



**SKINGREDIENTS**

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## INTRODUCTION

Skin acts as a barrier against the environment and so it is prone to taking a battering from external forces like the sun's harsh UV rays and pollution as well as internal forces like infection, inflammation and degradation through ageing.

Treating your skin right can really make the difference, especially for people who suffer from the most difficult of skin conditions such as acne. But knowing what skincare products work is a whole different scenario – most of us don't even know where to start.

Paying attention to ingredients is one way we can avoid being scarred (excuse the pun). That's why I've created this guide to the most commonly used skincare ingredients and some information on clinical trials to show how effective these touted cures actually are.

But before we get into the chemical compounds, it would be beneficial to have a quick recap into how the skin works so you can see how each chemical affects the natural processes already happening.

The skin is composed of two layers. The outer epidermal layer is highly cellular and provides barrier against external forces. The inner dermal layer carries the blood vessels and ensures strength and elasticity as well as giving nutrient support to the outer layer. Some consider the skin as having three layers. The third innermost layer of subcutaneous tissue (known as the hypodermis) which is made of fat and connective tissue is not really skin but is useful to know about with regards to the skin's function.

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Area	Epidermis(mm)	Dermis(mm)	Total Skin Thickness (mm)
Forehead	0.1	0.8	0.9
Periorbital	0.05	0.47	0.53
Cheeks	0.1	1.1	1.2
Chin	0.08	0.75	0.83
Neck	0.1	1.3	1.4

Skin thickness varies between regions of the face and also between body parts. Even at its thickest point, the skin is only a few millimetres thick but it is still our largest and heaviest organ weighing between 3.4 and 10 kilograms with a surface area of 1.5 to 2 square metres. In addition to acting as a barrier, it plays an important role in body temperature regulation and in storing fats, water and metabolic products.

The epidermis is made up of cells that produce keratin which are gradually pushed to the surface of the skin where they harden and die off into cells on the surface of the skin, providing protection and making it more resilient to outside forces.

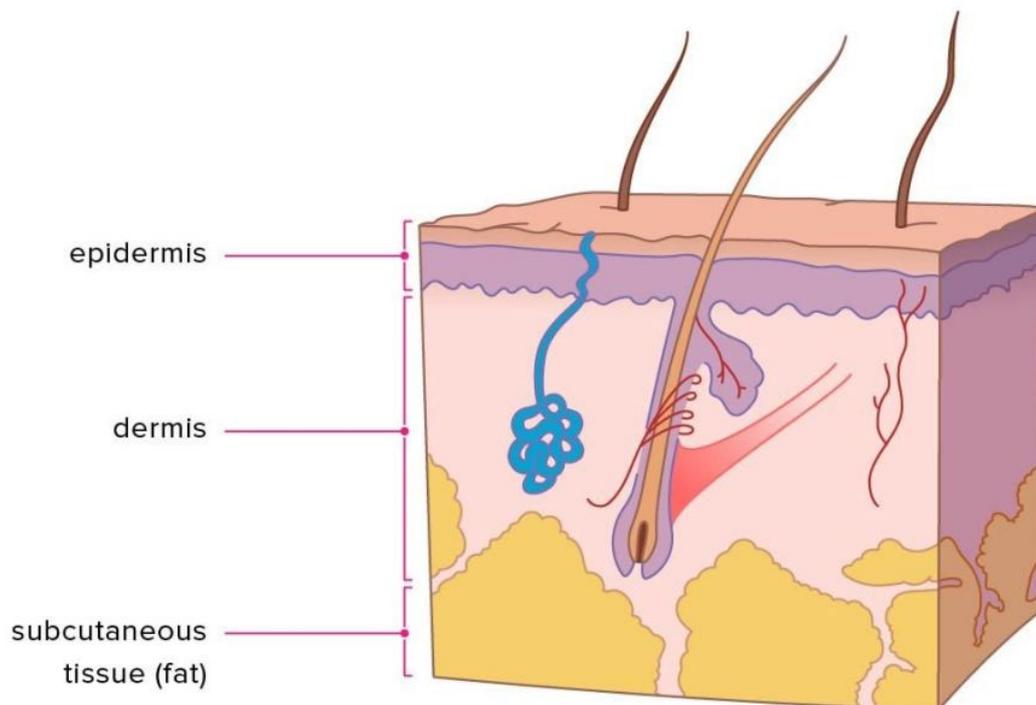
The epidermis also contains other types of cells with special functions:

- **Melanocytes** produce and store a black pigment called melanin. They produce more melanin when your skin is exposed to sunlight, which is how you tan. The melanin absorbs harmful UV rays from the sun to protect the skin. This is the skin's first line of defence against sun damage.
- **Lymphocytes and Langerhans cells** play an important role in fighting germs. They "grab" the germs and take them to the nearest lymph node.
- **Merkel cells** are special nerve cells in the skin that enable you to sense pressure.

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The dermal layer is made up of collagen fibres which make the skin strong, robust and sometimes stretchy. The more the skin stretches though, the more likely that it can tear the dermal layer and show up as stretch marks.

The subcutis and dermis layers both contain blood vessels and lymph vessels, as well as other structures like nerves, sweat glands, sebaceous (oil) glands, and hair follicles. There are many follicles and pores in our skin (openings in your outermost layer). The pores are usually surrounded by collagen for support, which is why skin pores become bigger as they lose the collagen support with age. If oil, bacteria and dead skin start blocking the pores of the epidermis, the likely result is acne.



# Ingredients to Look Out For

Good skin care ingredients help promote the skin's ability to shed dead cells, to protect us against UV and pollution and to keep the skin healthy and strong. Here are some of the top ingredients to look out for in your skincare products.

## Vitamin C (ascorbic acid)

Vitamin C is the most abundant antioxidant in human skin. Vitamin C deficiency is known as scurvy is characterised by skin fragility and is just one reason that scientists have identified vitamin C as a useful nutrient in skin health. Vitamin C is normally found in high concentrations in the dermis and epidermis, but this decreases with age.

When applied topically, ascorbic acid can penetrate the dermis due to its small molecular weight [2].

Its benefits in skincare include:

### **Photoprotection**

Ascorbic acid protects us from UV damage by neutralising free radicals caused by harmful UV rays.

### **Collagen Synthesis**

Ascorbic acid is not only essential for building new collagen in the skin, but also to strengthen collagen fibres. Furthermore, ascorbic acid also blocks enzymes in the body that break down collagen [3].

### **Skin Brightening**

Vitamin C interrupts the essential steps in melanin production, thereby reducing its production.

### **Anti-inflammation**

Vitamin C inhibits the release of inflammatory chemicals in our skin<sup>1</sup> including those induced by pollutants and inflammatory diseases such as acne and rosacea.

When choosing skincare, be sure to look out for ***L-ascorbic acid***, which is the bioactive form of Vitamin C

## Retinol / Vitamin A

Another good ingredient to look out for in skin care products is Retinol. Retinol is Vitamin A and part of the retinoid family – you may be familiar with prescription retinoid products, such as tretinoin, which are more potent but have a higher chance of irritation.

Retinoids are required for a vast number of biological processes as they interact directly with the nucleus of cells. Retinoic acid is the only form of retinoid that the body can use, and special enzymes in the skin exist to convert other forms of Vitamin A into retinoic acid. However, some are easier to convert than others [4].

As retinoids can cause predicted skin irritation, the key to using them is to start on a low dose and increase gradually over weeks. They can also be mixed with your moisturiser to reduce redness of the skin. Certain products contain encapsulated retinol, which is a great idea as the retinoids are released slowly in the skin and thereby reducing irritation. Retinoids can make your skin more sensitive to sunlight, therefore it is vital that you only use retinoids in the evening, wash your face in the morning, and apply a broad-spectrum sunscreen of SPF 50 or greater during the day.

## Alpha Hydroxy Acids

Alpha Hydroxy Acids (AHAs) are a group of organic carboxylic compounds. AHAs are typically similar to those found in food products including glycolic acid (found in sugar cane), lactic acid (found in sour milk), malic acid (found in apples), citric acid (found in citrus fruits) and tartaric acid (found in grape wine) — though the source of the AHAs in cosmetics is predominantly synthetic or from bacterial or fungal fermentations.

AHAs have a particular effect on the process of keratinisation. In short, keratinisation is the process by which the older cells of the dermis are pushed up into the epidermis and shed layers to ultimately become lifeless sheets of keratin. You can think of this process as natural exfoliation as the body pushes our dead cells out and replaces them with keratin: a tough fibrous protein that gives skin its resiliency and health.

AHAs have exfoliating properties and this, in turn, increases cell turnover. They have also been found to have dermal effects on photodamaged skin. Topical application can produce increased amounts of collagen and mucopolysaccharides which increase skin thickness and strength as well as improving skin texture and tone to give the skin a new glow.

Versions of AHAs to look out for in skincare products are *glycolic acid* and *lactic acid*.

## Beta Hydroxy Acids

More recently than AHAs, Beta Hydroxy Acids or BHAs have appeared on the scene. BHAs are less strong than AHAs but they have many of the same effects as AHAs. Some ingredients to look out for are:

- salicylic acid (or related substances, such as salicylate, sodium salicylate, and willow extract)
- beta hydroxybutanoic acid
- tropic acid
- trethocanic acid

Salicylic acid is the most commonly used BHA in skincare products. It is an exfoliant with soothing properties. The FDA approved its use alongside sunscreen because studies have also shown that the skin can be more perceptible to UV damage when salicylic acid is applied.

BHAs are well-known as an acne treatment, but it can also help calm down general redness and inflammation. This is because of their ability to dissolve dead skin cells on the surface of the skin and also the ability to get down into the dermis and pores to dissolve the oil and break apart the debris (that commonly leads to acne) inside.

It is common for skincare products to use both AHAs and BHAs for a combination effect. The reason for this is that AHAs are water soluble and BHAs are oil soluble which means BHAs can get down to the oil clogged pores. A great deep cleansing effect!

## Peptides

Oligopeptides are also more familiarly called peptides and they have been on the dermatological radar for quite some time. They consist of amino acids which are the building blocks of protein such as keratin, elastin and collagen. Peptides help keep our skin firm and intact, reduce the appearance of wrinkles and give our skin a smoother and bouncier texture.

Oligopeptide 10 or sometimes known as just peptide 10, has 15 amino acids that provides anti-microbial activity against p-acne-bacterium (which, as the name suggests, causes acne). Clinical studies have shown a significant reduction in the appearance of blemishes and red, blotchy spots after using products with Oligopeptide-10 – great ingredient for people with acne. It can also be found to be more effective when used in conjunction with salicylic acid.

## Azelaic Acid

Azelaic acid is a naturally occurring acid found in grains such as barley, wheat, and rye. It has antimicrobial and anti-inflammatory properties, which make it effective in the treatment of skin conditions like acne and rosacea.

It works by killing acne bacteria that infect skin pores. It also decreases the production of keratin, thereby restricting the growth of acne bacteria. Azelaic acid has been used for treatment of skin pigmentation including melasma and post-inflammatory hyperpigmentation, particularly in those with darker skin types. It has been recommended as an alternative to hydroquinone which we cover a bit later.

It does not appear to be as effective as AHAs or BHAs but when used in conjunction, it provides additional benefits of improved skin tone.

## Hyaluronic acid

Youthful skin retains its turgor, resilience and pliability, among others, due to its high content of water. Many external factors such as skin damage or UV rays can cause loss of water in the skin.

Hyaluronic acid is a substance that already occur in the skin naturally and is a major component of skin repair. Skin damage due to excessive UV radiation can lead to a reduction in the body's natural production of hyaluronic acid.

Hyaluronic acid is especially useful at repairing and rejuvenating the skin because of its ability to absorb 1000 times its weight in water. It is typically well known for bringing moisture to the surface of your skin and giving a radiant glow to people who use it regularly. Look out for it in your skincare products.

## Niacinamide

Niacinamide is one of three forms that vitamin B<sub>3</sub> takes; the other two include niacin and nicotinamide riboside – together they are known as the vitamin B<sub>3</sub> complex. Nicotinamide helps rebuild the skin's protective lipid barrier. It also helps in maintaining moisture/hydration, brightens the skin and reduces redness (thereby increasing the tolerance to retinoid products).

## Hypochlorous Acid

Hypochlorous acid is a weak acid that forms when chlorine dissolves in acid. Studies done with and without living organisms have supported antimicrobial, anti-inflammatory, and other biologic properties of hypochlorous acid (HOCl), which has led to its use in the treatment of skin wounds, pruritus, diabetic ulcers, and some inflammatory skin disorders. Getting results from hypochlorous acid depend on the PH and formulation stability when applied. The primary use of hypochlorous acid is for wound care with approval by the U.S. FDA in 2016 for treating wounds in animals and humans. It is completely non-toxic to human and has not had any major adverse side effects reported. It helps with the reduction of inflammation by directly killing micro-organisms that cause skin diseases.

## Succinic Acid

Succinic acid is an anti-microbial compound which naturally occurs in amber and plant and animal tissues. We are starting to discover that succinic acid is not just a good sweetener, as it can also be used for its anti-inflammatory and antioxidant properties. It is well recognised for treating chronic skin conditions such as eczema as well as reducing spots and blackheads and reversing the signs of ageing.

Succinic acid has a wide array of cosmetic uses:

- **Antimicrobial agent** – unlike other antimicrobial agents, succinic acid is highly water soluble and therefore very useful as a topical skin care treatment.
- **Anti-acne treatment** – has been used as an effective alternative to salicylic acid.
- **Antioxidant activity** – it can be used as an anti-pollution agent and helps with the stability of other cosmetic agents.
- **Collagen degradation inhibitor** – some studies show it has an anti-ageing affect.
- **Mitochondrial activity enhancer** – it can enhance mitochondrial activity in skin cells and show skin energising and revitalizing effects.
- **Cell hyperproliferation prevention** - may be useful in the prevention of hyperproliferation at skin level, such as psoriasis or hyperkeratosis.

## Glutathione

Glutathione (GSH) is an antioxidant in plants, animals, fungi, and some bacteria. It is known most for preventing damage to important cellular components.

Glutathione has many important functions, including:

- making DNA, the building blocks of proteins and cells
- supporting immune function
- forming sperm cells
- breaking down some free radicals
- helping certain enzymes function
- regenerating vitamins C and E
- transporting mercury out of the brain
- helping the liver and gallbladder deal with fats
- assisting regular cell death (a process known as apoptosis).

More recently, glutathione has been revealed as a treatment for skin lightening and hyperpigmentation. As a topical treatment, glutathione can be very effective.

## Hydroquinone

Hydroquinone is a compound that is part of the phenol family of chemicals and is also a derivative of benzol. It was once hailed as a topical application for skin lightening and is known to get rid of skin pigmentation very effectively, but has most recently become a prescription only ingredient under European Union Directives 76/768/EEC:1976.

In 2006, the U.S. FDA revoked their previous approval of the drug for over the counter use stating that they could not rule it out as a potential carcinogen.

Hydroquinone is sometimes combined with AHAs that exfoliate the skin to quicken the lightening process. In the U.S., topical treatments usually contain up to 2% in hydroquinone. Otherwise, higher concentrations (up to 4%) should be prescribed by a doctor and used with caution.

## Acetyl Hexapeptide 8

Acetyl hexapeptide 8 is a synthetic anti-wrinkle cosmetics ingredient. It is a peptide which mimics the action of botulinum toxin. The muscle-relaxing effect however, only lasts for a few hours upon application. It is touted as being able to temporarily reduce the depth of wrinkles around the forehead and eyes. Unlike botulinum toxin injections, application of acetyl hexapeptide has no long term benefit on skin quality or muscle tone.

## Vitamin E

Vitamin E is a fat-soluble antioxidant protecting cell membranes from reactive oxygen species and has a soothing effect in skincare products. Vitamin E potentiates the action of Vitamin C four-fold [5]. Thus Vitamin C and Vitamin E work together to protect skin cells [2].

## Benzoyl Peroxide

Benzoyl peroxide is commonly used as an acne treatment. It works by killing the *propionibacterium acnes* bacteria linked to the skin condition of acne. It is commonly used in conjunction with salicylic acid or antibiotics such as clindamycin.

Benzoyl peroxide, when being used to treat acne, is usually started on a small dose and increased as tolerance increases. This is because initial skin reactions of burning, itching, crusting and swelling have been found in patients.

The fact is, benzoyl peroxide can reduce acne but it must be used safely and in the right proportions, under the direction and supervision of a qualified healthcare professional. Make sure to consult a doctor when using this in your skincare routine.

# Trusting Your Skin

Ultimately, we all want a skincare product that works. This guide is really about highlighting the fact that your skincare routine is an investment, but it doesn't have to be expensive. With the right products and right ingredients suited to your specific needs, you can get the results you deserve.

The truth is, every person's skin is different and so your skincare routine should be tailored to your unique set of needs. There usually isn't a skin care product that just happens to work for everyone which is why it's so important to highlight the major ingredients and explain what they do and how they help so you know exactly what to look out for in skincare products.

For something more tailored to you, consult a skincare professional like myself. My name is Dr. Vincent Wong and I am a cosmetic doctor specialising in skin health and facial balancing and harmony. I have been in the field of Facial Aesthetics for a long time – I am a global key opinion leader for leading brands in aesthetics and have also won several awards for my work, including receiving a royal warrant, being shortlisted as one of the Ultimate 100 Global Aesthetics Leaders, being named 'Best Doctor for Anti-Ageing' by Social and Personal Magazine and receiving the Practitioner of the Year Award by Sinclair Pharma. Additionally, I am also on the judging panel for industry awards such as 'My Face My Body' in the UK and US, as well as Miss Universe Great Britain.

*If you would like to book in with me, a skincare consultation can be done from your own home for just £49, provided you have a video link and you're sitting in an area with good lighting. To set-up a virtual consultation with me today, [click this link](#). Alternatively, you can also email me at [info@drvincentwong.com](mailto:info@drvincentwong.com).*

## References

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Dr. Vincent Wong is one of London's leading cosmetic doctors. He is trained in advanced non-surgical cosmetic treatments and is a specialist in facial balancing and harmony. GMC registered, he holds a Bachelor of Science in Medicine (First Class Honours) from the University of St Andrews and a Bachelor of Medicine and Surgery from the University of Aberdeen. Prior to completing his medical aesthetics training, Dr. Vincent gained extensive experience in general and plastic surgery, and in dermatology.

Dr Vincent has won a number of awards for his work and has been shortlisted as one of the Ultimate 100 Global Aesthetics Leaders. He is also on the judging panel for Miss Universe Great Britain as well as My Face My Body Awards (UK & USA). In addition, Dr. Vincent also specialises in feminisation and masculinisation of faces within the LGBTQ+ community.

He is committed to delivering the highest standards of aesthetics treatment and to ensuring other practitioners are as well. He regularly runs training courses and workshops for other healthcare professionals and mentors junior doctors.

Dr Vincent is actively involved in research and has over 35 scientific publications. He often presents his work and research at national and international conferences, including Facial Aesthetic Conference and Exhibition (FACE), Aesthetic Medicine Live (AML), Aesthetics Conference & Exhibition (ACE), Clinical Cosmetic & Reconstructive Expo (CCR), those hosted by the British Association of Plastics, Reconstructive and Aesthetics Surgeons (BAPRAS), and the British Association of Dermatology (BAD).

He is often sought after for his expert opinion and has featured in a number of popular press (Vogue, Forbes, Grazia and Tatler) and on various television channels. He has also appeared on various radio chat shows, including BBC Radios.