(Cosmetics Raw Material)

02. Company Vision

Establish
Cosmetics
Cash Cow

Reinforce
Medical
treatment biz

Develop
Useful
Ingredients
for Human
Body

Overseas
regenerative
medicine
business



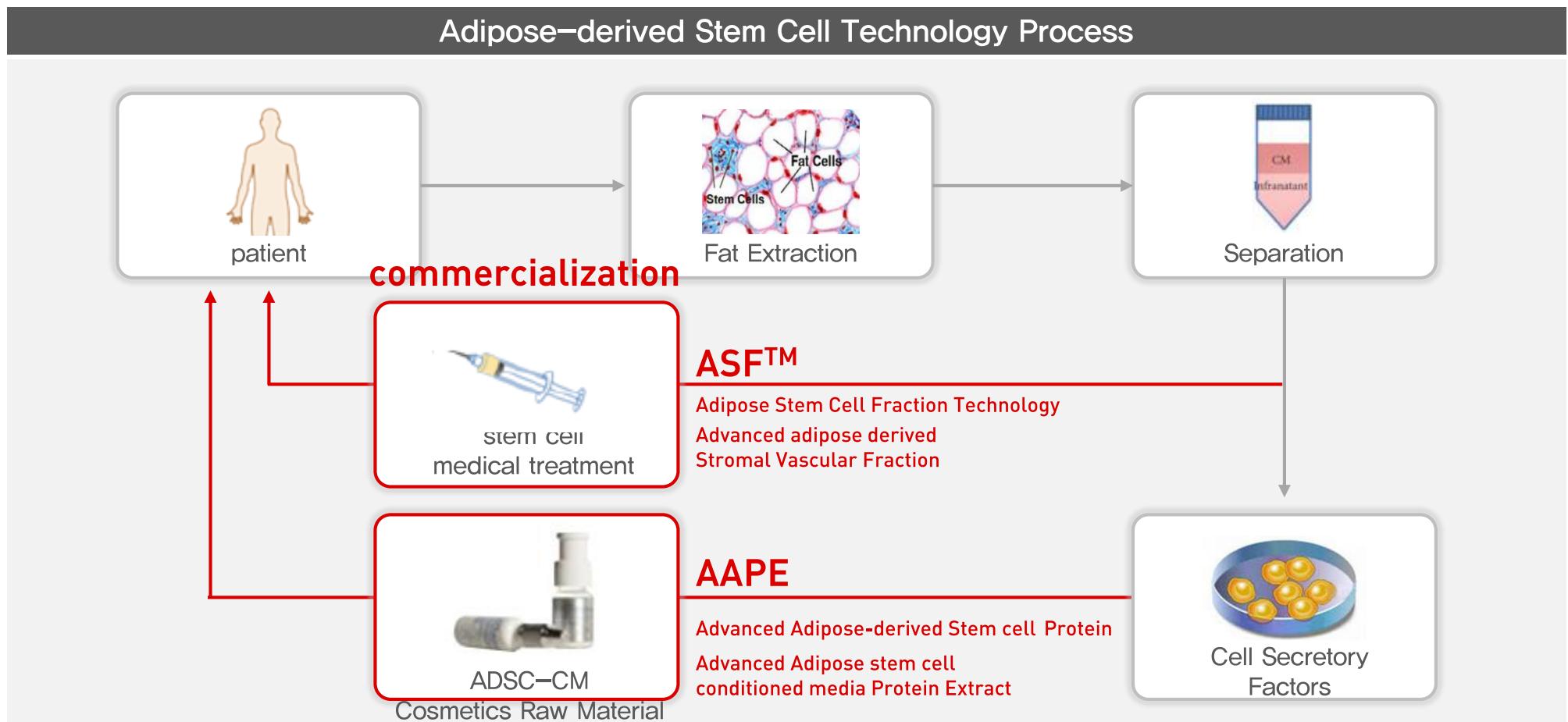
PROSTEMICS
stemcell & protein

The Bio Company Creates The New

03. Key Technology (1)

"PROSTEMICS" has every technology related to the adipose-derived stem cells.

ASF™ using stem cell itself / AAPE using stem-cell conditioned media



03. Key Technology (2)- ASF™

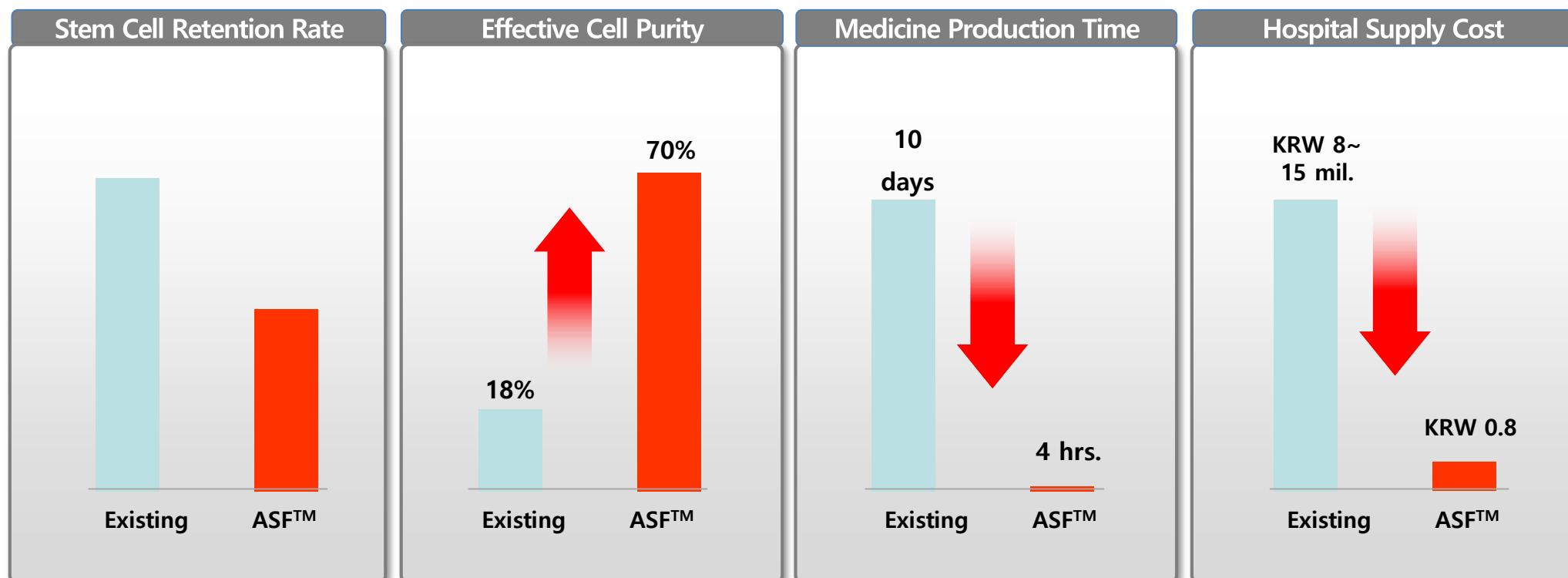
Unlimited Application Platform with its Unique Medical Treatment Tech “ASF™”.

Acquired Patent (stromal vascular fractions including adipose-derived stem cell(ASC) and its production method)

ASF™

A stem cell fraction technology developed by further advancing the existing fraction technology (SVF) with PROSTEMICS' own technology. New kind of cultivation-free medical technology requiring minimum manipulation, which is not subject to the medical act

Existing stem cell medical treatment vs ASF™

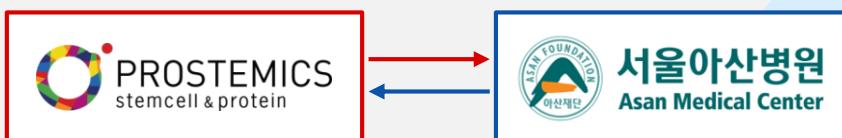


03. Key Technology (2)- ASF™

Stem Cell Medicine with High Possibility of Commercial Success

The stem cell medicine was developed jointly by Asan Medical Center, a large-scale clinical hospital of Korea, for full profit generation from 2016 and broader application to diseases.

Company Research Institute in Asan Institute for Life Science of Asan Medical Center



ASF™ Technology Development Status

- 2011 ASF™ technology development, research institute establishment in Asan Medical Center
- 2012 TMD pre-clinical trial
- 2013 IRB approval for TMD treatment and clinical test
- 2014 new medical technology registration with the MOH
- 2015 preparation for IRB approval for broader application including critical leg ischemia
- **2nd half of 2016 full-scale commercial operation**

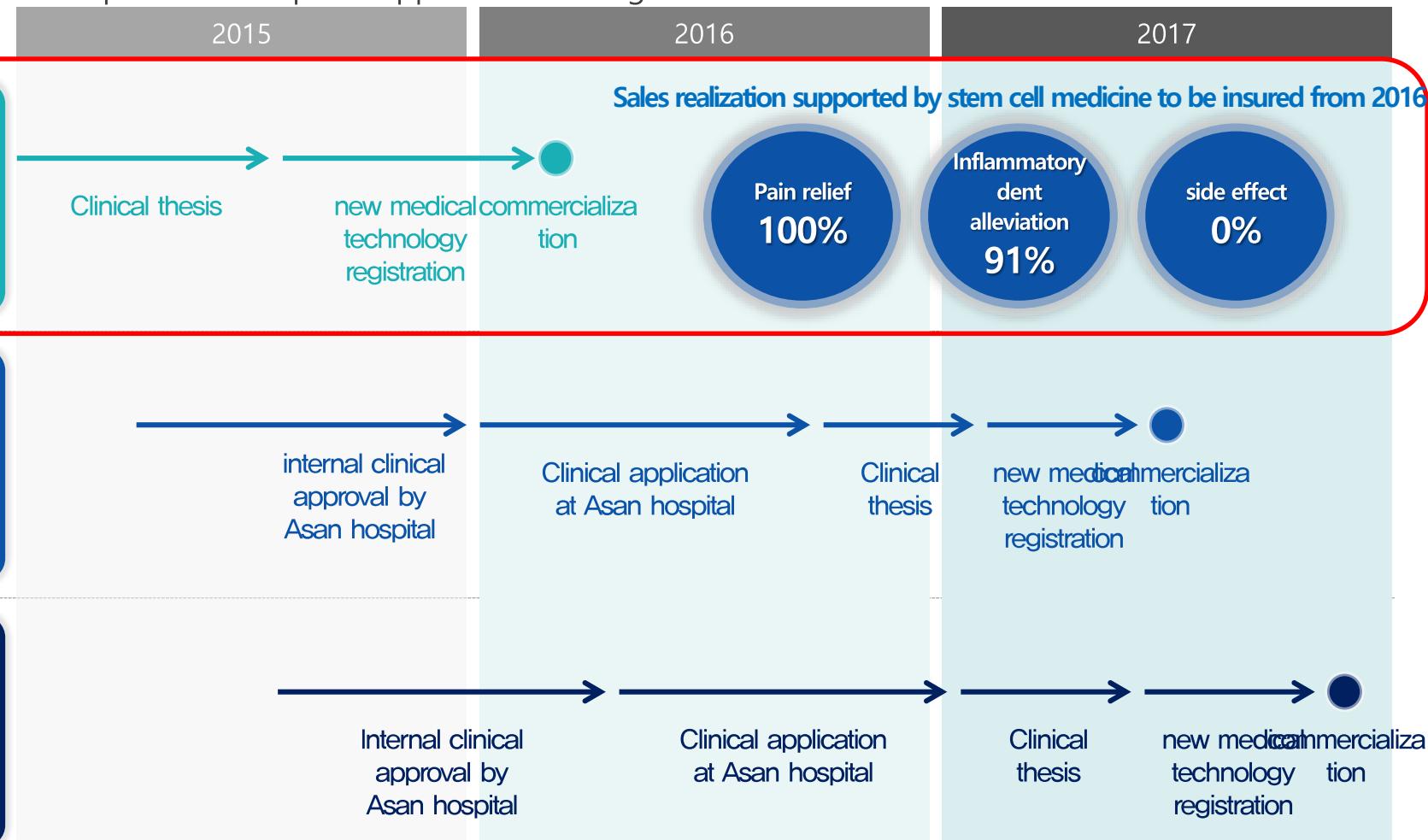
IRB: 임상시험심사위원회

* TMD(Temporomandibular Joint(TMJ) Disorder): 턱관절염

03. Key Technology (2)- ASF™

For broader application based on the stem cell platform technology

Starting from TMD medicine that will have been developed in the 2nd half of 2016, the company will expand the scope of application through continued R&D efforts.



03. Key Technology (3)- AAPE

Korea's 1st cell secretion-based regenerative effect as strong as stem cell performance

AAPE

Adipose-derived proteins and diverse complex of proteins secreted externally from cell-to-cell interaction

Unlike other cells, it performs the same functions as stem cell through 'paracrine effect' such as the recovery of surrounding damaged cells.

Stem Cell vs AAPE

Effective time

2 yrs.



12 hrs.

stem cell

Effectiveness

100%

80%

줄기세포

AAPE

Cases Proving AAPE Efficacy

HUMAN ADIPOCYTE CONDITIONED ME

CTFA Monograph ID: 21343

Definition: Human Adipocyte Conditioned Media Extract is the extract of the skin of hairless mice. Two weeks after injection, mouse skin block was cryosectioned and counterstained with green-fluorescent nucleic acid stain. ADSCs are stained red

Information Source(s): See note below regarding entries, and links (DOI: 10.1007/s00102-007-0343-5)

• 2007 world's 1st registration of AAPE with US cosmetics association (PCPC)

Function: 2008 selected as the best thesis; published over 10 theses in overseas SCI

Trade Name: AAPE (Prostemics)

for the dermatological effect of stem-cell cultured media

Cross References: See note below regarding entries, and links.

International Buyers' Guide

These hypertext links will activate when associated electronic books are purchased.

20

Adipose-derived Stem Cells and their Secretory Factors for Skin Aging

Figure 20.8

Survival of ADSCs labeled with PKH26 (insert) injected in the skin of hairless mice. Two weeks after injection, mouse skin block was cryosectioned and counterstained with green-fluorescent nucleic acid stain. ADSCs are stained red

(Reproduced with permission from Elavarapu, K. M. et al. [2007].)

skin aging were recruited during September 2006-August 2007. The population (n = 235) aged 28-71 years (mean 41 years) had skin phototypes III and IV with mild to moderate photodamage. The advanced ADSC Protein Extract AAPE (Prostemics Inc., Seoul, Korea) was applied

three to twelve times at two-week intervals. The changes evaluated objectively by photographic documentation and Robo Skin Analyzer CS100VA100 (Inforward Inc., Tokyo, Japan), and subjectively by patient questionnaire. The evaluation score was based upon the following

scale: 1 = no change/no change; 2 = fair/mild improvement; 3 = good/moderate improvement; and 4 = excellent/market improvement. As compared to 47% showing good to excellent improvement

to excellent improvement in acquired pigmented lesions

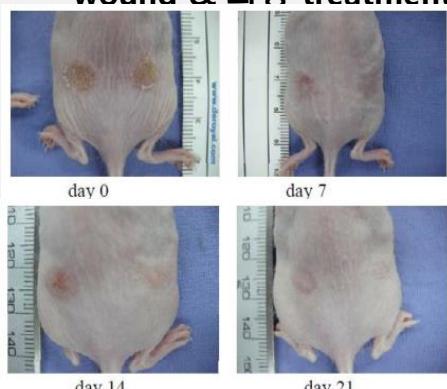
Melanoma is a malignant disorder caused by sun exposure, hormonal imbalance, and genetic predisposition. In many countries including Asia, melanoma ranks among the top ten most common skin conditions. Ethnic differences between Asian and other skin types may influence the efficacy and tolerability of melanoma treatments.

03. Key Technology (3)- AAPE

AAPE, stem-cell conditioned media-based regenerative effect development

STEP 1 Skin Regeneration

- Anti-wrinkle: effect of ingredients including Collagen, Fibronectin, TFG, etc.
- Wound repair: effect from VEGF, PDGF, HGF, etc.
- Extracellular organic collagen synthesis amount increase
- Fibroblast 시트 dead cell multiplicative ability increase



STEP 2 Whitening

- Effect of intra-AAPE TGF- β , TNF- α , etc.
- Tyrosinase (melanin generation) deactivation
- Cell melanin content reduction



STEP 3 Hair Regrowth

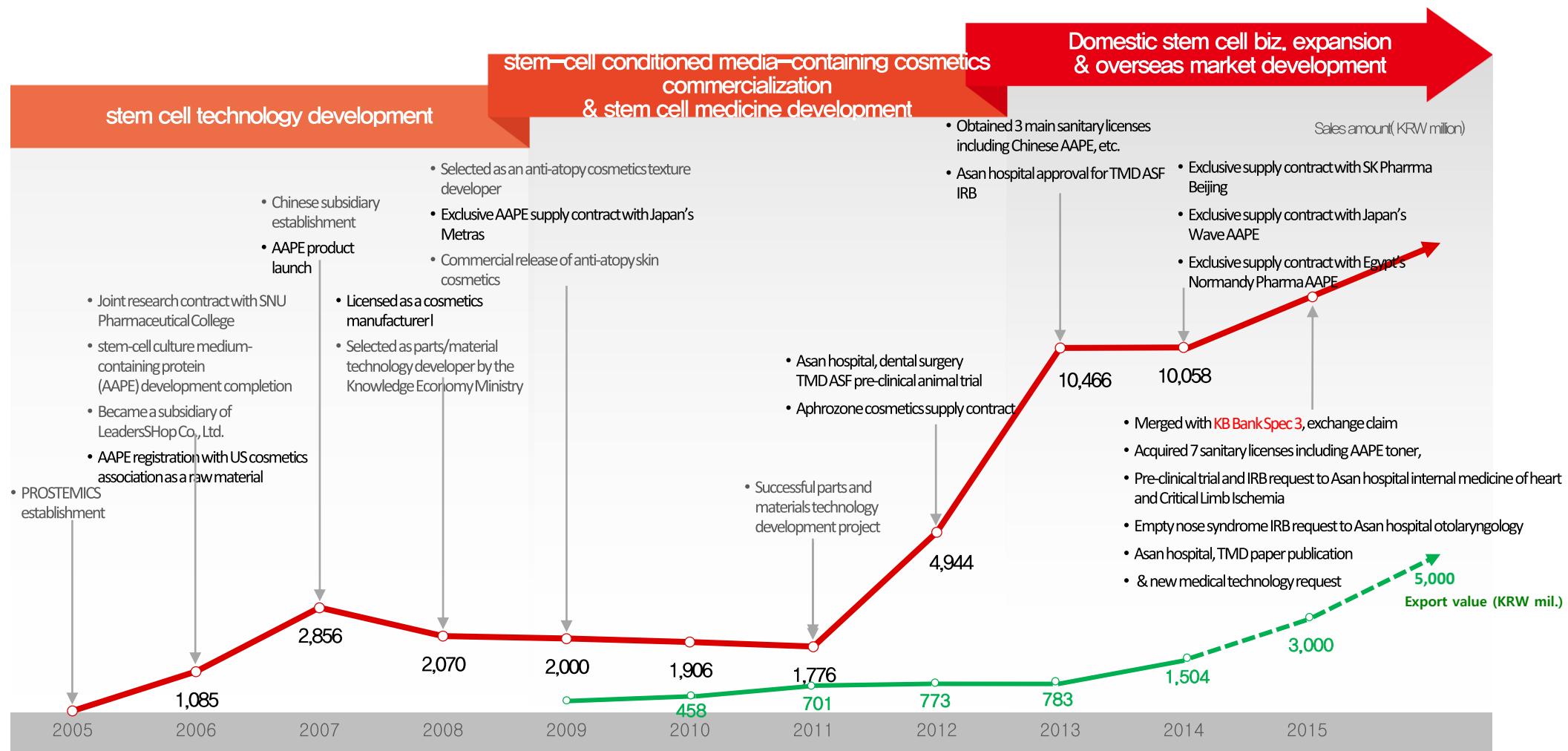
- Effect of HGF, VEGF, PDGF, etc.
- Blood vessel regenerative ability to solve the problem of nutrition supply block mechanism.
- Hair regrowth effect is observable after 4~5 times of use.



04. History

From a 1st generation stem cell company to a global new/renewable bio company

In 2013, the overseas sales team was established and in 2014, the company export grew by 200%.



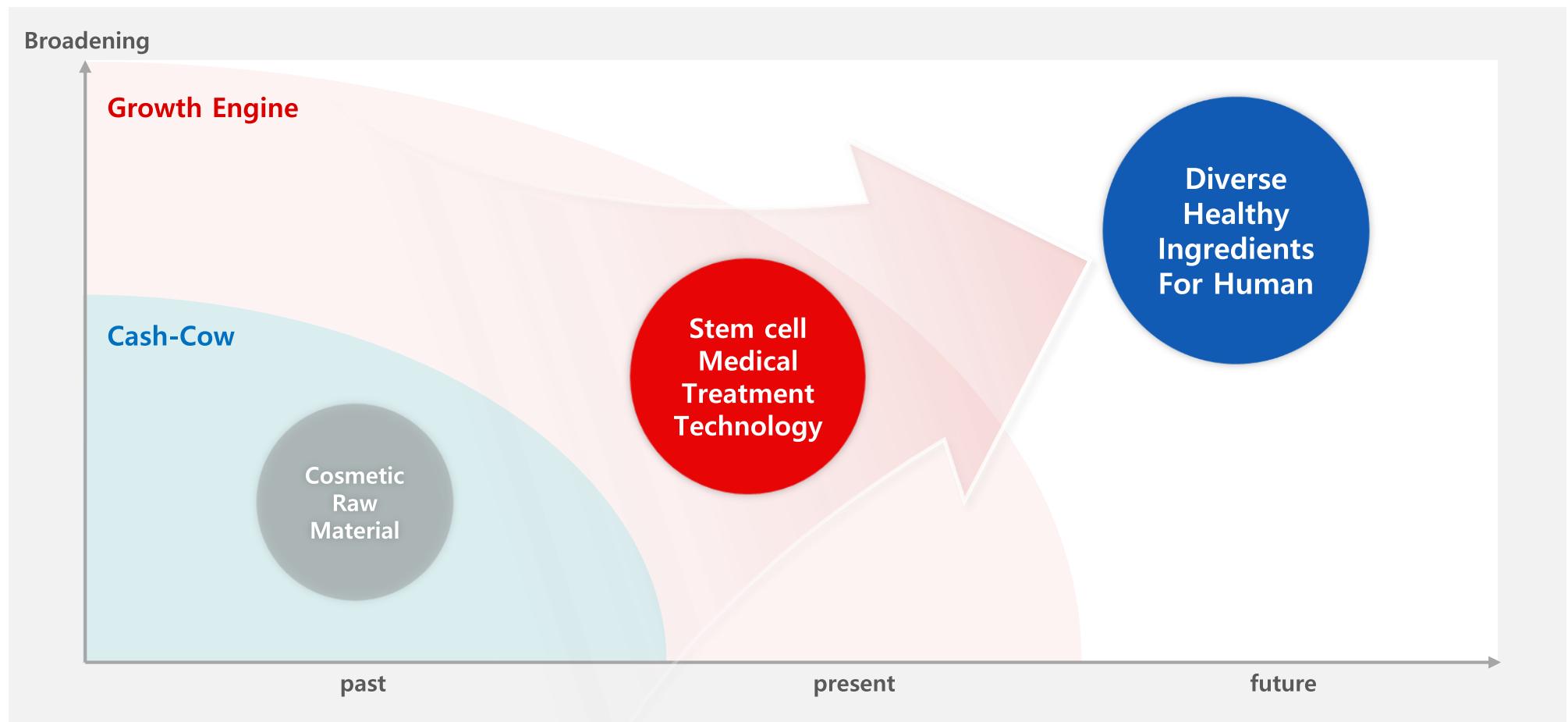
05. Product Portfolio

Stemcell Conditioned Media Cosmetics for home use & medical use, etc.

cell technology applied product	Pro fes sio nal	 AAFX Skin & Hair	 Facial Mask	<ul style="list-style-type: none"> • Aesthetic cosmetic products for skin care • 5 lines for moisturization, Whitening, anti-wrinkle, and sebum control 			
	Pro fes sio nal	 AAPE Skin & Hair	 Peptide Skin & Hair	<ul style="list-style-type: none"> • stem cell protein mixture for professional use • Produced in powder form to be used after mixing with solution ample • Laser or MTS-using skin & scalp care 			
stem cell conditioned media product	Ho me	 Rubycell	 Atolak	 AAPE Home	 AOOA	 Ditopi	<ul style="list-style-type: none"> • Home-use product mainly containing AAPE • Skin condition improvement such as dryness, roughness, etc. • Ditopi: hypo-allergenic and moisturization product for all ages including infant • AAPE: skin damage prevention for people in 40s

06. Business Model & Timeline

Develop diverse healthy ingredients based on the present stem cell treatment technology.





02

AAPE Profile

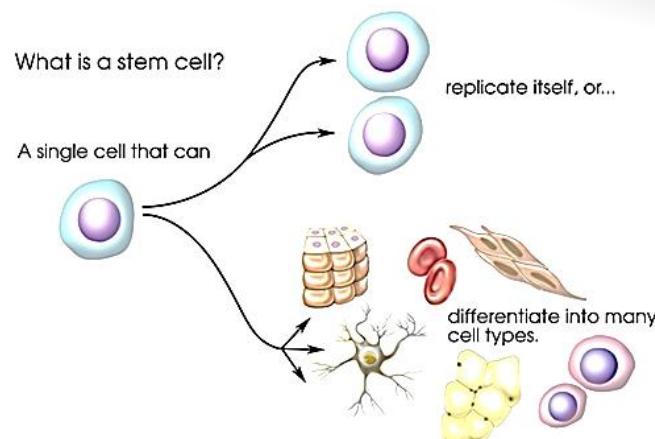
- 01 Stem cell & stem cell conditioned media
- 02 Differentiation of PROSTEMICS stem-cell cultured media
- 03 AAPE definition and ingredients
- 04 AAPE efficacy
- 05 Biz. status
- 06 Overseas product registration status
- 07 Intellectual property right status

01. Stem cell & stem-cell conditioned media

Self-regenerative, diverse differentiating stem cell

STEM CELL

- 01 | pluripotent cell
- 02 | Self-regenerative
- 03 | One cell for diverse different cells and organs
- 04 | Regenerative medicine research area
for the treatment of damage or diseases



Regeneration
*RE*generation
Regenerative Medicine
*RE*generative Medicine

01. Stem cell & stem-cell conditioned media

Culture Medium Extracts Consisted of Cell Regenerating Stem-cell Secretion

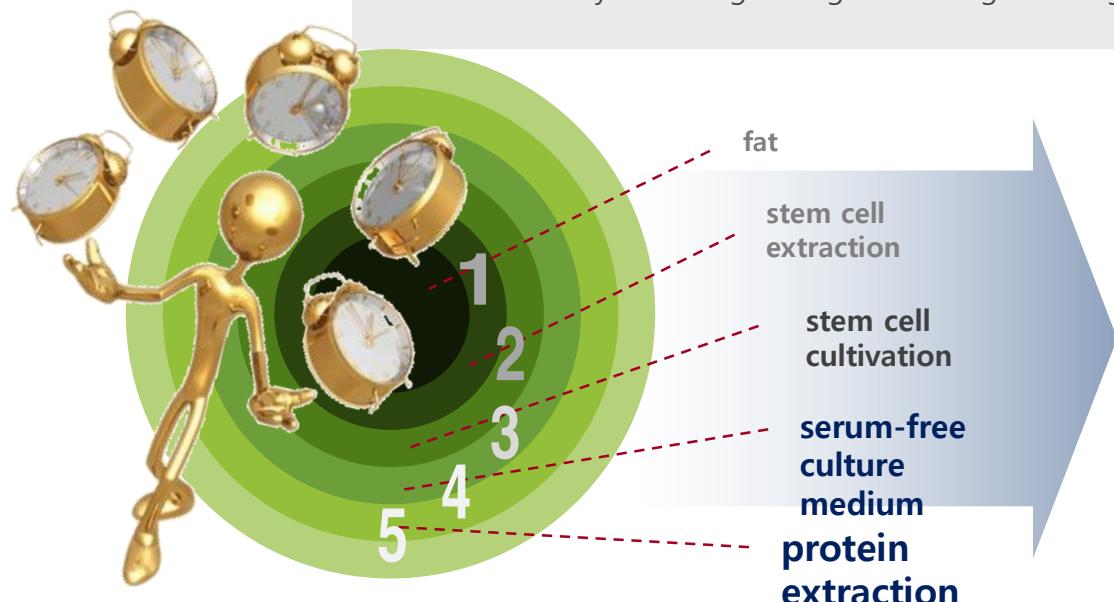
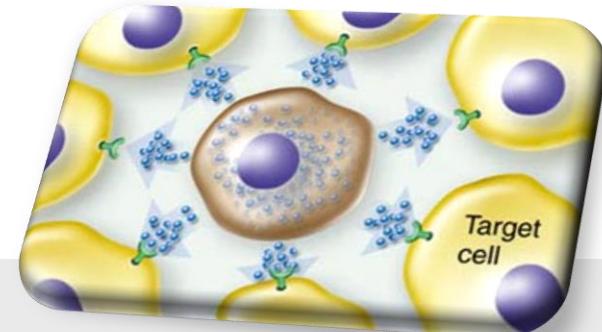
STEM CELL Conditioned Media

Culture medium obtained by culturing adipose-derived stem cells in a specific set condition

Contain approximately 300 kinds of proteins including Cytokines, Growth factors, etc.

Paracrine Effect

These proteins perform Paracrine Effect(Messenger Role) and realize the regenerative mechanism by mediating the signal exchanges among the cells around.



Over 300 protein extracts

AAPE

02. Differentiation of PROSTEMICS' Stem-cell Cultured Media

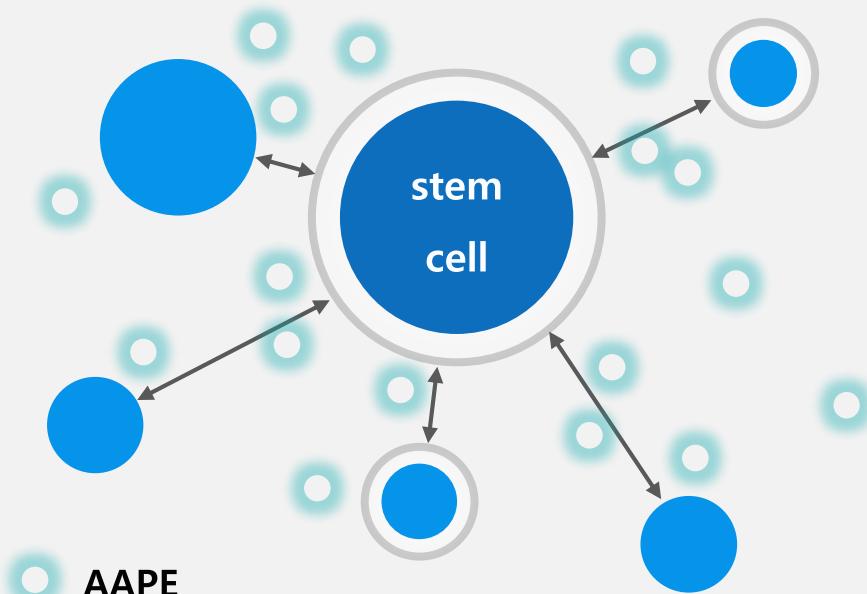
World's 1st development of Cosmetics Raw Material with stem cell technology

PROSTEMICS' key technology, AAPE, was registered as a cosmetics raw material in the US and introduced in US textbooks as a new raw material.

AAPE, secreted from stem cell cultivation

Paracrine Effect

Cells send messenger to other surrounding cells and these messenger-receiving cells show effect (paracrine effect).



AAPE, Adipose-derived proteins complex

Diverse protein extracts secreted externally from stem cell cultivation.

In addition to the stem cell effect, further synergistic effect is created through the Paracrine effect (multiple action) among various secretory factors.

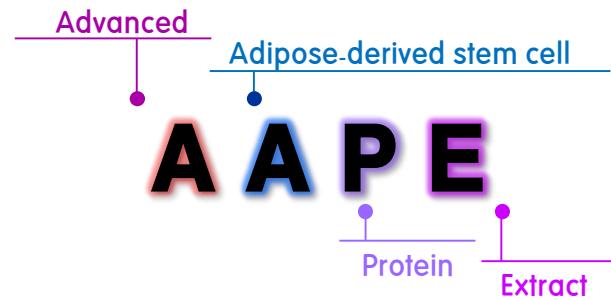
- 2007 AAPE registered with US cosmetics association (PCPC) as a stemcell cosmetics ingredient for the 1st time in the world

- 2009 US dermatology textbook introduced it as a new base material. Registered for its dermatologic effect.

03. AAP definition & ingredients

AAPE

Definition of AAPE

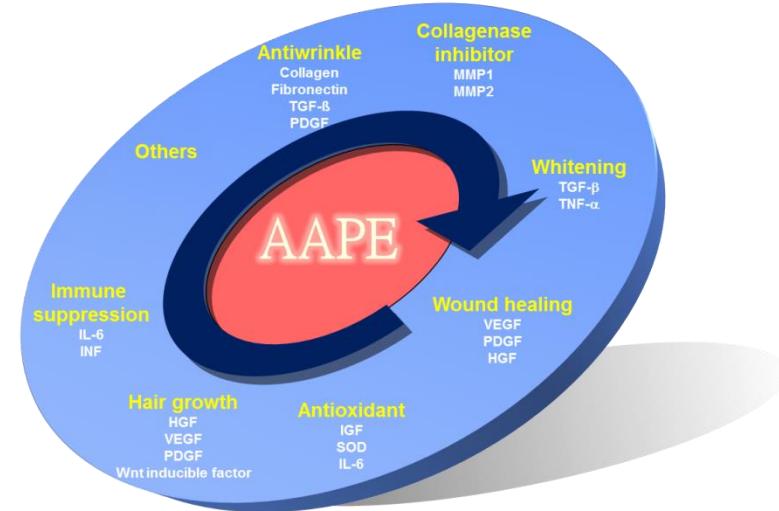
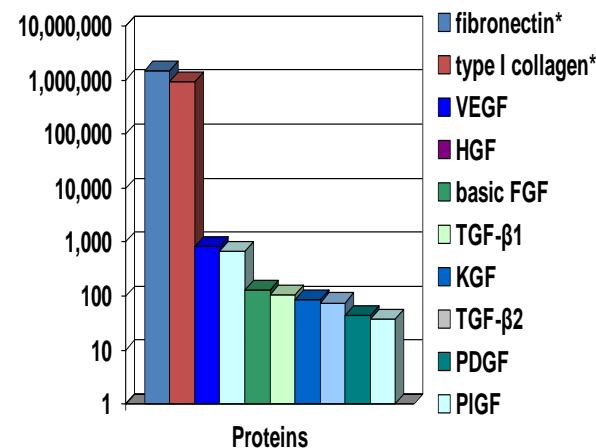


is a mixture of proteins extracted from conditioned medium of ADSCs.

about 300 kinds of protein extraction including growth factor

AAPE main

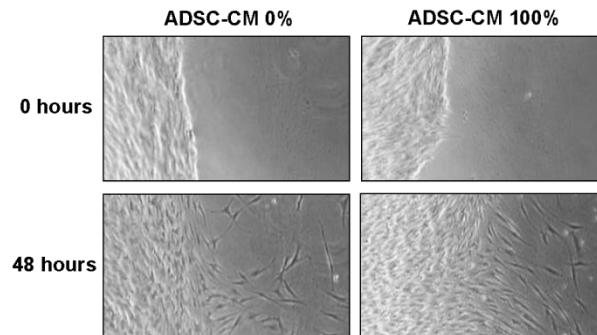
Major components of AAPE



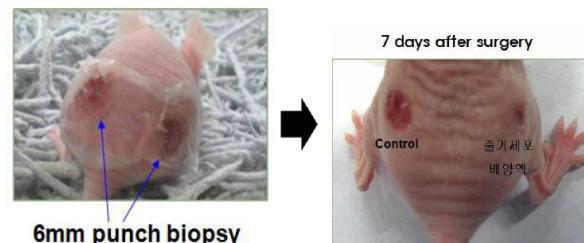
04. AAPE Efficacy_skin

Skin Regeneration

Migration of dermal fibroblast

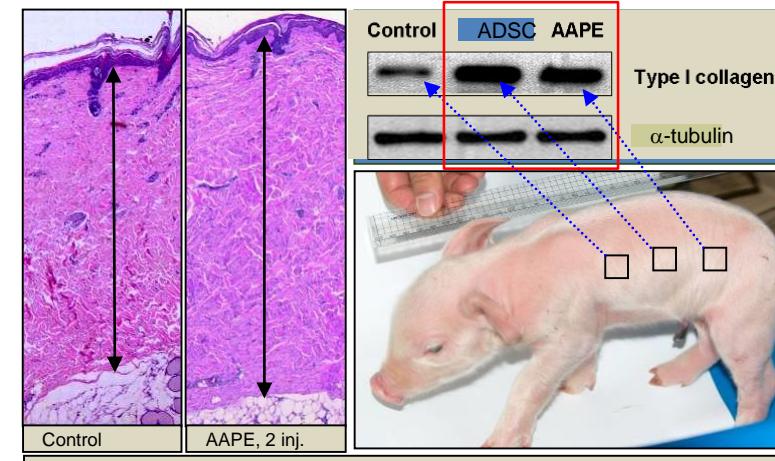
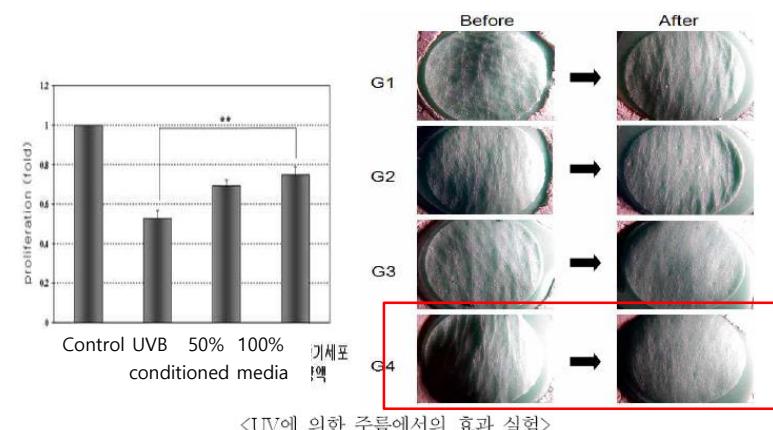


Skin regeneration in biopsy model



Journal of Dermatological Science (2007) 48, 15-24

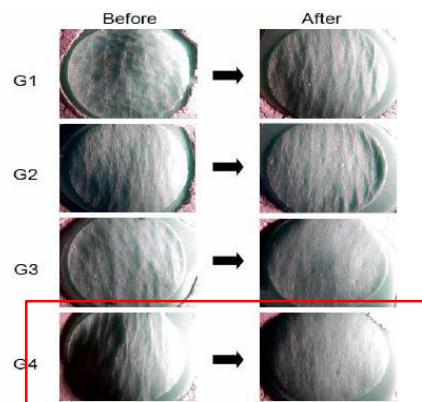
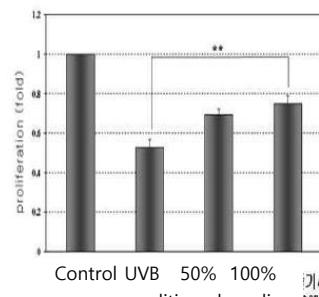
Comparison of Stem cell conditioned media with stem cells



Dermatologic Surgery (2008) 34, 1-4

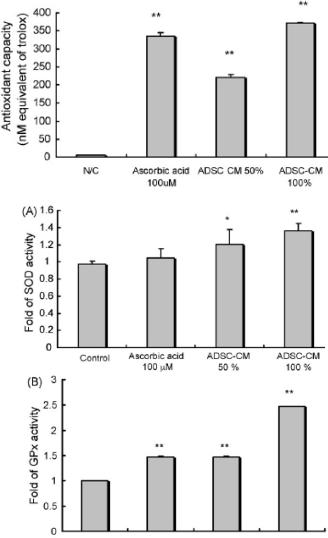
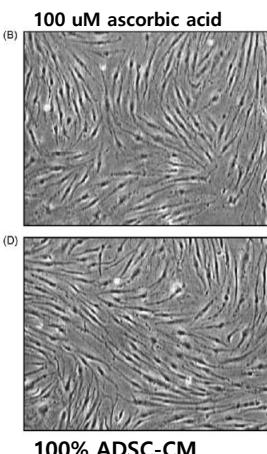
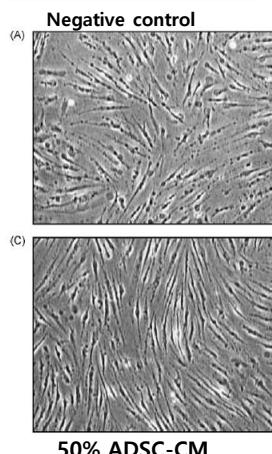
04. AAPE Efficacy_skin

Anti-wrinkle



<UV에 의한 주름에서의 효과 실험>

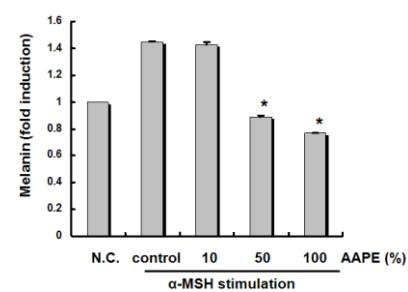
Anti-oxidation



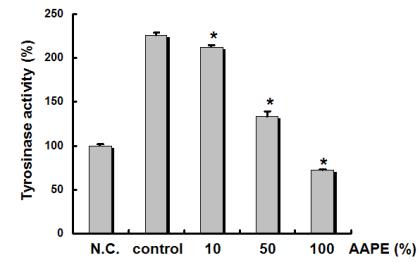
Journal of Dermatological Science (2008) 49, 133—142

Melanin synthesis inhibition

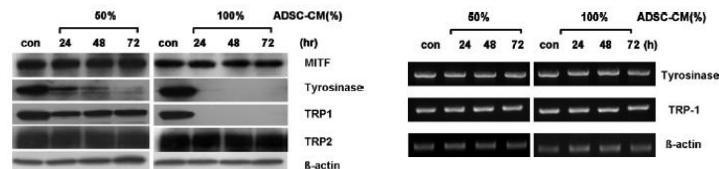
Inhibition of melanin synthesis



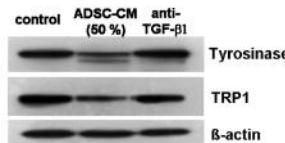
Inhibition of tyrosinase activity



The protein & mRNA level of tyrosinase & TRP1



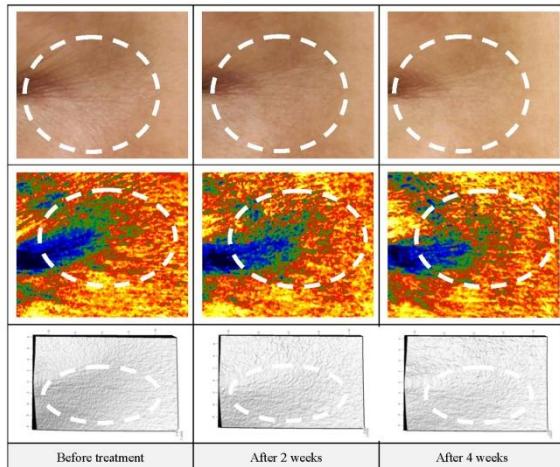
Controversial Effect of Blocking TGF-beta1



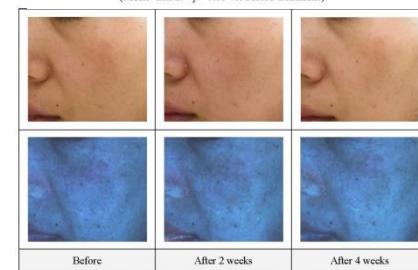
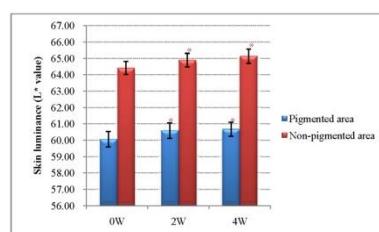
Biological & Pharmaceutical Bulletin v31(4) 606—610 (2008)

04. AAPE Efficacy_skin

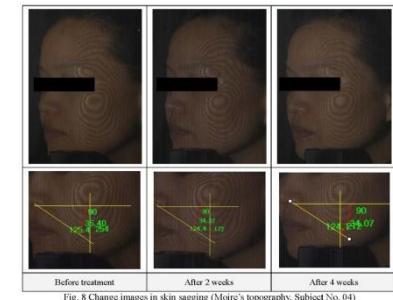
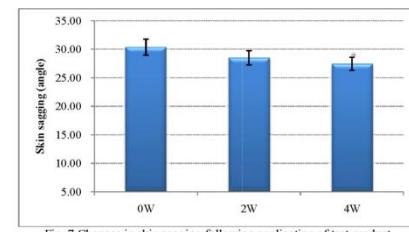
Anti-wrinkle



Skin color



Skin sagging



Other clinical cases



Anti-wrinkle

Other clinical cases



Skin Color

Analyzed by Dermapro Co. Ltd.

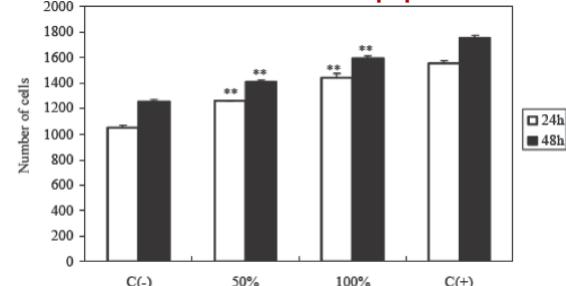


Wound healing

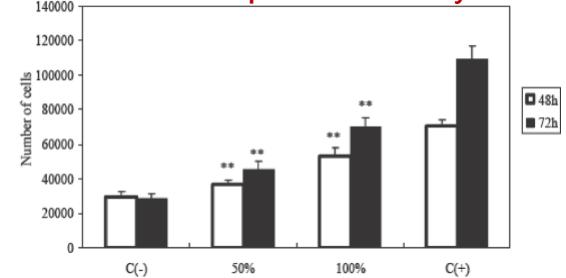
04. AAPE Efficacy_hair

Human papilla cell & skin cell proliferation

Proliferation of human follicle dermal papilla cells



Proliferation of human epithelial keratinocytes



Hypodermic injection and hair growth

A Control

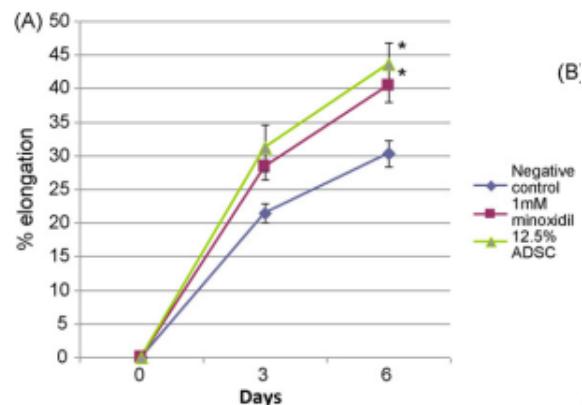


B Conditioned Media

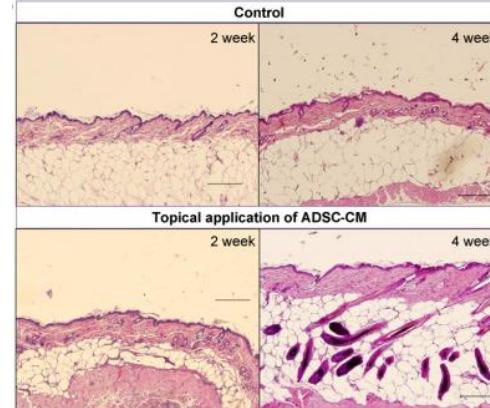


Biomedical Research (2010) 31, 27-34

Application to skin and hair growth



(B)



Journal of Dermatological Science 57 (2010) 132–146

04. AAPE Efficacy_hair

脂肪由来幹細胞分泌蛋白を利用した毛髪再生治療

形成外科 53(10) : 1095~1104, 2010



図3 症例3:37歳、男性



図4 症例4:50歳、女性
頭頂部全体の髪質の改善と増毛を認め、頭皮の透見が改善された。

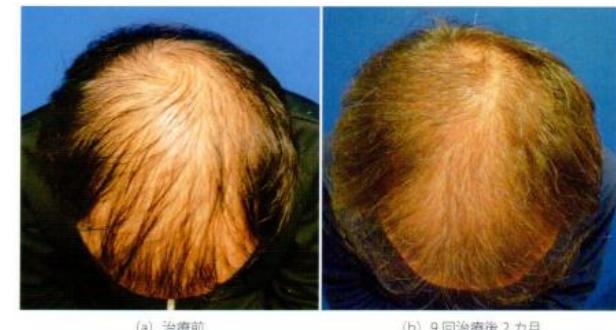


図5 【症例①】55歳、男性

幹細胞由来因子の毛髪再生への応用

形成外科 ■ 55巻10号 2012年10月



図2 トリコグラム
治療後に毛髪本数および毛根数の増加が認められた。成長期毛への移行および一定期間（3日間）の毛髪の成長率の増加が認められた。

韓国で製造されたADSCs-CM [Advanced Adipose-derived stem cell Protein Extract (AAPE®), Prostemics社製、韓国]を個人輸入し、育毛注射薬 (mesoHAIR, Finnigan Pharma社製、米国)と組み合わせたHARG®カクテルを作製し、毛髪再生に用いる著者らの方法を紹介する。

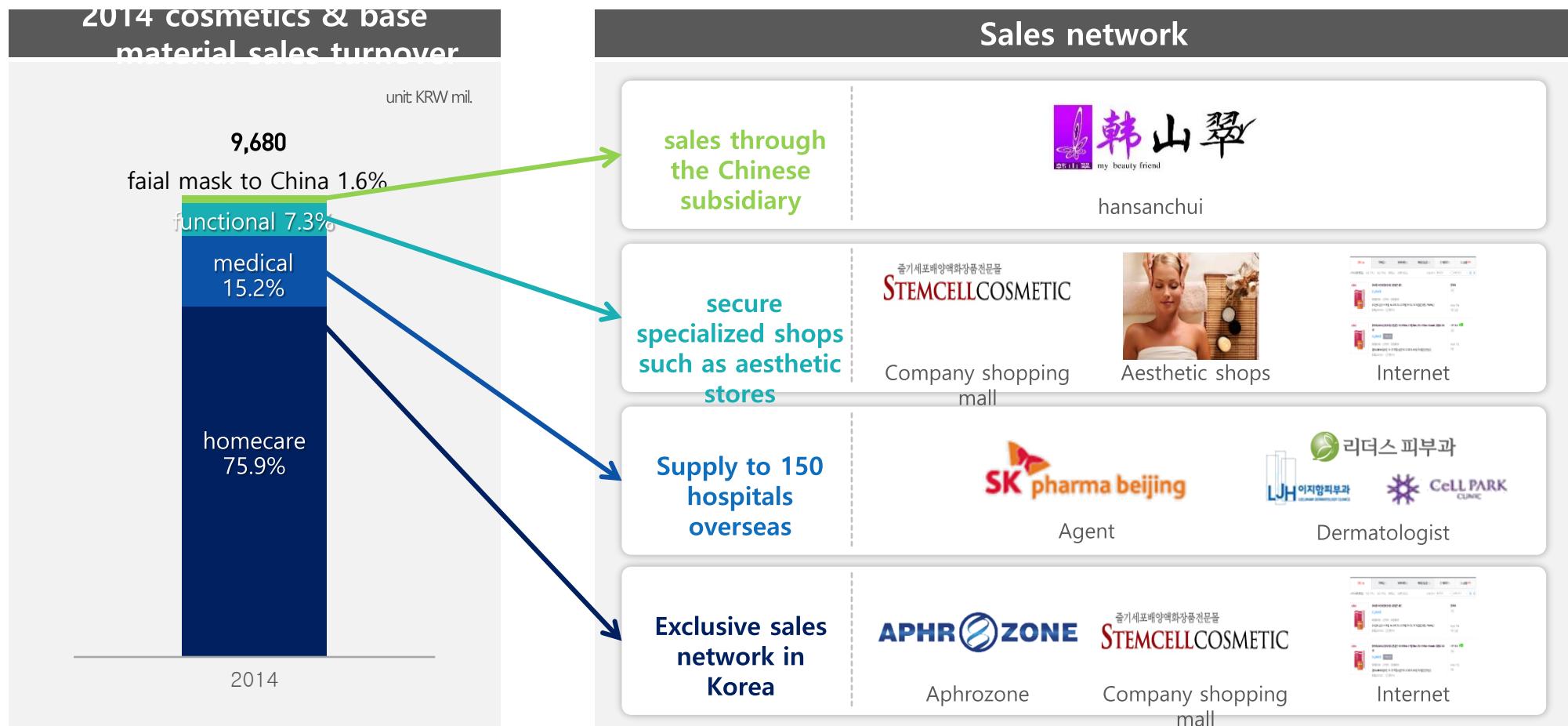
形成外科 第53巻 第10号 (2010), 脂肪由来幹細胞分泌蛋白を利用した毛髪再生治療

形成外科 第55巻 第10号 (2012), 幹細胞由来因子の毛髪再生への応用

05. Biz. Status- Overview

Overseas sales through diverse channels

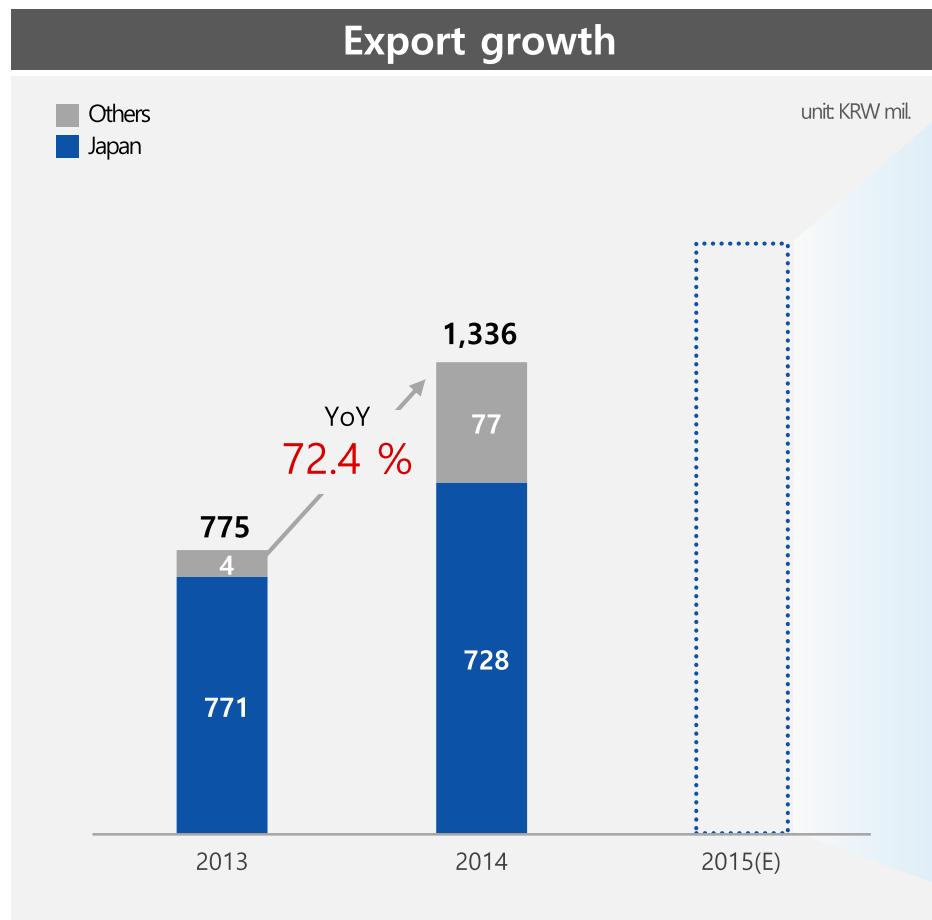
Sales share- Korea 90%, overseas 10%



05. Biz. Status- export status

Expanding markets from Japan, to China and to the Middle East.

Raw material export began in 2014 to Japan.



Japan

- Supply to about 200 major hospitals for 8 years
- 2009, exclusive AAPE ampoule supply to Metras
- 2014, AAPE-Raw material supply to Wave Co.

China

- 2007, subsidiary establishment
- 2013, acquired 3 main sanitary licenses for AAPE, etc.
- SK Pharma Beijing AAPE ampoule, The Peptide exclusive supply
- 2015, to acquire 7 sanitary licenses for AAPE toner, etc.
- Additional agent recruitment planned

Middle East

- 2014, signed an exclusive AAPE ampoule supply contract with Egypt's Normandy Pharma
- 2015, to sign a supply contract with Saudi Arabia and UZE

05. Biz. Status- export status

+ Skin & Hair Programs JAPAN:

In about 200 clinics for 8 years from 2008



Associate with over 200 Japanese Dermatologic Clinics in using AAPE

コース	料金
1回コース	¥ 52,500
5回コース	¥ 210,000
PE・EGF	¥ 15,750

05. Biz. Status- export status

+ HARG ; Hair Re-generative Therapy by Dr. Hukuoka

AAPE는 adipose tissue-derived stem cell에서 추출한 재생테라피의 주원료로 매우 안전하고 근본적인 치료가 가능합니다.

AAPE is very safe and fundamental ingredient of regeneration therapy, which is born by human adipose-derived stem cells.

私自身も HARGで発毛しました。

当院でのHARG療法をおすすめする5つの理由

- ① HARG開発者のクリニック
- ② 症例数国内No.1で 発毛率99%
- ③ HARG認定施設登録 認定施設150院突破
- ④ 患者満足度94.4%
- ⑤ Dr.福岡のスペシャリスト HARGカクテルは当院だけ

トータルアプローチのHARG 開院が教えるやさしい薄毛入門

よくわかるAGAガイド

HARG療法を受けた方の症例と体験談

当院でのHARG療法をおすすめする5つの理由

	HARG療法	コンドロイチン
発毛率	90%以上	65%程度
発毛期間	3ヶ月で発毛を認め 約1ヶ月で既に頭皮に新毛	約1ヶ月で既に頭皮に新毛
治療方法	細胞培養液を注入	内服による毛髪新生促進
治療期間	約3ヶ月（個人差あり）	ずっと継続
治療費用	HARG施術	プロロング治療
発毛治療中止	発毛は停止する、年1、2回のメンテナンスで継続	再び服用してAGA治療を予定
発毛治療費用	8~15万円×6回	6000円×12ヶ月×継続料
性別	女性・女性・治療可能	男性のみ

05. Biz. Status- Seminars

+ Local & international Seminar

:local seminars in China and other regions for sales agents and doctors from all over the globe

: Annual Japan AAPE Seminars



 SK
 AAPE®
 PROSTEMICS
stemcell & protein
 METRAS
Asian Wellness Clinics

The Fact of Tissue Regenerative Therapy with Cytokine Formulation -HARG and MesoSkin Therapy- (draft)

Date : Sunday, 30 March 2014 13:00~17:00
Place : Shinagawa Goos 1F TKP Garden City Shinagawa - Annex
Sponsored by : METRAS, Inc., Prostemics, Inc., Japan Hair Regenerative Medical Association
Supported by : Naris Cosmetics Co., LTD.

PROGRAM

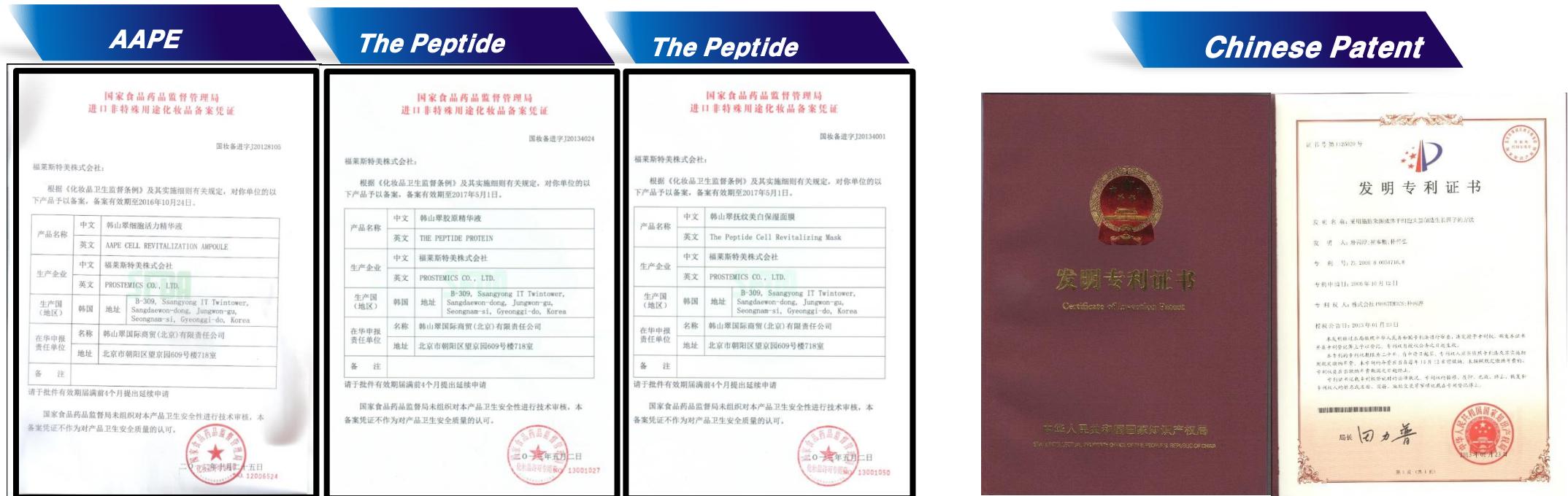
Time	Contents
13:00 ~ 13:10	Open Session / About Japan Hair Re-generative Medical Association
13:10 ~ 13:20	Seminar Overview
13:20 ~ 13:50	About AAPE Powder (Korean-Japanese Simultaneous Interpretation) Q&A session
13:50 ~ 14:20	Q&A session
14:20 ~ 14:30	About HARG Therapy
14:30 ~ 15:10	Hands on Demonstration Q&A session
15:10 ~ 15:30	About Meso-H hair care series Q&A session
15:30 ~ 15:40	About MesoSkin Therapy
15:40 ~ 16:10	Hands on Demonstration Q&A session
16:10 ~ 16:40	About MesoSkin Therapy Hands on Demonstration Q&A session
16:40 ~ 16:50	Conclusion
16:50 ~ 17:00	Closing Remarks
17:00	

Contact : METRAS, Inc.
8F, 1-2-11 Kitaunaminishi
TE : 03-5948455 / FAX : 03-5948455



CFDA License obtained for AAPE ampoule, The Peptide ampoule, The Peptide facial mask

**2 AAFX ampoule products, 5 homecare line 'AAPE Homecare' products & 4 'Ditopi' products
to acquire the CFDA license in August, 2015**



CFDA license acquisition & labeling review completed

Growth factor mass production method by using adipose-derived stem cells

06. Overseas product registration status- US

FDA OTC registration of 8 AAPE products & 2 AAFX products

FDA OTC

FDA U.S. Food and Drug Administration
Protecting and Promoting Your Health

[Home](#) | [Food](#) | [Drugs](#) | [Medical Devices](#) | [Radiation-Emitting Products](#) | [Vaccines, Blood & Biologics](#) | [Animal Health](#)

[A to Z Index](#) | [Help](#)

Most Popular

National Drug Code Directory

Current through September 21, 2014

Start Over

Search Results: Labeler Name > "prostemics"

Sort by: Labeler Name

1 - 2

Prostemics Co., Ltd. | 62041-010-01 | AAPE Skin Ampoule (Allantoin) | SOLUTION | .03 mg/61

Product NDC: 62041-010
Proprietary Name: AAPE Skin Ampoule
Non-Proprietary Name: Allantoin
Product Type Name: HUMAN OTC DRUG
Market Category Name: OTC MONOGRAPH FINAL
Application Number: part347
Route Name: TOPICAL
Substance Name: ALLANTOIN
Package Description: 6 SOLUTION in 1 CARTON (62041-010-01)
Pharm Class: N/A
DEA: N/A
Labeler Name: Prostemics Co., Ltd.
Start date: 08-01-2014 / End date: N/A

Prostemics Co., Ltd. | 62041-020-01 | AAPE Hair Ampoule (Allantoin) | SOLUTION | .03 mg/61

Product NDC: 62041-020
Proprietary Name: AAPE Hair Ampoule
Non-Proprietary Name: Allantoin
Product Type Name: HUMAN OTC DRUG
Market Category Name: OTC MONOGRAPH FINAL
Application Number: part347
Route Name: TOPICAL
Substance Name: ALLANTOIN
Package Description: 6 SOLUTION in 1 CARTON (62041-020-01)
Pharm Class: N/A
DEA: N/A
Labeler Name: Prostemics Co., Ltd.
Start date: 08-01-2014 / End date: N/A



US FDA OTC Approval

AAPE Skin NDC # : 62041-010-01

AAPE Hair NDC # : 62041-020-01

AAPE Toner NDC # : 62041-040-01

AAPE Suncream NDC # : 62041-030-01

AAPE Serum NDC # : 62041-050-01

AAPE Eyecream NDC # : 62041-060-01

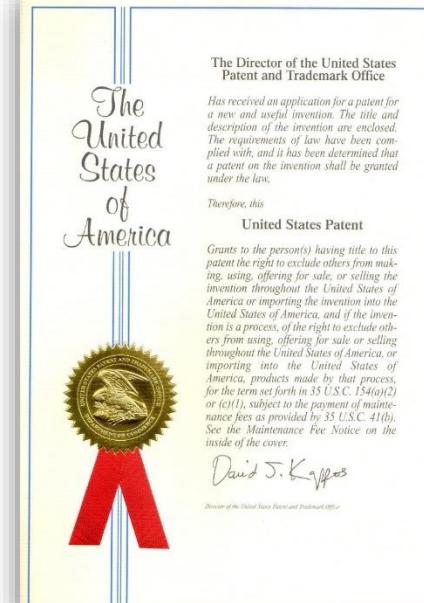
AAPE Cream NDC # : 62041-070-01

AAPE Mask NDC # : 62041-080-01

AAFX Skin NDC # : 62041-090-01

AAFX Hair NDC # : 62041-100-01

PCT international p



07 IPR status – stem cell-based main technology development

R&D infrastructure & overseas network-based stem cell certification outside Korea

Scientific ground for PROSTEMICS' stem cell technology such as 22 patents in Korea and 11 overseas theses



Excellent R&D infrastructure

34% is specialized research personnel in the whole company staff.



Research institute 1



stem cell-processing
technology-based new
medicine development

stem cell cultivation &
secretion research

Network outside Korea



서울아산병원
Asan Medical Center



07. IPR status- patent(1)

No.	Description	Application /registration no.	Application/registration date	Note
1	Growth factor mass production method by using adipose tissue-derived stem cell	10-2006-0008874	2006.01.27	registration
2	Hyaluronic acid sponge manufacturing method for cell messenger system	10-2007-0042611	2007.05.2	registration
3	Hyaluronic acid sponge manufacturing method for cell messenger system	PCT/KR2007/002162 US 제12/299,496	2007.06.29	registration
4	Growth factor mass production method by using mesenchymal stem cell	10-2007-0065346	2007.06.29	registration
5	Cancer cell growth inhibition method by using stem-cell culture medium	10-2008-0000599	2008.12.11	registration
6	Composite for anti-atopic dermatitis prevention or treatment	10-2008-0036725	2008.04.21	registration
7	Melanin synthesis inhibition method by using stem-cell culture medium	10-2007-0076221	2008.07.17	registration
8	Growth factor mass production method by using adipose tissue-derived stem cell	10-2008-7019093	2008.08.04	registration
9	Tissue-regenerative injection composite containing fat stem cell and culture medium optimizing the tissue regenerative ability	10-2007-0015211	2009.02.06	registration
10	Fibroblast growth factor-containing cosmetic material composite	10-2005-0055017 PCT/KR2006/4111	2005.06.24 2006.10.12	applied for
11	High-energy Fractional Laser-based hair restoration promotion method & device	10-2007-0120370	2007.11.23	applied for
12	Activated fat stem cell-based hair restoration stimulator	10-2007-0077090	2007.07.31	applied for
13	Tissue-regenerative injection composite containing mesenchymal stem cell and culture medium optimizing the tissue regenerative ability	PCT/KR2008/000855	2008.02.13	applied for

07. IPR status- patent(2)

No.	Description	Application /registration no.	Application/registration date	Note
14	Pharmaceutical composite for wound treatment or wound treatment promotion	10-2008-0045474	2008.05.16	applied for
15	Cancer prevention or treatment pharmaceutical composite containing adult stem-cell cultivation material or its fraction material	10-2008-0047498	2008.05.22	applied for
16	Cancer prevention or treatment pharmaceutical composite containing adult stem-cell cultivation material or its fraction material	US 제12/453,539	2009.02.01	applied for
17	Adipose tissue-derived stem-cell culture medium-containing cosmetic material composite	10-2010-7005233	2010.03.09	applied for
18	Skin regenerative or anti-wrinkle effective human adipose tissue-derived stem cell cultivation concentrate & its use	10-2010-0038542	2010.04.26	applied for
19	hair-restorative human adipose tissue-derived stem cell cultivation concentrate & its use	10-2010-0038540 PCT/KR2010/003553 PCT/KR2010/003551	2010.04.26 2010.06.04 2010.06.04	applied for
20	skin elasticity or anti-aging effect human adipose tissue-derived stem cell cultivation concentrate & its use	10-2011-0004669	2011.01.18	applied for
21	keratin cell migration, proliferation or keratin synthesis-facilitating human adipose tissue-derived stem cell cultivation concentrate & its use	10-2011-0008934	2011.01.31	applied for
22	ectoderm-originated cell regenerating effective human adipose tissue-derived stem cell cultivation concentrate & its use	10-2011-0023693	2011.03.18	applied for
23	Method to separate adenovirus DNA-terminal protein complex by using hydrophilic separation membrane	10-2012-0090102	2012.08.17	applied for
24	curling iron	10-2012-0116282	2013.10.18	applied for
25	Pharmaceutical composite for wound treatment or wound treatment promotion	10-2008-0045474	2008.05.16	applied for
26	Cancer prevention or treatment pharmaceutical composite containing adult stem-cell cultivation material or its fraction material	10-2008-0047498	2008.05.22	applied for

07. IPR status- thesis presentation status

No.	Title	Journal	Main author	Adoption date	Main content
1	Wound healing effect of adipose-derived stem cells: A critical role of secretory factors on human dermal fibroblasts	Journal of Dermatological Science	Kim won serk, Byung-Soon Park, Jong-Hyuk Sung	2007.05.31	Cultivation by direct contact or indirect mixed cultivation help adipose tissue-derived stem cells increase human derma fibroblast proliferation. The process is made through the paracrine activation by secretion factors. The same result can be produced in cell cultivation through adipose tissue-derived stem cell conditioned medium.
2	Evidence supporting antioxidant action of adipose-derived stem cells: Protection of human dermal fibroblasts from oxidative stress	Journal of Dermatological Science	Kim won serk, Byung-Soon Park, Hyung-Ki Kim, Jong-Hyuk Sung	2007.08.01	tbCOOH oxidant stressed human derma fibroblasts was treated with adipose tissue-derived stem cell conditioned medium. And the group showed increased anti-oxidation-related protein manifestation, resisting against active oxygen. The conditioned medium-treated group showed reduced cell apoptosis.
3	Adipose-Derived Stem Cells and Their Secretory Factors as a promising therapy for skin aging	Dermatologic Surgery	Byung-Soon Park, Jong-Hyuk Sung, Kim won serk	2007.09.15	Adipose tissue-derived stem cells promote collagen synthesis during wound treatment. Micropigs were treated with adipose tissue-derived stem cell & adipose tissue-derived stem cell conditioned medium. The group showed facilitated collagen synthesis. And in the clinical experiment, when a patient's autologous processed lipospirate cells were injected, the derma thickness grew. These findings raised expectation over adipose tissue-derived stem cell for a good anti-skin aging effect.
4	Whitening Effect of Adipose-Derived Stem Cells: A critical role of TGF- β 1	Biological Pharmaceutical Bulletin	Kim won serk, Hyung-Ki Kim, Byung-Soon Park, Jong-Hyuk Sung Kim won serk,	2008.01.21	Melanoma B16 cell, the melanin pigment-making cell, were processed with adipose tissue-derived stem cell conditioned medium. The group showed inhibited tyrosinase activation to lower melanin synthesis; reduced demonstration of TRP1 and TRP2, melanin-related transcription factors; and prevention of TGF- β 1, the melanogenic proteins regulatory factor. These findings indicate the skin lightening effect of adipose tissue-derived stem cell conditioned medium.
5	Antirinkle effect of adipose-derived stem cell: Activation of der mal fibroblast by secretory factors	Journal of Dermatological Science	Byung-Soon Park, Hyung-Ki Kim, Jong-Hyuk Sung	2008.08.14	Adipose tissue-derived stem cells release growth factor and activate dermal fibroblasts for wound treatment and anti-oxidation effect
6	Hypoxia-enhanced wound-healing function of adipose-derived s tem cells: Increase in stem cell proliferation and up-regulation of VEGF and bFGF	Wound Repair and Regeneration	Kim won serk, Byung-Soon Park, Jong-Hyuk Sung	2009.03.13	Adipose tissue-derived stem cell conditioned medium obtained in low oxygen condition was used to cultivate human dermal fibroblast. And cell proliferation and cell migration increased. In the animal test, VEGF and bFGF demonstration was increased to accelerate wound recovery process. This finding indicates that the adipose tissue-derived stem cell conditioned medium from low oxygen status could be more effective in wound treatment than the generally-obtained adipose tissue-derived stem cell conditioned medium.
7	Protective role of adipose-derived stem cells and their soluble fac tors in Photoaging	Arch Dermatol Res	Kim won serk, Byung-Soon Park, Jong-Hyuk Sung	2009.03.24	Adipose tissue-derived stem cells can differentiate into multi-lineage and release various factors to treat surrounding cells as well. For instance, if adipose tissue-derived stem cell conditioned medium is processed with B16 cell, it could inhibit melanin synthesis. Or in the UVB animal model, it resisted against active oxygen to prevent cell death. It is a versatile cell with multiple use. In this sense, it can be a promising future of the regenerative medical area.
8	The wound-healing and antioxidant effects of adipose-derived st em cells	Expert Opinion	Kim won serk, Byung-Soon Park, Jong-Hyuk Sung	2009.07.09	In diverse conditions, adipose tissue-derived stem cells showed effectiveness in wound treatment effect and have anti-oxidation effect through paracrine mechanism. Adipose tissue-derived stem cells' secretions are a noteworthy stem cell material for future skin regenerative effort or regenerative medicine. Adipose tissue-derived stem cells have been proved by many preceding studies for their diverse cytokines and paracrine effect to positively affect the surrounding cells or tissues. In the experiment on adipose tissue-derived stem cells, it was found that the cells released hair growth-related factors such as PDGF, KGF, HGF, VEGF, fibronectin, etc. Also in the animal experiment, the group processed with adipose tissue-derived stem cell or adipose tissue-derived stem cell conditioned medium showed hair follicle increase. Based on these findings, the adipose tissue-derived stem cell & adipose tissue-derived stem cell conditioned medium is viewed as a promising material for hair growth-related research advancement.
9	Hair growth promoting effects of adipose tissue-derived stem ce lls	Journal of Dermatological Science	Kim won serk, Byung-Soon Park, Jong-Hyuk Sung	2009.12.05	
10	Adipose-derived Stem Cells and their Secretory Factors for Skin Aging	Textbook of Aging Skin	Park byung soon	2010	(US dermatologic textbook) adipose tissue-derived stem cell-released protein helps skin anti-aging.
11	Hair growth stimulated by conditioned medium of adipose-deriv ed stem cells is enhanced by hypoxia: evidence of increased gro wth factor secretion.	Biomedical research	Byung-Soon Park, Kim won serk, hyung-Ki Kim	2010.2	Animal model processed with adipose tissue-derived stem cell conditioned medium was analyzed. As a result, anagen phase was induced to cause hair regeneration while increasing the proliferation of two key hair follicle cells - HFDPC and HEK cells. In the case of processing with adipose tissue-derived stem cell conditioned medium from low oxygen status, hair formation-related growth factor demonstration rose rapidly. This finding indicates that adipose tissue-derived stem cells are excellent in hair formation and promote the paracrine mechanism thanks to the low oxygen status.
12	Clinical use of conditioned media of adipose tissue-derived stem cells in female pattern hair loss: a retrospective case series study	International Journal of Dermatology	Byung-Soon Park	2015. 03	Adipose tissue-derived stem cell & culture medium are effective in female hair restoration.



03

AAPE Portfolio

01 Portfolio

02 AAPE ampoule

03 The peptide ampoule

01. Product Portfolio

Products certified by CFDA license

Cell technology product	specialized	AAFX ampoule	Facial mask	specialized clinic products			
		AAPE ampoule	Peptide ampoule				
stem cell conditioned media product	Home care	Lubycell	Atorak	AAPE Home	AOOA	Ditopi	
							<ul style="list-style-type: none"> • Cosmetic products for skin care experts in aesthetic shops • 5 lines of moisturization, lightening, anti-wrinkle, sebum control, etc. <ul style="list-style-type: none"> • stem cell protein mixture for professional use • Produced in powder form to be used by mixing with the ampoule • Laser or MTS-based skin & scalp care <ul style="list-style-type: none"> • homecare product mainly containing AAPE • Skin condition improvement such as dryness, roughness, etc. • Ditopi: hypo-allergenic and moisturization product for whole family including infant • AAPE: skin damage prevention for people in 40s

02. AAPE ample- Professional Care

- Product configuration: 6 sets / 1 box (vial: 270mg x 6ea/ solvent: 6ml x 6ea)
- Target group: Clinics
- Type: Skin ampoule / Hair ampoule
- Feature: Pure Adipose-derived tem-cell Conditioned Media Extracts / skin regenerative & hair restoration
- **Product registration status : FDA certification, CFDA certification**



AAPE skin ampoule set



AAPE hair ampoule set

03. The Peptide ample- Professional Care

- Product configuration: 10 sets / 1 box (vial: 200mg x 10ea/ solvent: 4ml x 10ea)
- Target group: Aesthetic shops
- Type: Skin ampoule / Hair ampoule
- Feature: Pure Adipose-derived tem-cell Conditioned Media Extracts / skin regenerative & hair restoration
- **Product registration status : CFDA certification**



The Peptide skin ampoule set



The Peptide hair ampoule set