



AYURMASTER®

KESHIN

Ayurvedic Hair Grower Based on Modern Science



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Yokohama
Japan

Background of This Research

Numerous hair care products are sold in the world. However, they are far from satisfaction.



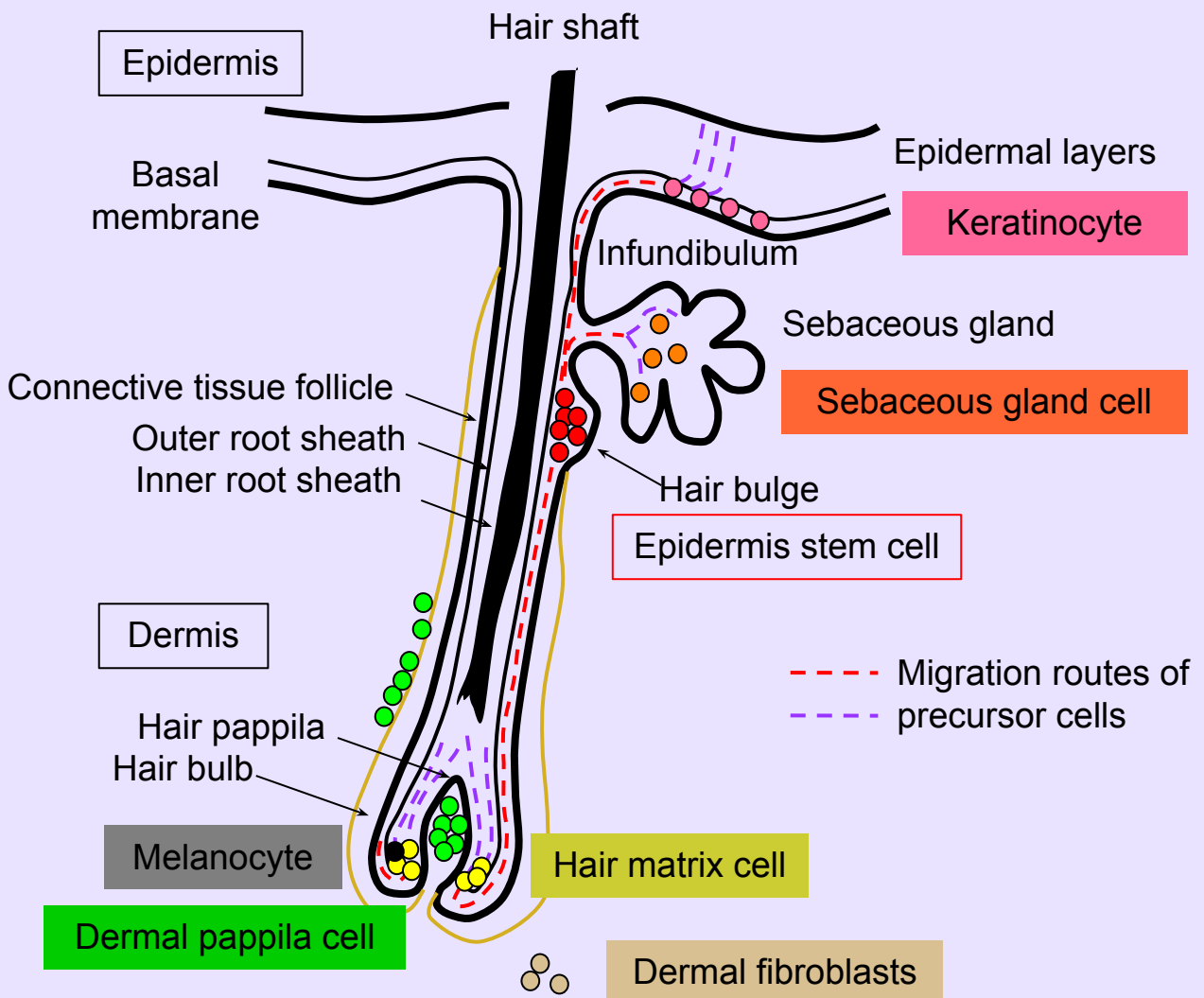
Alopecia is a very complex phenomenon mainly due to senile decay of the hair follicle and scalp. Hence, rejuvenation of both tissues is essential for regrowth of hair in aged people.



We hypothesize that alopecia and hair-regeneration follow the two-step theory shown later. Ayurveda, the science of longevity, is a rich source for rejuvenation of each tissue and the whole body. It uses innumerable traditional herbs for remedies. It is a best way to integrate Ayurveda and modern science to combat against alopecia.

Structure of the Hair Follicle

At least 7 cell types are involved in generation of healthy hair as shown below. Alopecia mainly arises from senile decay of the hair follicle and scalp. Therefore, growth stimulation of these cell types is essential for regrowth of hair in aged people.



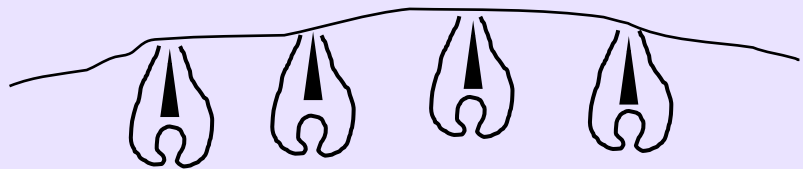
Two-Step Theory for Hair Regrowth

Reversal of aging of hair

Aging

Advanced alopecia

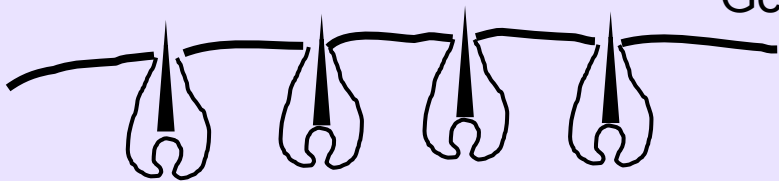
Hairs buried under the scalp



First step

Moderate alopecia

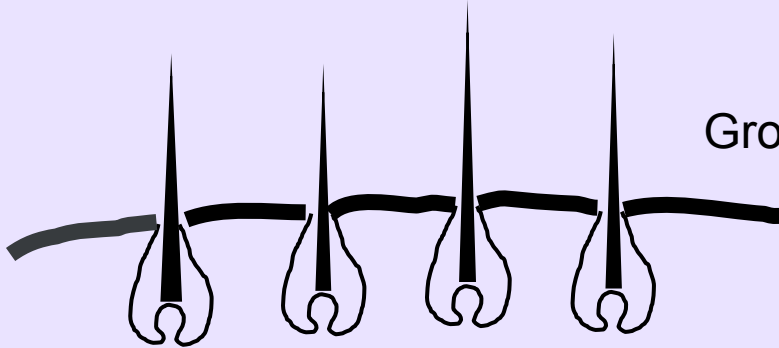
Germination of hair on the scalp



KESHIN → Second step

Normal

Growing of hair



Development of KESHIN

We collected ca. 300 Ayurvedic herbs known to be beneficial for hair and beauty.



We identified herbs that stimulate growth of the 6 cell types involved in hair formation.



We found a good combination of the above herbs that shows strong hair-promoting effect in non-human model systems.



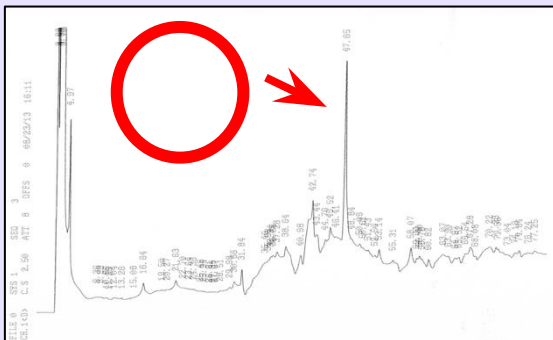
We confirmed the above hair-promoting effect in human monitors.

Lot Analysis of Herbs

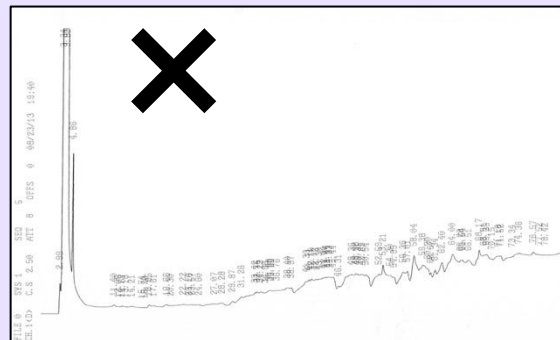
All herbs were subjected to lot analysis, and only best ones are used. The qualities of herbs vary to great extents depending on the seasons and places of harvest. Therefore, lot analysis is essential to ensure the effectiveness of KESHIN.

Example of lot analysis for one major herb in KESHIN

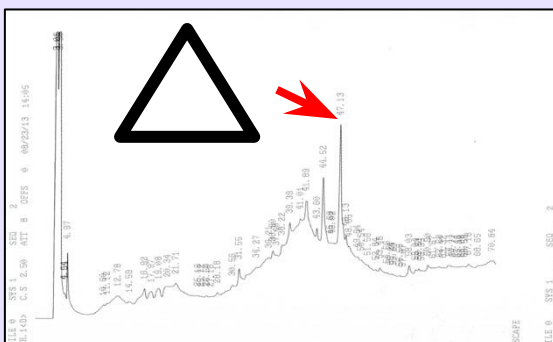
Lot: 1



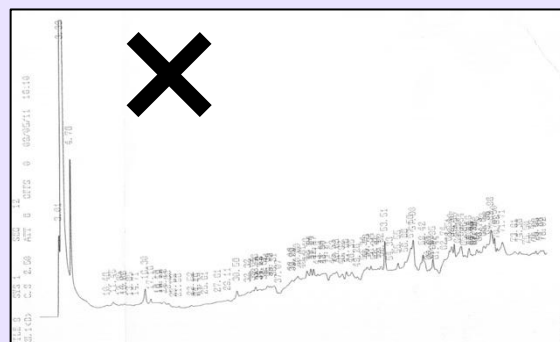
Lot: 2



Lot: 3



Lot: 4



Cell Types Involved in Hair Formation

Many cell types are coordinately involved in hair formation. Major cell types are shown in the table below.

No.	Cell type	Function
1	Epidermal keratinocytes	Formation of epidermis
2	Hair matrix cell	Formation of hair shaft
3	Dermal papilla cell	Regulation of the hair cycle
4	Sebaceous gland cell	Sebum secretion
5	Melanocyte	Pigmentation
6	Dermal fibroblast	Regulation of dermal papilla and hair matrix cells

Summary of Cell Research

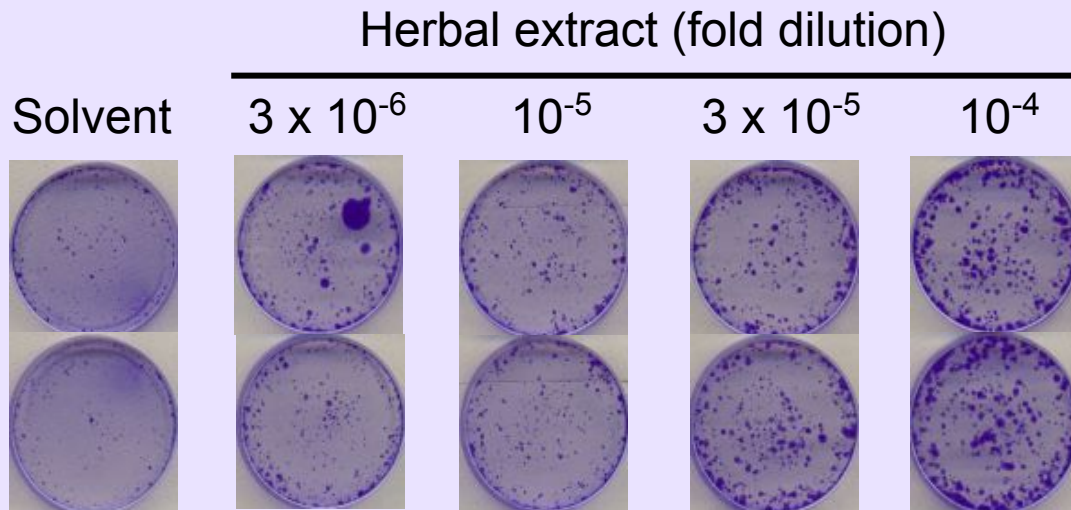
We examined various properties of ca. 300 Ayurvedic traditional herbs, which are known to be beneficial for hair regeneration. The results are shown in the table below.

Cell type	Analytical markers	No. of herbs identified
Epidermal keratinocyte	Growth stimulation	2
Dermal fibroblast	Growth stimulation	4
	Tolerance to UV irradiation	3
	Tolerance to oxidative stress	3
	Activation of the pro-collagen gene	5
Hair matrix cell	Growth stimulation	6
Dermal papilla cell	Growth stimulation	5
Melanocyte	Growth stimulation	1
Sebaceous gland cell	Growth stimulation	2

Example of Cell Researches

Example of one major herb in KESHIN

Experimental procedure: Epidermal keratinocytes were cultured in medium containing various concentrations of the extract of one major herb contained in KESHIN. After 1 week, colonies formed were stained with a blue dye to take pictures.

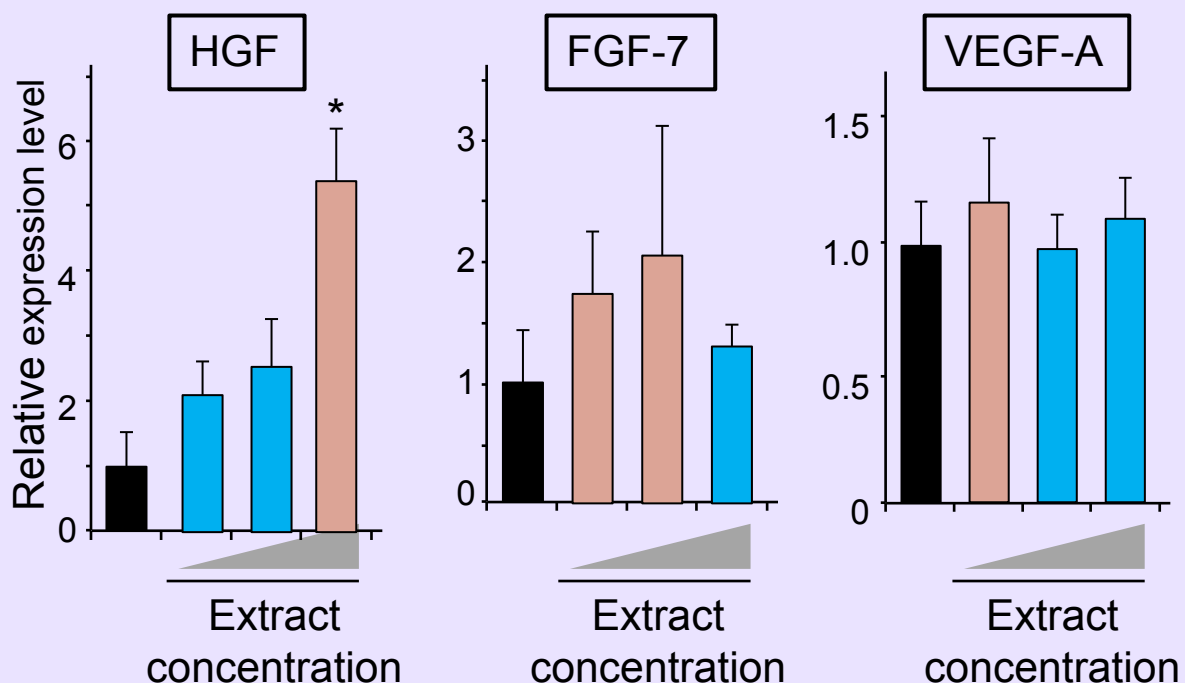


Results: The herbal extract greatly stimulated growth of epidermal keratinocytes. Biochemical analysis also indicated that the cells were rejuvenated.

Example of Biochemical Researches

Experimental procedure: The extract of herbal mixture used in KESIN was added to dermal pappila cells for 3 days, and expression of the 3 growth factor genes (below) was measured by real-time PCR method.

Gene	Function
HGF	Induction of resting hair follicle to anagen state
FGF-7	Stimulation of division of hair matrix cells
VEGF-A	angiogenesis



Herbs Used in KESHIN

No.	Botanical name	Known function
1	A	Anti-inflammation, Malaria
2	B	Urinary affections, Pimples, Diaphoretic, and Expectorant
3	C	Wound healing, Anti-inflammatory, Rheumatism, and Arthritis
4	D	Nervous irritation ,Psychosis, Epilepsy, and Anxiety
5	E	Stomach, Urinary tract, and Diabetes
6	F	Rejuvenate hair, Teeth and Bones , and Sensory organs
7	G	Immunity, Rejuvenate skin, and Combat premature aging
8	H	Dermatitis, Eczema, and Psoriasis
9	I	Alopecia, Anaemia, Swelling, and Inflammation
10	J	Anti-inflammatory, Hypotensive, and Allergic disorders
11	K	Skin color and Complexion, Psychosis, and Skin boils
12	L	Baldness, and Detoxification
13	M	Scabies, Acne, and Pimples
14	N	Fever, Laxative, and Blood purifying
15	O	Indigestion, and Longevity
16	P	Hair, Skin, and Detoxification
17	Q	Skin moisturizing
18	R	Skin moisturizing

Data in Non-Human Systems

Sample	Component	Score
Solvent	Gum, detergent, preservative, and water	1
Single herbs	Extract of herb F, G, P, or	2
Mixture of 3 herbs	Extracts of herb F, G, and P	3.5
Mixture of 6 herbs	Extracts of herb E, F, G, M, N, and P	4
Mixture of 16 herbs in oil	Herb A to P extracted in sesame oil	4
Mixture of 16 herbs	Extract of herb A to P	4.5
KESHIN	Extracts of herb A to P, moisturizers (Q & R), vitamins, amino acids, nucleosides , natural detergents, and preservatives	5

Score 1: no change in skin color

Score 2: skin color changed to black/gray (sign of hair growth)

Score 3: hair grew in dots

Score 4: hair grew in 1/3-1/2 area

Score 5: hair grew in all area

Monitor Test in Males

No.	Age	Stop of hair loss	Increase in hair volume	Regrowth of hair	Photo attached
1	28	+++	+	+++	A
2	36	+	+++	+++	B
3	37	+	-	-	
4	44	-	-	-	
5	44	+	-	+	
6	45	+	+	+	
7	45	++	+	++	C
8	47	+	+++	+++	
9	51	++	++	++	D
10	53	+	++	++	
11	55	+++	+++	+	E
12	55	+	+	++	F
13	61	+++	+	+	
14	64	+++	+	++	
15	65	+++	+++	+++	G
16	67	-	+	+	
17	67	+++	+++	+++	H
18	72	++	++	++	

-: little effect

+: weak effect

++: middle effect

+++: strong effect

Picture of Male Monitors

A. 28 y/o

Before

6 months



B. 36 y/o

Before

6 months



C. 45 y/o

Before

6 months



D. 51 y/o

Before

4 months



E. 55 y/o

Before

6 months



F. 55 y/o

Before

6 months



G. 65 y/o

Before

6 months



H. 67 y/o

Before

6 months



Summary of Monitor Test in Females

No.	Age	Stop of hair loss	Increase in hair volume	Regrowth of hair	Photo attached
1	23	+	++	++	
2	50	+++	+++	+++	A
3	56	+++	+++	++	B
4	57	+	+	++	C
5	57	+++	+++	+++	D
6	59	+	+	+	
7	63	+++	+++	+	
8	63	++	++	++	
9	67	++	+	+	
11	68	++	++	+++	
12	70	+++	+++	+++	E
13	70	++	++	+++	F

-: little effect
 +: weak effect
 ++: middle effect
 +++: strong effect

Picture of Female Monitors

A. 50 y/o

Before

4 months



B. 56 y/o

Before

5 months



C. 57 y/o

Before

6 months



D. 57 y/o

Before

6 months



E. 70 y/o

Before

6 months



F. 70 y/o

Before

6 months



Blackening of hair was observed in older monitors.

Comparison of Hair Care Components

	Herbal mixture	Adenosine	Minoxidil*	Finasterid*
Mode of action	Rejuvenation of the follicle and scalp	Production of FGF-7	Antihypertensive vasodilator	Inhibitor of steroid 5 α -reductase
Affected users	85% of the users showed marked effect irrespective of sex and age after 6 months	2-3% of the users showed slight effect after 6 months	2-3% of the users showed slight effect after 6 months	Less than 5% of the users showed slight effect after 12-24 months
Side effect	Not observed	Pruritus, and Folliculitis	Hair loss, eye irritation, itching, allergy, chest pain, dizziness, fainting, and heart beat	Diminished libido, ED, liver dysfunction, oligospermia, and depression
Remark	Strongly recommended	Not recommended	Not recommended	Not recommended

*J. Dermatology Association's approved medications
Acta Dermatovenerol Croat 2013;21(3):155-159

Conclusion on KESHIN

- KESHIN gave remarkable effects on hair regeneration in 85% of the monitors, giving satisfaction in 90% of the monitors.
- KESHIN worked irrespective of age and sex.
- KESHIN showed no side effect.



Please enjoy the outcome of the integration of Ayurveda, the world's largest traditional medicine, and modern life sciences.

We recently published a paper on rejuvenation of senescent cells in the Nature related Journal (<http://www.nature.com/articles/srep18722>).

Category: scalp essence
KESHIN means in Japanese: the
god of hair or extension of hair
In Sanskrit: one who has rich and
beautiful hair

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