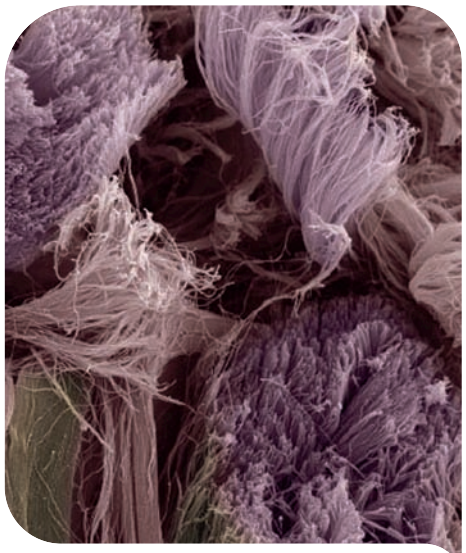

Collagen Collife


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The condition of the skin has a strong influence on the condition of the whole body and the state of mind, and thus on the quality of life.

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# The Skin

The skin is much more than just our outer shell. It is the biggest organ of the human body. It acts as a barrier between our bodies and the environment. At the same time, it is thanks to the skin that we can communicate with the environment and express our emotions.

The functional perfection of the skin is ensured by its three-layer structure. The three main layers of the skin differ in terms of thickness, structure and function. The hypodermis, the lowermost layer of the skin, consists mainly of lipocytes. It stores energy, insulates the body and protects it from injuries by making it possible for skin to move over muscles and bones.

The epidermis is the outermost layer of the skin. It consists mostly of maturing cells called keratinocytes and has four layers: stratum germinativum, stratum spinosum, stratum granulosum and stratum corneum. The epidermis is the most biologically active layer of the skin and has many functions. Thanks to the keratin content, it protects the body from harmful chemical, mechanical and biological external factors and prevents excessive loss of water, while the presence of melanin makes it possible to filter UV radiation.

The thickest layer of the skin is the dermis, built in 75% of the protein called collagen. It forms a spatial network of elastic collagen fibres, interwoven with blood and lymphatic vessels and numerous nerve endings. It also contains sweat and sebaceous glands. Collagen fibres are connected with flexible fibres of another protein – elastin. Elastin constitutes less than 5% of total dermis weight. Although the two proteins differ in terms of their structure, they are both produced by the same group of cells called fibroblasts.

The structural elements mentioned above are immersed in the extracellular fluid, which, thanks to the drainage provided by capillaries, acts as a liquid ìmeans of communication between blood and skin cells. It transports nutrients and products of metabolic processes of tissues. The extracellular fluid consists mostly of a mixture of macromolecular protein-polysaccharide units called proteoglycans. The remaining constituents are dissolved collagen and other proteins, chondroitin sulphate, hyaluronic acid, mineral salts and enzymes: hyalurnidase, collagenase and elastase. The dermis contains a significant amount of water. Proteoglycans found in the extracellular matrix can retain large amounts of water. They are also responsible for water turnover and transport of ions in the skin. About 20 to 40% of body water is retained in skin, and its greater part (70%) is retained by collagen, biopolymer with outstanding water-binding qualities.

Dermis also contains sensory receptors, directly connected to the nervous system. They respond to cold, heat, touch and pain, and transmit those sensations through the spinal cord to the brain. What is more, the dermis is responsible for the metabolism of epidermis cells, as there are no blood vessels in the epidermis, and regulates body temperature through controlling the blood flow and sweat secretion. Apart from receiving stimuli, the dermis also gives the body a shape by covering and connecting all its elements, a function which would be impossible without collagen.

Picture shows collagen fibres at high magnification.

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Collagens constitute 30% of all human body proteins and 70% of the proteins in skin.

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# Collagen

Collagen is a very wide term, referring to the most numerous group of structural proteins that are found in all animals.
A characteristic feature of collagen is its spatial structure of three intercoiled strands.
What makes this structure exceptional is the fact that the collagen helix is left-handed, while right-handed forms dominate in the living world. This avant-garde idea of nature turned out to be so successful that it virtually resisted evolution. Collagens of similar structure are found in various organisms, from coelenterates to fish to mammals. This amazing protein has been found in dinosaur fossils and in our human ancestors from 5000 years ago.
Collagen are the basic component of conective tissue, which forms joints, bones, ligaments, teeth, skin and fascia. They are a foundation for the entire structure of the human body. There are no tissues or organs that do not contain these remarkable proteins. Over 20 types of collagen have been identified so far.
They are classified in three basic groups: fibryl-forming, network-forming and fibryl-associated collagens.

Majority of fibryl-forming collagens is produced by fibroblasts. Biosynthesis of collagen requires typical amino acids and is controlled by the endocrine system. Vitamin C and iron are indispensable to the process. The basic form of collagen is procollagen, a peptide chain of outstanding regularity and composition which determines its left-coiled spatial structure. A sequence of enzymatic reactions inside a fibroblast gives a collagen molecule the characteristic feature that determines its unique physical properties. Three procollagen chains are connected in a structure called superhelix, which resembles a three-strand rope. In this way tropocollagen is formed, a basic structural unit of all collagens.

Tropocollagen undergoes final enzymatic treatment as it leaves fibroblasts. Tropocollagen fibres secreted to the extracellular fluid are 300nm long and 1.5nm wide and are soluble in water. A superhelix of type I collagen consists of two identical and one different polypeptide chains. In case of type II collagen, all its chains are the same. Different combinations of procollagen chains determine characteristic properties of different collagen types.
In the skin, the most abundant collagen is type I collagen. Tropocollagen secreted to the extracellular fluid by fibroblasts, cells found in the dermis, undergoes a process in which tropocollagen molecules bond to form collagen fibrils and fibres. Collagen fibres in turn cross-link with one another to form an elastic structure resembling fabric. This last stage of collagen production requires copper ions.
A mature collagen biopolymer becomes strong, insoluble in water and resistant to enzymes. Collagen fibres are diagonal to one another and parallel to the skin, which gives the collagen tissue the characteristic quarter-staggered form.

In the course of our life, collagen is constantly distributed in the dynamic process of collagen rotation. It makes it possible for the body to grow and regenerate damaged tissues.
Collagen in the bodily fluids, in the soluble form of tropocollagen, reaches all tissues, relieving deficits in their structure. At the age of 25, the process of synthesis of new tropocollagen slows down. The mature form of collagen begins to dominate in tissues and, what follows, the ability of the body to retain water gradually diminishes. The most noticeable effects of this are wrinkles, dry skin and loss of firmness and suppleness. The physical and chemical changes in collagen fibres become the most marked at the time of male and female menopause, when the degenerative processes begin to dominate. The hormonal changes result in decrease of collagen synthesis intensity, which in turn leads to deficiency of collagen in hydrated form in the extracellular fluid.
The body visibly ages, deprived of the means to repair the damage.

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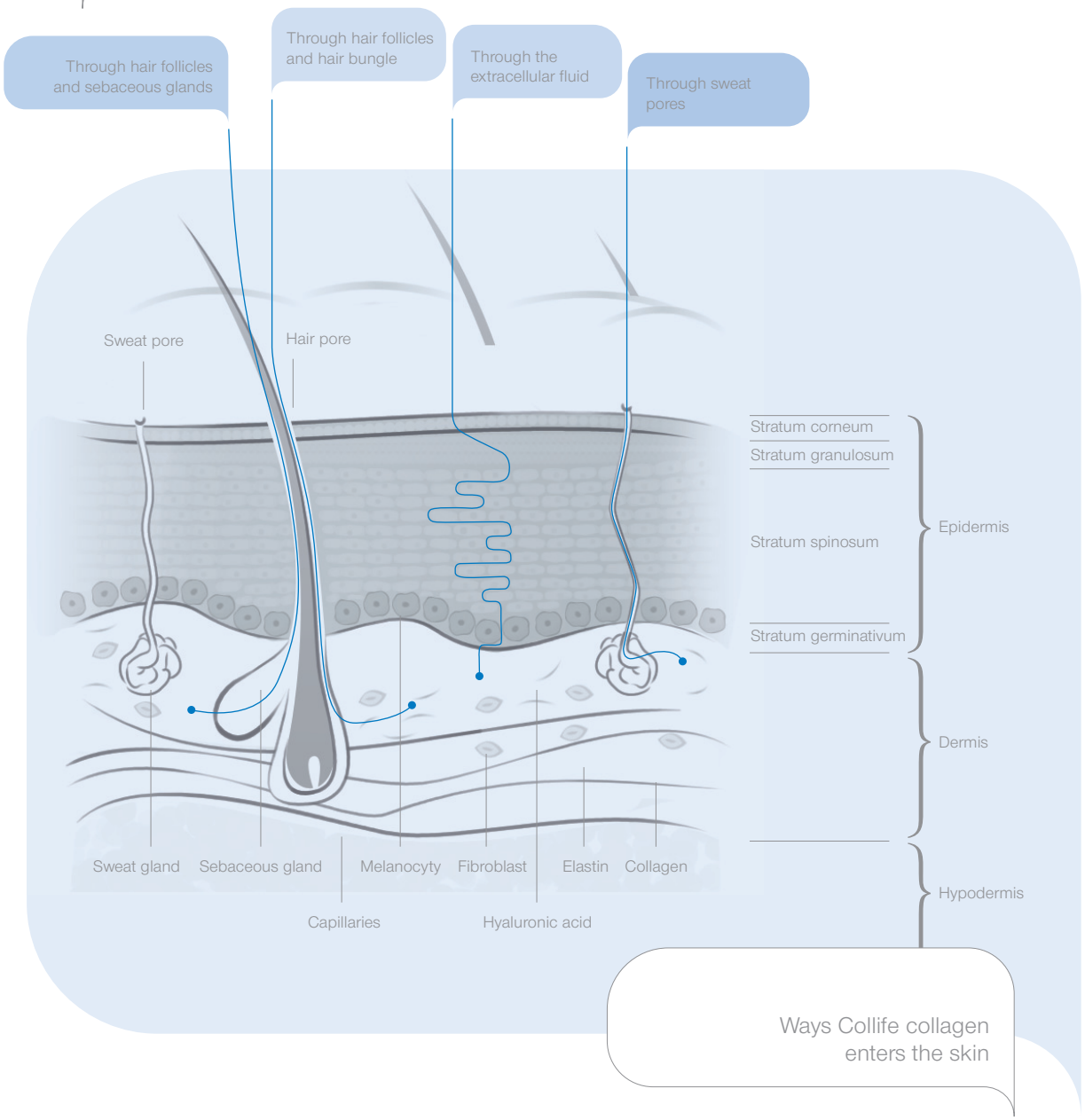
Collife collagen acts in the deep layers of skin, stimulating the natural physiological processes and providing visible and lasting effects.




Ways Collife collagen enters the skin

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## Bioavailability

Collife collagen is an outstanding achievement of cosmetology, whose aim is to restore beauty and vitality with the use of developments of interdisciplinary knowledge.
The properties of Collife collagen result from the patented method of production, which consists in bitransformation of natural raw material. The method used in obtaining Collife collagen makes it possible to isolate undamaged, active molecules of tropocollagen in hydrated form. Those molecules are successfully assimilated by the human body and used to repair the damaged collagen structure in skin and other organs.

## Permeability

To successfully enter collagen rotation in the body, collagen applied externally has to pass the skin barrier. Collife collagen effectively passes the barrier of epidermis. Studies have shown its ability to reach the dermis, where it can interact with its structure and have significant influence on retaining water in the extracellular fluid of the dermis. The possible way inside the skin for Collife collagen are skin pores, whose diameter is a few hundred times bigger than the diameter of a collagen molecule. What is more, collagen molecules can also enter the skin through 10nm-wide gaps between epidermis cells.

## Stability

In order to be useful in cosmetics and preparations used in aesthetic medicine treatments, active molecules must be stable in the conditions where they are stored and applied. Collife collagen remains biologically stable in human body temperature, thanks to which it does not deactivate immediately after application. What is more, despite its natural origin, it is highly resistant to bacteria, viruses and fungi. The high biological stability of Collife collagen is ensured by its high degree of biological cleanness. The preparations contain no raw material cells, which makes them suitable to all skin types, irrespective of age and the nature of defect that requires attention. With no artificial colours or fragrances, they are neither irritant nor allergenic.

## Lifting properties

The essence of Collife collagen is the process called biomimetism, observing solutions developed by nature and imitating them.
Active Collife collagen enters the dermis, mimicking the function of young cells, which, with age, produce insufficient amount of collagen. Collagen applied transdermally relieves the deficiency of collagen in skin. This invigorating influx of protein visibly strengthens the skin and compensates water deficiencies in its deep layers. As a result, the skin becomes more elastic, firm and supple, wrinkles are flattened and the oval of the face is visibly lifted after only a few days of using Collife collagen.

## Regenerative properties

Collife collagen improves the appearance and condition of skin in the place of application, but its effects are not limited to just lifting. More importantly, Collife collagen helps to reconstruct the structure of skin, restoring its ability to retain water and stimulating regenerative processes. Regeneration of skin cells is a process that requires time, which is why the preparation should be applied daily, in the morning and in the evening. Treatment with collagen gives long-lasting effects because it stimulates the natural mechanisms in skin.
Active Collife collagen effectively slows down the aging processes in skin by encouraging synthesis of natural collagen, which results in proper functioning and good condition of all skin layers.

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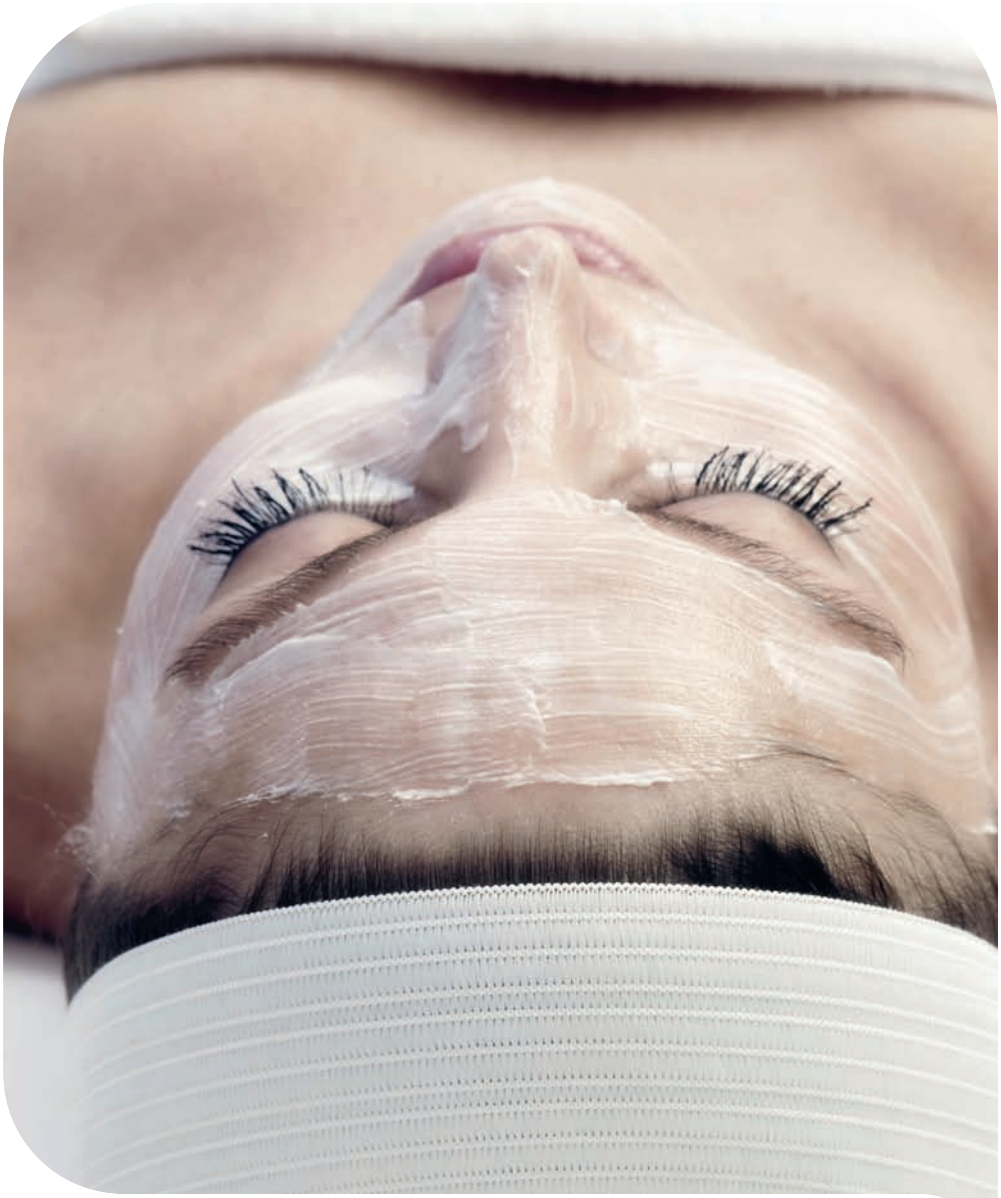
# Using Collife preparations at home



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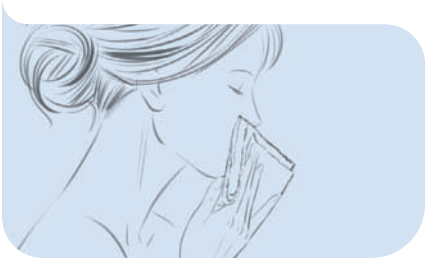
## 1. Washing

The skin has to be prepared by cleansing and opening the pores of skin, through which collagen is absorbed. The first step in Collife treatment is washing the area where collagen will be applied with warm water. The recommended method is to wipe the skin with a soft wet towel. Dead skin cells will be removed without irritating the skin.



## 2. Toning

Do not dry the skin after washing, but moisten is additionally with Tonic pre-CLEANSING Collife, which opens skin pores and improves their ability to absorb collagen. Collife collagen should always be applied over wet skin

## 3. Application

Collagen Collife should always be applied with a disinfected spatula or spoon made of silver or stainless steel.
Never apply the preparation with your fingertips directly from the pot. Apply a suitable amount of Collife collagen to the area and massage and pat it lightly into the skin for 2-3 min. Once the preparation has been absorbed, you can add another portion, according to needs.

## 4. Moisturising

After 2-3min of massaging in Collife collagen you will feel your skin gently tighten.
This is when you should moisten the area with Tonic post-MASSAGE Collife and continue patting and massaging the remaining preparation into the skin. You can repeat the procedure several times, until you feel your skin is thoroughly moisturised.

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Collagen treatment conducted according to the instructions will make your skin pleasantly soft and everyone will notice how healthy it looks.

About a quarter of an hour after the treatment, gently apply your favourite day or night cream. Collagen treatment with Collife preparations should be applied twice daily, in the morning and evening, over your face, neck and shoulders. The preparations should be stored out of light at the temperature of 4-30$^{o}$C.

A series of collagen treatments has been developed for use in beauty salons.
They are available at www.collife.pl.

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Collagen White Collife is a preparation based on white collagen, designed to be used at home. It is available in airless bottles, which ensure protection of the protein structure and ease of application. Collagen White Collife is recommended for everyday skin care of your face, neck and shoulders. It may be used in beauty salons and rejuvenation clinics as part of healing procedures and regenerative treatments. It is especially recommended for skin with acne, oily skin, in removing blackheads and for face lifting.

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Collife preparations contain two kinds of collagen, white and black, which differ in their melanin content.


Collagen Black Collife is a preparation based on black collagen. Its characteristic dark colour results from natural melanin content.
This pigment gives colour to the hair and protects the skin from UV radiation by producing suntan. The unique combination of collagen and melanin supports restoring the natural colour to hair, eyebrows and eyelashes. Collagen Black Collife is recommended for skin in places where stretch marks may appear. Thanks to its photoprotective qualities it can also be used both before and after sunbathing. It is also recommended for male reproductive organs care and groin skin care in both men and women, as it increases sexual comfort. Collagen Black Collife can be also support treatment of joint and muscle pains, as well as neuralgias.

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## Enriched preparations


Collagen White with hyaluronic acid Collife is one of the series of preparations that are enriched with other agents. Hyaluronic acid used in this preparation is, apart from collagen, the most important biopolymer in connective tissue responsible for water retention. It is present in all living organisms and it chemical structure is identical in both bacteria and human beings.

One hyaluronic acid molecule can bind as many as 250 water molecules. Collagen White with hyaluronic acid Collife stimulates cellular regeneration of the skin, which results in flattening of wrinkles and furrows. It is especially recommended for face, neck and shoulders, where it restores youthful firmness and suppleness.

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Collagen Black with hyaluronic acid Collife is a preparation for the whole body. Its composition is based on black collagen, naturally rich in melanin, and hyaluronic acid and provides deep, intensive and lasting moisturizing. Compensating water deficiencies stimulates natural mechanisms of skin regeneration. Additionally, because of its melanin content, the preparation strengthens the resistance of skin to UV radiation.
The aging processes in skin slow down and the whole body looks noticeably better.

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Collife Collagen tears are a unique combination of white Collife collagen and Ringer's solution. The formula is designed to care for the eyes, especially if they are tired or reddened.
The collagen in the preparation helps to regenerate the cornea and virteous body of the eye, which become clouded with age and collagen destruction. Collagen tears should be gently massaged into the eyelids at least twice daily, 2-3 drops to each eyelid.

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## Supplementary preparation


Tonic pre-CLEANSING Collife prepares the skin for treatment with collagen by clearing and moisturising it. It opens the pores, making it possible for collagen to reach the deeper layers of skin. Tonic pre-CLEANSING Collife should be used to moisten the face directly before applying Collife collagen preparations. Toning the face with Tonic pre-CLEANSING Collife increases the effectiveness of collagen treatment.


Tonic post-MASSAGE Collife makes absorbing collagen during collagen treatment easier. When the skin begins to feel tight, moisten place of application with Tonic post-MASSAGE Collife and resume massaging in the remaining preparation. Tonic post-MASSAGE Collife stimulates the absorption of the collagen, thanks to which the skin is lastingly nourished and moisturised

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www.sklep.collife.pl

We offer delivery by a courier or our consultant. Payment on delivery or by bank transfer.

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