

ARK[®]
AGE AWARE SKINCARE

Age Aware Skincare
INGREDIENTS

INGREDIENTS

The ARK Age Aware Skincare range focuses on 3 main ingredients groups that answer the needs of the skin during the 3 ARK skin transition periods. Just as we have explained that as we grow older our skin's needs change, at the same time we need to alter and upgrade the selection of these ingredients, thereby intensifying the treatment as we move from one transition period to another.

We have put together a powerful and unique combination of ingredients in each range, designed to combat the causes and effects of free radical activity, inflammation, dehydration, breakdown of collagen, weakened immunity and loss of hormones by feeding the skin with essential nutrients and vitamins to help repair the skin and protect it from further damage.

The 3 main ingredients groups are:

Lipids

Lipids are fats which form an essential structural component of living cells. Essential fatty acids, such as Omega 3, 6 and 9, are part of the lipid layer in the skin and help maintain its condition, hydration, suppleness and elasticity as well as helping to suppress the inflammatory response and to replenish skin tissue. The skin is not able to synthesise essential fatty acids and therefore they have to be obtained via diet or topical skincare products.

Antioxidants

Antioxidants are a group of vitamins, minerals, and enzymes that help protect the body from forming free radicals. Free radicals are atoms or groups of atoms that are highly reactive and can combine with enzymes, proteins and DNA causing cell damage and malfunction. The older we are, the more we are susceptible to an ever-increasing free radical load both internally and externally. Antioxidants can actively scavenge free radicals, provide active protection against free radical activity and give anti-inflammatory defence.

Vitamins

Vitamins help protect the skin against damage in a number of ways, for example: regulation of collagen synthesis (Vitamin C), stimulation of collagen formation (Vitamin A), improvement of skin elasticity (Vitamins A and C), prevention of photo damage (Vitamin A), prevention of UV damage (Vitamins C and E) and provision of antioxidant protection (Vitamins A, C, and E).

The ingredients are grouped to work together and each combination is upgraded to work harder as we progress from **age prepare** to **age maintain** to **age repair**:

age prepare – protection for younger skin

Lipids: Avocado & Peach Lipids (Category 2 skin lipids, rich in oleic acid (Omega 9))

Antioxidant: White Tea (protects the DNA of skin cells thereby preventing premature ageing)

Vitamin: E (reinforces the prevention of UV damage and antioxidant protection)

age maintain – nourishment for skin showing signs of ageing

Lipids: Kiwi & Passion Fruit Lipids (Category 3 skin lipids, containing high levels of Omega 3 and Omega 6 fatty acids)

Antioxidant: Blue Lotus (protects the skin cells from oxidative stress, inhibits the breakdown of collagen, anti-inflammatory effects)

Vitamin: A (stimulates collagen formation and helps improve the skin's elasticity)

age repair – support for mature skin with established signs of age

Lipids: Blackcurrant & Starflower Lipids (very high levels of GLA and rich in Omega 6 fatty acids)

Antioxidant: Gojiberry (rated No. 1 on the ORAC (oxygen radical absorbance capacity) scale – contains 5 times the antioxidant activity of any other fruit and 15 times the antioxidant activity of any vegetable)

Vitamin: C (regulates collagen synthesis and supports the prevention of UV damage and the provision of antioxidant protection)

Ingredients for **age prepare**, **age maintain** and **age repair** products

age prepare – protection for younger skin

Anti-pollution Algae

skin vitality moisturiser, skin purifying masque

Combination of botanical antioxidants and functional marine polysaccharides (complex carbohydrates), used to increase the resistance of the skin to environmental injury and insult, and decrease inflammation resulting from internal and externally induced oxidation.

The polysaccharides act to attract and bind heavy metals and other environmental pollutants, thereby prohibiting them from passing through the deeper layers of the skin and into the body where they can damage tissue and skin. The botanical antioxidants then help to neutralise resulting inflammation from the pollutants themselves as well as the sun, stress, hormones and other factors that can generate free radicals.

This unique combination of nutrients helps to protect and treat the skin from its major sources of ageing and cancer.

Avocado and Peach Lipids

skin clear cleanser, skin vitality moisturiser, skin refining exfoliator, skin purifying masque

The avocado has long been used therapeutically as it is abundant in a variety of different nutrients. It is a rich source of Vitamins A, C, D, E as well as Omega 9 fatty acids and Potassium. In fact, the avocado is higher in Potassium than the banana, and it is this property that helps the combined nutrients penetrate the skin evenly and quickly.

The fatty acids make up more than 20% of the avocado and include palmitic, palmitoleic, stearic, oleic, linoleic and linolenic, all of which contain sterolins (proteins) that reduce age spots, heal sun damage, and provide moisture and soften the skin.

Peach extracts are high in mineral salts, vitamins and pectins that are not only emollient in nature but very hydrating. The peach is also high in omega 9 oleic acids that are more easily absorbed through the skin barrier than unsaturated oils. This makes the peach lipid a great carrier or base to transfer other nutrients to the lower layers of the skin.

Bentonite Beads

skin refining exfoliator

Bentonite beads are made from natural Bentonite Clay, processed to form small granules. Bentonite Clay absorbs excess oils to purify the skin. Their exfoliation action is due to the micronised particles suspended in the product, creating friction on the skin.

These small beads help to remove dead skin cells and impurities from the skin's surface, refine skin texture and clear pores. Over a few minutes, the beads naturally dissolve, signalling the end of the exfoliation step.

Creatine

skin vitality moisturiser

A natural amino acid derivative shown to play an important role in revitalising cell energy metabolism, supporting skin protection and increasing moisture.

Physiologic skin fatigue and the early signs of ageing are caused by stress and environmental impact. The underlying process involves a decrease in available energy stored within skin cells along with reduced capability to synthesise proteins such as collagen, elastin, and keratin. As cells are exposed to increased oxidative stress as they age, the amount of energy required for internal defense is higher. Providing adequate energy support is therefore vital to combating stress and ageing.

The "cell energising" effect of Creatine was assessed in vitro in human keratinocyte cell culture. The keratinocytes were incubated with Creatine for 24 hours at 37 °C after which cell vitality was measured. The results showed that the vitality of the cells treated with Creatine was about 60% higher than controls.

Kaolin Clay

skin purifying masque

Kaolin Clay is high in Calcium, Silica, Zinc and Magnesium which are beneficial for oily, blemished skin. The clay's mildly drying and disinfectant properties help heal existing blemishes and inflammations while preventing new ones from forming.

Loofah

skin refining exfoliator

A fibrous plant material obtained from the fruit of the Luffa Cylindrica. The dried luffa particles swell in the presence of water, thereby creating a gentle natural exfoliating effect and helping to stimulate circulation.

Margosa Leaf Extract

skin refining exfoliator

All parts of the Margosa plant are highly regarded in medicine. The stem bark is an astringent and antiperiodic (prevents regular recurrence of symptoms), the root bark and fruits are used as bitter tonics. The flowers are used for dyspepsia (indigestion) and the berries are purgative (cleansing), emollient and anthelmintic (destructive to parasitic worms). But the leaf is by far the most important and its extracts are antiseptic, antifungal, antibacterial and antiviral. Its active ingredients are so strong that it has been shown to inhibit E coli and Candida albicans replication.

Used topically, the Margosa Leaf extract is a fabulous antiseptic that helps to clean deep into the layers of the skin, especially in exfoliators where the dead rough surface has been removed. This is an ideal extract to help prevent acne, infections, and keep dry irritated skin clean.

Multivitamins

skin purifying masque

An anti-ageing and antioxidant blend of vitamins encapsulated to ensure their sustained and controlled release onto the skin:

Vitamin A: Treats & reverses photodamage

Vitamin C: Regulates collagen synthesis & antioxidant

Vitamin E: Antioxidant & provides photoprotection

Vitamin F: Cellular regeneration of membranes & tissues

Oat Amino Acids

skin clear cleanser

Oat based amino acids are the base ingredient used in the cleansers. They contain foaming anionic agents extracted from vegetable sources. During extraction, an odour free, low colour mild surfactant is produced that allows higher cohesion between bubbles, giving a creamier feeling to the cleanser. In addition, the lamellar structure (composed of flat, thin layers) holds the bubbles together with greater strength, providing stability and durability. Both properties make the Oat Amino Acids ideal solubilising foaming base ingredients for cleansers. Washes away impurities whilst respecting the skin's natural barrier.

Olive Emulsifier

skin vitality moisturiser

Olive oil is rich in several different types of antioxidants such as polyphenols, flavonoids and catechins. These important nutrients decrease free radical inflammation and help slow the ageing process of the skin. The strength of the free radical quenching ability has been shown to be more powerful than that of tocopherols (Vitamin E) and is therefore used widely in the cosmetic and pharmaceutical industry to prevent skin damage.

Olive oil easily penetrates to the deep layers of the skin, carrying with it other nutrients that it is combined with, making it an ideal vehicle to transport other active therapeutic ingredients into the skin and body.

Olive oil is hypoallergenic, and therefore suitable for all skin types. It also stimulates new cell generation giving the skin a fresh, youthful glow. It also tightens and tones the skin, decreasing the development of wrinkles, reduces inflammation and helps treat dry irritated conditions such as eczema and psoriasis with its valuable concentration of Vitamin E and antioxidants.

Panthenol

skin vitality moisturiser

Panthenol is a non-irritating form of Vitamin B. When applied topically to the skin, it penetrates quickly to the lower layers of the skin where it is converted into pantothenic acid, commonly known as Vitamin B5. Panthenol has a plumping effect on the skin due to its ability to help absorb water from the air surrounding the skin as well as water and other moisturisers in the topical cream.

Panthenol also has the ability to help draw other nutrients to the deeper layers of the skin to further diminish wrinkles. It possesses powerful anti-inflammatory properties to help soothe irritated or reddened skin.

Sebum Regulating Botanicals

skin clear cleanser

This highly soluble sebum-regulation formula is a complex of 3 herbs designed to cleanse, soothe and normalise the skin. The 3 herbs, Watercress, Nettle and Horsetail, each provide unique properties.

Watercress was traditionally used to treat skin blemishes, spots and cuts. It contains natural antiseptic ingredients to gently cleanse the skin and help prevent acne.

Nettle is used to wash insect bites and wounds and possesses strong astringent and anti-bacterial properties that help to clean out pores, while tightening them at the same time. Not only does this prevent further bacteria from accumulating inside pores but it also minimises signs of ageing on the skin.

Horsetail is used as an astringent to tighten and strengthen skin but also to help improve the elasticity and mobility of the skin. It acts as an anti-inflammatory and haemostatic (reduces blood flow) to the blood vessels that supply to the skin to help reduce redness, inflammation and irritation.

Vitamin E

skin clear cleanser, skin vitality moisturiser, skin refining exfoliator, skin purifying masque

Vitamin E consists of several natural compounds, including alpha, beta, delta, and gamma tocopherol. The combination of these Vitamin E compounds is also known as mixed tocopherols.

Vitamin E is known to be the most important antioxidant because it protects cell membranes and prevents damage to enzymes associated with them. Laboratory studies suggest Vitamin E helps to inactivate free radicals, making them less likely to cause damage. Several other studies have shown that by applying Vitamin E to the skin, it can reduce the damage caused by sun exposure and limit the production of cancer-causing cells.

Vitamin E has also been shown to significantly help in the reduction of scarring from wounds and has been shown to help reduce the appearance of stretch marks on the skin.

White Tea

skin clear cleanser, skin vitality moisturiser, skin refining exfoliator, skin purifying masque

Like Green Tea, White Tea is an unfermented tea. However, the leaves are rapidly picked and dried resulting in a purer, more "natural" and potent quality.

White Tea contains high levels of polyphenols, catechins, catechols and flavenols, all which possess some of the strongest antioxidant properties, that can negate the damage caused by free radicals. White Tea extracts have a specificity for protecting the DNA of skin cells thereby decreasing the risks of skin cancer and premature ageing.

It is reported that White Tea may have the most potent activity of all the teas.

Tannins from tea leaves have anti-microbial and anti-inflammatory properties, protecting and strengthening the skin.

Wild Water Mint

skin purifying masque

Wild Water Mint belongs to the Lamiaceae plant family. The plant is common throughout Europe, North- and South America and it is cultivated in Africa and Asia. It is a refreshing botanical extract rich in stimulating essential peppermint, radical scavenging flavonoids, astringent tannins and moisturising saccharides.

age maintain - nourishment for skin showing signs of ageing

Anti-ageing Peptide replenishing moisturiser

Our anti-ageing peptide is in a solution containing the peptide sequence Pal-Lys-Thr-Thr-Lys-Ser. This specific amino acid sequence has been clinically shown to stimulate fibroblastic cells in the skin when applied topically, to increase the production of collagen and strengthen the skin. Two types of collagen in particular are increased, types I and IV, along with fibronectine and glycosaminoglycans (GAGs). Together the production of these skin ingredients increases the thickness and integrity of the skin, improves elasticity, reduces wrinkle production and minimises existing lines and furrows. It also regulates cellular turnover and wound healing in the skin.

In vivo studies have demonstrated a 6.5% increase in thickness and a near 20% reduction in main wrinkle volume after using this anti-ageing peptide for only 2 months. This peptide's ability to regulate cellular turnover and repair damaged cells has allowed it to replace retinol and its esters as a more efficient and effective anti-wrinkle ingredient.

One six-month, double-blind study involved 35 women ages 34 to 72, all of whom had wrinkles. Using sophisticated imaging techniques, including photometry and computerised image analysis, they measured five physical wrinkle markers at the beginning of the study, then at two, four and six months later. The women were divided into two groups. The first group of 25 women put a cream containing anti-ageing peptide on one side of the face and a placebo cream on the other. The other 10 put anti-aging peptide cream on one side and a commercial Vitamin C cream on the other. None of the women knew which cream was which. The researchers reported, "A highly significant reduction in deep and moderate wrinkles was obtained on the side treated with the anti-ageing peptide solution." This reduction increased with time, and a difference developed from the placebo, which never produced a significant effect. The surface area occupied by deep wrinkles was reduced by a mean of 68% over six months. The surface area occupied by moderate wrinkles was reduced by a mean of 51% over six months." Regarding the density of furrows, the results produced by anti-ageing peptide improved with time: minus 28% after two months, minus 31% after four months and minus 47% after six months.

Blue Lotus Extract

conditioning cleanser, replenishing moisturiser, renewing exfoliator, soothing masque

Blue Lotus is considered the sacred flower of anti-ageing and is a symbol of the origin of life, immortality, serenity and beauty. The flower is rich in flavonoids in particular rutin, quercetin and phytosterols. Quercetin protects skin cells from oxidative stress and works synergistically with Ascorbic Acid preventing the carcinogenic effects of some chemical pollutants. It also protects the membrane lipid of skin cells from peroxidation when exposed to UV light.

Another interesting property of quercetin is its anti-elastase activity, i.e. it inhibits the activity of the endogenous enzyme responsible for the breakdown of elastin, improving the pliability and stretch of the skin. It has additional properties that include antibacterial, antiviral, analgesic (pain relieving), anti-tumour effects, specific to the capillaries. Finally it has antioxidant and anti-inflammatory effects that help maintain collagen to give firmness and elasticity to the skin.

Calming Ayurvedic Herb

soothing masque

Stress leads to increased skin sensitivity, inflammation and a "prickling sensation". Derived from the root of the Indian Ayurvedic herb, Boerhavia diffusa is an active ingredient rich in hydroxybenzoic compounds with soothing properties that allow restoration of the normal skin sensitivity threshold. This calming Ayurvedic herb reduces inflammation by limiting cellular inflammatory mediator activity. It also limits neurogenic inflammation and restores tissue integrity by favouring the production of the anti-inflammatory neurohormone, α -MSH. The result is normal sensitivity, reduction of "prickling", and less skin redness.

Co-enzyme Q-10 (Ubiquinone)

replenishing moisturiser

Co-enzyme Q10 acts as an antioxidant and radical scavenger to stabilise and protect the skin's membrane. It supports the energy supply of the cell metabolism, thereby reducing the ageing of skin and wrinkle formation.

Kiwi & Passion Fruit Lipids

conditioning cleanser, replenishing moisturiser, renewing exfoliator, soothing masque

Category 3 skin lipids which contain high levels of Omega 3 and Omega 6 fatty acids. Omega fatty acids are one of the most important building blocks of the phospholipid membranes of all cells. They help regulate the shape, flexibility and structure of all cells as well as determining how well it functions. When the phospholipid layer is disrupted, the "good" fats are replaced with "bad" fats and the cell loses integrity; it will not allow toxins out or nutrients in and its ability to communicate with other cells is impaired. This can result in cell damage or death. In addition to their direct role in cell membranes, essential fatty acids decrease

inflammation by inhibiting the production of inflammatory mediators and promoting synthesis of anti-inflammatory molecules. They stabilise mast cells (the cells that release histamine and create redness and swelling in the skin) and act as an emollient, preventing dehydration.

Moringa Oil
conditioning cleanser

Moringa Oil is extracted from the seeds of the Moringa tree which is native to India, Africa and tropical America. The seeds yield 40% behenic acid oil. The oil is rich in Vitamins C and A with remarkable antioxidant stability as they are embedded in a high concentration of unsaturated fatty acids. This combination decreases inflammation that may arise while scrubbing or cleaning the face and protects skin cells from oxidation damage.

The seeds also contain high levels of Calcium and Copper. High Calcium content in the upper epidermis helps maintain continual and efficient lipid barrier functions. Calcium can significantly reduce dryness caused by abrasion during cleansing or from the environment, making the skin look well hydrated and fuller in appearance. Calcium, as well as Copper, and Vitamins A and C play a significant role in the production of collagen in the skin.

Multifruit Acids
renewing exfoliator

This is a blend of 5 botanical extracts from Bilberry, Sugar cane, Sugar maple, Orange and Lemon. These extracts contain active ingredients known as alpha hydroxyl acids (AHAs) which have been shown to promote smoother, younger looking skin. This is achieved by increasing the rate at which older cells turn over into newer fresher looking skin cells. In doing so, the fatigued and dull cells are lifted away, bringing a brighter glow to the skin.

Fruit acids also have the ability to stimulate collagen synthesis, to strengthen skin and improve elastic production, making the skin more pliable and flexible. Natural AHAs, such as those in fruit extracts, have been shown to be much more active in cellular turnover, when compared to synthetic AHAs and with far less irritation or redness.

Multivitamins
soothing masque

An anti-ageing and antioxidant blend of vitamins encapsulated to ensure their sustained and controlled release onto the skin:

Vitamin A: Treats & reverses photodamage

Vitamin C: Regulates collagen synthesis & antioxidant

Vitamin E: Antioxidant & provides photoprotection

Vitamin F: Cellular regeneration of membranes & tissues

Olive Emulsifier

replenishing moisturiser

Olive oil is rich in several different types of antioxidants such as polyphenols, flavonoids and catechins. These important nutrients decrease free radical inflammation and help slow the ageing process of the skin. The strength of the free radical quenching ability has been shown to be more powerful than that of tocopherols (Vitamin E) and is therefore used widely in the cosmetic and pharmaceutical industry to prevent skin damage.

Olive oil easily penetrates to the deep layers of the skin, carrying with it other nutrients that it is combined with, making it an ideal vehicle to transport other active therapeutic ingredients into the skin and body.

Olive oil is hypoallergenic, and therefore suitable for all skin types. It stimulates new cell generation giving the skin a fresh, youthful glow. It also tightens and tones the skin, decreasing the development of wrinkles, reduces inflammation and helps treat dry irritated conditions such as eczema and psoriasis with its valuable concentration of Vitamin E and antioxidants.

Prickly Pear Exfoliator

conditioning cleanser, renewing exfoliator

Derived from the Nopal plant, otherwise known as the Prickly Pear, this plant contains high percentages of two types of carbohydrate fibres, mucilage and pectin. The mucilage, which does not dissolve, attracts and absorbs water causing the fibres to swell, whereas the pectin dissolves quickly into water forming a syrupy liquid with astringent actions (shrinks and tightens the top layers of the skin, reduces oil secretions from the skin and improves tissue firmness).

The pectins also have the ability to bind to bacteria on the skin, destroying them before they can embed themselves in the hair follicles, therefore decreasing acne. The Nopal plant also contains ascorbic acid and bioflavonoids that provide antioxidant activity as well as decrease blood vessel inflammation, reducing redness or rosacea like symptoms.

Finally, this plant also contains 17 different amino acids, 4 of which are crucial to skin cell strength and collagen production. The Nopal plant fibres provide the basis of the non-irritating exfoliant effect, while soothing the skin and improving its overall integrity.

Shea Butter

replenishing moisturiser

Shea Butter is a yellowy or ivory coloured natural fat extracted from the fruit of the Shea tree. It has been long used for cosmetics as a moisturiser and emollient as well as an anti-inflammatory. It absorbs rapidly into the skin without leaving a greasy feeling. Shea Butter provides natural Ultra Violet ray protection, although the level of protection is extremely variable, ranging from none at all to approximately SPF 6.

Its specific combination of fatty acids, sterols and Vitamins A, D and E, plays a determining role in the health of skin cells, therefore placing Shea Butter as a choice product to protect, nurture and regenerate the skin. It is a rich source of antioxidants that protect skin cells from damaging free radicals. Shea Butter oil is made of nutritious and regenerating organic elements that maintain the skin beautifully healthy by penetrating deep into skin layers without clogging pores and allowing the skin to breathe.

Vitamin A

conditioning cleanser, replenishing moisturiser, renewing exfoliator, soothing masque

Vitamin A or Retinyl Palmitate, otherwise known as the normalising vitamin, has many important functions in the skin. Firstly, it acts to moderate keratinisation (controlled thickening of the skin), helping to keep skin strong and plump, yet soft. It also increases the production of collagen and DNA in the skin cells, improving skin texture and elasticity.

Vitamin A protects the skin against oxidation from harmful UV rays that increase fine and deep wrinkles and contribute to skin cancer. Finally, many of the physiological responses in the skin such as dermal ageing, immune defence, and wound healing are affected by Vitamin A.

White Clay

renewing exfoliator

White Clay's natural absorbent properties make it essential in cosmetic and dermatological products which is why it is often found in soaps, scrubs, poultices, deodorants, facial powders and masks.

It is the mildest of all clays and it is suitable to add to products created for people with sensitive skin. It helps stimulate circulation to the skin while gently exfoliating and cleansing it. It does not draw oils from the skin so it can also be used on dry skin types without negative results.

Zi Cao Extract

soothing masque

Zi Cao is an herb mainly found in Northern China and Japan. Its common English name is Groomwell Root. It is used for its anti-inflammatory, soothing properties. The dried roots are listed in the Chinese pharmacopoeia as a medicinal plant and are used for their anti-inflammatory characteristics in the treatment of measles, eczema and burns.

age repair – support for mature skin with established signs of age

Apricot Oil

brightening cleanser

Apricot kernels yield 40 to 50% oil extract, similar to that of Sweet Almond or Peach kernels. These oils are rich in fatty acids such as oleic, linoleic and gamma linoleic acids. They help prevent premature ageing and inflammation, and soothe irritated or dry skin. Apricot Oil makes an excellent choice for skincare products as it helps moisturise the skin without leaving it feel oily or heavy.

It is also high in Vitamin A and penetrates the skin well, allowing it to carry with it other therapeutic ingredients.

Beta Glucans and Chitin

supporting moisturiser

Beta Glucans are yeast derivatives that have been used for several years on post-surgical incisions and skin graft donor sites to aid repair, recovery and collagen growth. Beta 1 and 3-glucans are polysaccharides that are naturally found in cereals, grains such as oats and barley as well as algae, bacteria, yeasts and mushrooms. They are water-soluble fibres that consist of chains of glucose molecules. They are considered primers of the immune system as they bind to specific receptors on macrophages (white blood cells that ingest foreign material) and white blood cells, signalling the production of TNF (Tumour Necrosis Factor), Interleukins, NK (Natural Killer) cells and T cells to help prevent infection and subsequent inflammation. They also act directly on the Langerhans cells in the skin that are responsible for regulating cytokine production. Beta Glucans reduce inflammation, decrease redness and swelling, minimise oedema (puffiness) and maintain effective immunity within the skin. They are therefore also valuable in eczema, psoriasis and other inflammatory skin conditions.

Chitin extracts have been shown to increase fibroblastic activity by up to 50%. Chitin has also been shown to moderate MMP (matrix metalloproteinases) activity. MMPs play an important role in cellular apoptosis, or self induced death of abnormal cells. This effect not only helps to prevent abnormal collagen synthesis and wrinkles, but also lowers the risk of skin cancer.

Blackcurrant and Starflower Lipids

brightening cleanser, supporting moisturiser, smoothing exfoliator, nurturing masque

Blackcurrant oil (BCO) also known as Ribes Nigrum, is a very important source of gamma linolenic acid (GLA) as well as being a crucial source of other needed essential fatty acids such as stearidonic acid, the precursors of the prostaglandin series PG3 (anti-inflammatory action). Research shows that Blackcurrant Seed Oil contains double the amount of GLA as Evening Primrose - 17% vs. 8-9%.

In young skin, enzymatic transformation of dietary lipids in the body gives active compounds which offer a natural protection against excessive water loss. However, as we age, our enzymatic systems become less efficient and we need a supplementary source of these fats to maintain our body lipid pool in equilibrium.

BCO also has the ability to moderate the membranes of skin cells, increasing their strength and susceptibility to environmental injury. BCO offers one of the best forms of essential fats to prevent evaporation of water from the skin and improve its texture and elasticity.

Starflower Oil, also known as Borage Oil, is rich in Omega 6 fatty acids. Like other essential fatty acids, they cannot be synthesised by the body, although when topically applied, they can be metabolised in the skin and directly incorporated into the structural lipids of the epidermis, the building blocks of the water barrier of the stratum corneum. Together with Blackcurrant Oil, these crucial fats help repair the natural moisture barrier of the skin by maintaining the multiple extracellular sheets of the outer layers of the skin. They enhance moisture retention of the skin from within, keeping it soft and supple, and they induce proper differentiation and enzymatic control of the skin cells, increasing their strength, function and integrity.

Gojiberry

brightening cleanser, supporting moisturiser, smoothing exfoliator, nurturing masque

The Gojiberry is the common name given for the fruit of two very closely related species, *Lycium barbarum* and *L. chinense*. These species also include the deadly night shades such as the potato, tomato, eggplant and chilli peppers. Also known as the Chinese Wolfberry, the Gojiberry is grown in many parts of the world but is only significantly cultivated in China. Gojiberries have been used for boosting immunity, improving eyesight, and providing protection to the liver and kidneys as well as for a flawless wonderful complexion. They contain a variety of different nutrients such as Calcium, Potassium, Vitamin C, Iron, Zinc, Selenium, Beta-carotene and B12, all of which go into the growth and repair of damaged tissue, formation of collagen in the skin and tendons, proper wound healing and reduction of scarring.

They also contain 11 different amino acids, phytosterols and polysaccharides all of which are used as building blocks to help form new, strong and elastic skin cells. Gojiberries have been rated number one on the (ORAC) scale – oxygen radical absorbance capacity. The most potent ingredients are the zeaxanthins, carotenoids and flavonoids. They contain over 5 times the antioxidant activity of any other fruit and 15 times that of any vegetable to help reduce inflammation, ageing and cancer of the skin.

Grapeseed Extract

nurturing masque

Grapeseed, otherwise known as *Vitis vinifera*, contains powerful water-soluble flavonoids called oligomeric procyanidins (OPCs), which provide 50 times more antioxidant protection than Vitamins C and E. They help prevent and correct damage to capillaries throughout the body and increase blood supply to the skin, which helps to prevent the breakdown of collagen. When applied topically, Grapeseed extract also acts as an alpha-hydroxy acid, to increase the strength

and rate at which cells turn over and repair, improving skin tone and reducing fine wrinkles.

Hyaluronic Acid **supporting moisturiser**

The solution we use is a patented low molecular weight Hyaluronic Acid, which is preservative-free and approved for ecological and organic cosmetics. It stimulates tight junction protein synthesis to reinforce cell cohesion and maintain skin hydration. A clinical study confirms that Hyaluronic Acid significantly reduces skin roughness versus placebo and helps relieve dry skin. It has also been demonstrated to improve skin biomechanical properties; it increases skin firmness by enhancing collagen-I synthesis, and improves skin tonicity. Hyaluronic Acid or HA, is the major component of the "ground substance" which imparts fullness and flexibility to the dermis.

It is a large glycosaminoglycan molecule that attracts and holds water to maintain skin turgor. HA has the following properties:

- ⌚ Rheological - electrostatic potential which helps direct the flow of therapeutic ingredients in the skin.
- ⌚ Viscoelastic – flexible, resists deformation and maintains shape.
- ⌚ Hygroscopic - attracts and holds water to maintain turgor and prevent inflammatory dehydration.

HA is able to attract and hold more water than any other natural or synthetic polymer molecule. It also helps to increase the migration of epithelial cells to the skin surface providing a "fresh" look, without increasing cellular turnover, which would speed the rate of ageing. HA promotes fibroblastic proliferation and differentiation in ageing skin and inhibits the degrading action of enzymes such as collagenase. It also stimulates the immune cells within the skin to react more quickly to damage and promotes faster repair.

HA binds proteins known as hyalderins, such as fibrinogen and albumin, which increase strength and hydration, augmenting protection from UV light, free radicals and hormonal changes.

Multivitamins **nurturing masque**

An anti-ageing and antioxidant blend of vitamins encapsulated to ensure their sustained and controlled release onto the skin:

Vitamin A: Treats & reverses photodamage

Vitamin C: Regulates collagen synthesis & antioxidant

Vitamin E: Antioxidant & provides photoprotection

Vitamin F: Cellular regeneration of membranes & tissues

Olive Emulsifier

supporting moisturiser

Olive oil is rich in several different types of antioxidants such as polyphenols, flavonoids and catechins. These important nutrients decrease free radical inflammation and help slow the ageing process of the skin. The strength of the free radical quenching ability has been shown to be more powerful than that of tocopherols (Vitamin E) and is therefore used widely in the cosmetic and pharmaceutical industry to prevent skin damage.

Olive oil easily penetrates to the deep layers of the skin, carrying with it other nutrients that it is combined with, making it an ideal vehicle to transport other active therapeutic ingredients into the skin and body.

Olive oil is hypoallergenic, and therefore suitable for all skin types. It also stimulates new cell generation giving the skin a fresh, youthful glow. It also tightens and tones the skin, decreasing the development of wrinkles, reduces inflammation and helps treat dry irritated conditions such as eczema and psoriasis with its valuable concentration of Vitamin E and antioxidants.

Red Algae

brightening cleanser

Developed from the red aquatic algae *Palmaria palmate* that grows attached to sea rocks. The main ingredients, xylose and galactose, not only give the skin a luminous appearance but they are also the key components that limit the activity of tyrosinase, the enzyme that regulates the production of the skin's pigment melanin. They also reduce the synthesis of Rab27 and melanophilin, which are the protein complexes that control photo-induced pigmentation or colouring of the skin.

In addition, Red Algae has been shown to reduce the activity of the stem cell factor that increases photo-induced pigmentation after exposure to UVB rays.

Red Clover or Phytosterols

supporting moisturiser

These are a class of lipid-like compounds. They play an important role as a structural component of cell membranes. Phytosterols have a chemical structure that is very similar to human sterols and therefore are easily absorbed and work in harmony with our own skin. In human skin, sterols are a prime component of the stratum corneum lipid cement, hence aiding and maintaining optimal skin barrier function.

Additionally, phytosterols provide a soothing, anti-inflammatory effect, due to their cell membrane stabilising and leukotriene (inflammatory response lipids) inhibiting properties. Phytosterols are very effective at combating extremely dry skin conditions, calming inflammation and retarding the ageing process.

Silicone Microspheres

smoothing exfoliator

These are small silicone spheres used to enhance skin appearance via the diffusion of light. They provide a high scattered reflection of light that blurs wrinkles, and a low specular reflectance (diffusion) that provides a matte look. The microspheres also increase the spreadability of other nutrients and oils they are mixed with, all the while providing a ball bearing like effect to the surface of the skin, softening and smoothing the face and neck.

Skin Regenerating Enzyme

smoothing exfoliator

These are enzymes that have the ability to break down specific proteins and protein products and have a powerful and yet natural effect on the skin. They have the ability to dissolve away dead or old skin cells, leaving the surface skin fresh and youthful. They also increase what is known as the keratolytic effect (promotes regular shedding of epidermis), thereby increasing the strength of each skin cell. They increase cellular turnover and improve delivery of other nutrients to the skin.

Due to their ability to break down and dissolve proteins, proteases can also be used to reduce inflammation, scar tissue and flaking skin from various skin conditions like psoriasis.

Smoothing Complex

nurturing masque

A blend of low and high molecular weight components (Betaine and Polyglutamic acid) that reduce skin roughness by moisturising and supporting the removal of old skin squamae. It also provides skin soothing properties, protects stressed skin and improves skin softness and elasticity.

Velvet Flower Seed Extract

smoothing exfoliator

Native to the tropics, the Velvet Flower is one of the oldest grains in the world and is known for its soothing, astringent and cleansing properties. It is a downy plant with a velvety touch. Its seeds are rich in amino acids that are easily incorporated into the skin's cells as building blocks. The seeds also contain high levels of starch, sugars, Vitamins C and B, and many minerals such as Magnesium, Calcium, Potassium and Phosphorus all of which increase enzyme reactions that aid in skin cell function, repair and regeneration.

Vitamin C

brightening cleanser, supporting moisturiser, smoothing exfoliator, nurturing masque

Vitamin C is considered an important component in repairing free radicals and preventing them from becoming cancerous or accelerating the ageing process. Vitamin C is also the most common antioxidant found in the skin.

The skin is the organ that suffers most from environmental stressors. Smoking, sun exposure and pollution rob the nutrients from our bodies. Even minimal UV exposure can decrease the Vitamin C levels in the skin by 30 %, while exposure to city pollution decreases the level by 55 %. If you do not have enough Vitamin C, you will have difficulty producing collagen. Vitamin C is required for proper collagen formation. Without it, the fibres will cross-link, becoming weak and distorted. Here the fibres become disorganised bundles instead of being properly lined up, resulting in sagging skin and deep lines.

Vitamin C also effects pigmentation by inhibiting excessive production of melanin by reducing the amount of available tyrosinase (the enzyme required to produce melanin).

Ingredients for SkinResponse Serums

SkinResponse Serum – anti-redness

The anti-redness serum is designed for skin types showing excessive redness. Whilst a healthy glow to the cheeks is generally desirable, pervasive redness or rosacea indicates excess inflammation, histamine release and poor quality collagen. Blood vessels are frail leading to breakage and fluid extravasation (leakage), which results in puffiness.

Flushing and inflammation can result from a number of different factors. The stress hormone, cortisol, causes a direct vasodilation, or opening of the blood vessels to the skin, with simultaneous release of inflammatory substances on the inner lining of the blood vessels. This leads to broken capillaries, skin sensitivity and flushing. The reduction in oestrogen that occurs at peri-menopause and menopause also weakens the skin and increases flushing through the small capillaries. Exposure to allergens, excessive heat, along with age-related thinning of the skin also increases inflammation.

When flushing and inflammation occurs, there is often damage to the collagenous coating of the skin capillaries. This causes a bursting effect, which can permanently scar or discolour the skin in that area. The damage this causes further weakens this area of the skin, leading to more inflammation and therefore more redness.

SkinResponse serum anti-redness:

- ⌚ Reduce redness and sensitivity with 15 minutes (more effective than cortisone)
- ⌚ Decrease inflammation and cortisol
- ⌚ Tighten subcutaneous blood vessels
- ⌚ Improve lymphatic drainage and oedema

ARK SkinResponse Serum anti-redness contains the following active ingredients;

Defensil®

Defensil® is a 3-phase, clinically-proven product that provides protection and balm for irritated, red and sensitive skin.

Two independent clinical trials have been carried out on Defensil® in Switzerland against standard strength hydrocortisone cream. Defensil® compared favourably against 0.1% hydrocortisone creams (which is the standard strength treatment offered to most eczema sufferers) with respect to reducing itchiness and redness. Efficacy trials found that Defensil® decreased skin sensitivity by almost 50% and skin redness by 35% just 15 minutes after application.

The 3 components of Defensil®

Cardiospermum halicacabum from Sri Lanka (where it is locally known as

Balloon Vine), is one of the commonest herbs used for skin problems. It is found widely in markets and grows in many a home garden. This small and delicate wiry climber's main medicinal powers lie mostly in its leaves which have been used for hundreds of years in Sri Lanka as a poultice for skin diseases, namely eczema and dermatitis.

The anti-itching effects of Defensil® are due to the presence of natural steroids called phytosterols in an isolated form of concentrated Cadiospermum seed extract called Beta-sitosterol, which has been found in trials to help reduce the intense itching caused by eczema and very dry sensitive skin.

Echium Seed Oil is rich in the essential fatty acids (EFAs) linoleic, linolenic, gamma-linolenic (GLA) and stearidonic acids. It has anti-inflammatory, anti-wrinkle, smoothing and regenerating properties and is used specifically in anti-ageing and sun care skincare creams, lotions and gels.

Echium Seed Oil is unusual in that it contains a unique ratio of Omega-3 and Omega-6 fatty acids. These essential nutrients, previously obtained from other plant sources, have been used for many years in food supplements. Echium Oil also contains between 12% and 14% stearidonic acid compared to 2% found in the only other available commercial source, Blackcurrant Seed Oil. Stearidonic acid reduces skin inflammation by suppressing the release of arachidonic acid, and reducing inflammatory cell activity.

The significant levels of EFAs and GLA contained in Echium Oil have inspired research which highlights stearidonic acid's important role in reducing skin inflammation and shows that Echium Oil is unparalleled in its effectiveness for skincare applications. In addition stearidonic acid, which is found in very high concentrations (12%) in Echium Oil, has been found in trials to efficiently inhibit the 5-Lipoxygenase enzyme associated with eczema flare ups.

Sunflower Oil is rich in linoleic acid, Vitamins A, B-complex, D and E, along with minerals Calcium, Zinc, Potassium, Iron and Phosphorous. The unsaponifiable elements used in this preparation are easily absorbed and have a soothing effect on the skin. Traditional medicinal use is for the treatment of bruises, dermatitis and ulcers as it has substantial healing properties.

Botanical Complex

This botanical complex incorporates 3 active and clinically proven ingredients, which strongly reduce the redness associated with rosacea and prominent superficial vessels such as spider veins. It is a concentrated hydro-glycolic extract of Arnica, Cypress and Solomon's Seal and acts to reinforce vascular walls and improves microcirculation in veins and capillary vessels.

Arnica: Arnica montana has been used for medicinal purposes since the 16th century and remains one of the most popular homeopathic remedies to this day.

Applied topically, Europeans and Native American Indians have used Arnica to soothe muscle aches, reduce inflammation, and heal wounds for hundreds of years. Today it is often the first remedy used for injuries such as sprains and bruises, muscle aches, and to aid with post-operative healing. The roots of Arnica contain a derivative known as thymol, a compound with anti-inflammatory properties as effective as pharmaceutical NSAIDS (non-steroidal anti-inflammatory drugs).

The roots and flowers contain potent vaso-active ingredients that help tighten subcutaneous blood capillaries when applied topically. Arnica preparations have been shown to assist in normal healing processes by increasing the movement of excess blood, oedema and inflammatory by-products out of an injured or damaged area of the skin. In homeopathic preparations, Arnica is one of the most effective yet gentle herbs available to help reduce redness, swelling and promote healthy healing of the skin.

Cypress: Also known as *Cupressus sempervirens*, the extracts from Cypress seeds have traditionally been used in massage oils to help improve circulation, and increase lymphatic drainage. Both these properties help reduce swelling, oedema and inflammation in the skin. The seed extracts have a direct effect on the vasculature of the skin, helping to tighten and constrict blood vessels, preventing varicosities and redness and reducing venous stasis. In addition, improved lymphatic and blood circulation aids in the clearance of toxins and inflammatory products to help improve the glow of the skin.

Solomon's Seal: Solomon's Seal is a close relative of the Lily of the Valley and the plant's botanical genus, *Polygonatum*, refers to the "many-angled" knots on the root or the numerous joints on the stems. Its English name is believed to refer to the flat, round scars on the rootstocks, resembling the impressions of a seal. Solomon's Seal root is an astringent; it tightens blood vessels to decrease redness and inflammation. The demulcent (soothing agent), allantoin, in Solomon's Seal acts as an anti-inflammatory and is a healing, moisturising, soothing and anti-irritating, keratolytic and non-toxic agent. Solomon's Seal is said to be effective in healing bruises, cuts, wounds, sunburn, pimples and other inflammatory conditions. It may also prevent freckles and the mottling of skin associated with ageing.

SkinResponse Serum – radiance

With age, there is a decrease in skin tone, which often results in loss of lustre. Decreased hydration of the skin leaves it thin and dry, resulting in a tired, unhealthy appearance. Scarring, excessive sun exposure, broken blood vessels, allergens and the process of ageing also damage the skin, decrease its integrity and limit its ability to repair and strengthen itself. As a result either in an attempt to protect itself, or due to faulty and weakened skin responses, the skin will increase its production of melanin, the pigment in the skin, which causes abnormal discolouration.

In more youthful, healthy skin, the immune system can identify this abnormal melanin production, halt the process and repair the damaged discoloured area. But as we age, the ability to identify this abnormal reaction and to repair it is impaired. This leads to uneven skin colour and tone that makes the skin appear even older, more damaged and more tired than it truly is.

SkinResponse serum radiance:

- ⌚ Brightens skin, evens out colour and tone.
- ⌚ Decreases the appearance of sun and age induced brown spots
- ⌚ Adds a luminescence to the skin creating a soft and smooth glow.

Ark SkinResponse serum radiance contains the following active ingredients:

Skin-identical Amino Acid, 1-Methylhydantoin-2-imide

This active ingredient is an amino acid derivative that occurs naturally in the body. It has been demonstrated to improve the clarity and evenness of skin tone, making it ideal for skin brightening and age-spot fading applications.

In a clinical study it was found to increase skin brightness by 90% over a 4-week period. It is shown to block tyrosinase, the enzyme that induces melanin production, thereby reducing patchy, irregular skin pigmentation.

Red Algae

Developed from the red aquatic algae *Palmaria palmate* that grows attached to sea rocks. The main ingredients, xylose and galactose, not only give the skin a luminous appearance but they are also the key components that limit the activity of tyrosinase, the enzyme that regulates the production of the skin's pigment melanin. They also reduce the synthesis of Rab27 and melanophilin, which are the protein complexes that control photo-induced pigmentation or colouring of the skin.

In addition, Red Algae has been shown to reduce the activity of the stem cell factor that increases photo-induced pigmentation after exposure to UVB rays.

Velvet Flower Seed Extract

Native to the tropics, the Velvet Flower is one of the oldest grains in the world and is known for its soothing, astringent and cleansing properties. It is a downy plant with a velvety touch. Its seeds are rich in amino acids that are easily incorporated

into the skin's cells as building blocks. The seeds also contain high levels of starch, sugars, Vitamins C and B, and many minerals such as Magnesium, Calcium, Potassium and Phosphorus all of which increase enzyme reactions that aid in skin cell function, repair and regeneration.

SkinResponse Serum – antioxidant

Oxidation is a chemical reaction central to the ageing process. Reactive Oxygen Species (ROS) are atoms or small molecules including peroxides and free radicals that have an unpaired electron. They are subsequently highly reactive and can combine with enzymes, proteins and DNA causing damage and malfunction. In excess they promote inflammation causing immunogenic damage. As our external and internal environments provide an ever-increasing free radical load and our cells lose their ability to fight, protecting the skin with both external and internal anti-oxidants becomes an important factor in age defence. It provides a heightened level of protection for individuals with particularly elevated oxidation risk such as those living in polluted city environments or with significant sun exposure.

SkinResponse serum antioxidant:

- ⌚ Provides full spectrum (fat and water-soluble) protection against damaging environmental free radicals.
- ⌚ Decreases inflammation, ageing and reduces the risk and onset of cancer.
- ⌚ Decreases DNA damage and prevents abnormal collagen synthesis
- ⌚ Reduces the breakdown of collagen to maintain stronger healthier skin

Ark SkinResponse serum antioxidant contains the following active ingredients:

Antioxidant (Ethylbisiminomethylguaiacol manganese chloride)

A highly purified molecule that mimics superoxide dismutase (SOD) and catalase activities. Free radicals such as superoxide anions and other pro-oxidant molecules can be scavenged by antioxidants such as SOD but hydrogen peroxide (H₂O₂) is generated during this enzymatic reaction. Even though not a free radical itself, H₂O₂ is a pro-oxidant compound that can be deleterious for cells. The catalase activity of this antioxidant molecule reacts with H₂O₂ molecules to transform them into inert products namely water and oxygen. The dismutation of the superoxide anion and the scavenging of peroxide by this molecule are in fact much like the action of superoxide dismutase and catalase in our skin.

This antioxidant molecule has the capability of quickly assimilating the H₂O₂ generated from the SOD reaction. Thereby, by itself, it represents a complete nature-mimetic anti-oxidant system that can be used as an active cosmetic ingredient.

The benefits to the skin are:

- ⌚ Mimics the activity of two natural skin enzymes, catalase and superoxide dismutase (SOD)
- ⌚ Protects the skin tissue against toxic compounds known as reactive oxygen species (ROS) O₂ and H₂O₂.
- ⌚ The catalytic activity is not affected by exposure to UV radiation.
- ⌚ Reduces erythema induced by UV exposure
- ⌚ Prevents UV induced skin lipid peroxidation
- ⌚ Recycles itself to combat oxidative stress that continues to take its toll on skin even after exposure occurs to continuously fend off damage before it becomes visible on skin's surface

Grapeseed Extract with Tocopherols

A powerful blend of antioxidants based on a combination of water-soluble procyanidins from grapeseed with fat-soluble natural alpha, gamma and delta tocopherols. They act on the four most prevalent free radicals – singlet oxygen, hydroxyl, superoxide and peroxide to:

- ⌚ protect skin lipids, such as squalene against the formation of harmful peroxides
- ⌚ diminish skin irritation
- ⌚ perform radical scavenging activity in skincare and anti-ageing products

Grapeseed, otherwise known as *Vitis vinifera*, contains powerful water-soluble flavonoids called oligomeric procyanidins (OPCs), which provide 50 times more antioxidant protection than Vitamins C and E. They help prevent and correct damage to capillaries throughout the body and increase blood supply to the skin, which helps to prevent the breakdown of collagen. When applied topically, Grapeseed extract also acts as an alpha-hydroxy acid, to increase the strength and rate at which cells turn over and repair, improving skin tone and reducing fine wrinkles.

Tocopherols are natural, fat-soluble antioxidants with Vitamin E like properties. They provide a highly effective topical therapy with the added benefit of reducing scarring following injury.

Antioxidant Botanicals Complex

This unique combination of White Tea, Blue Lotus and Gojiberry provides exceptional additional antioxidant benefit.

White Tea

Like Green Tea, White Tea is an unfermented tea. However, the leaves are rapidly picked and dried resulting in a purer, more "natural" and potent quality.

White Tea contains high levels of polyphenols, catechins, catechols and flavenols, all which possess some of the strongest antioxidant properties, that can negate the damage caused by free radicals. White Tea extracts have a specificity for

protecting the DNA of skin cells thereby decreasing the risks of skin cancer and premature ageing.

It is reported that White Tea may have the most potent activity of all the teas. Tannins from tea leaves have anti-microbial and anti-inflammatory properties, protecting and strengthening the skin.

Blue Lotus Extract

Considered the sacred flower of anti-ageing, the Blue Lotus is a symbol of the origin of life, immortality, serenity and beauty. The flower is rich in flavonoids in particular rutin, quercetin and phytosterols. Quercetin protects skin cells from oxidative stress and works synergistically with Ascorbic Acid preventing the carcinogenic effects of some chemical pollutants. It also protects the membrane lipid of skin cells from peroxidation when exposed to UV light.

Another interesting property of Quercetin is its anti-elastase activity, i.e. it inhibits the activity of the endogenous enzyme responsible for the breakdown of elastin, improving the pliability and stretch of the skin. It has additional properties that include antibacterial, antiviral, analgesic (pain relieving), anti-tumour effects, specific to the capillaries. Finally it has antioxidant and anti-inflammatory effects that help maintain collagen to give firmness and elasticity to the skin.

Gojiberry

Gojiberry is the common name given for the fruit of two very closely related species, *Lycium barbarum* and *L. chinense*. These species also include the deadly night shades such as the potato, tomato, eggplant and chilli peppers. Also known as the Chinese Wolfberry, the Gojiberry is grown in many parts of the world but is only significantly cultivated in China. Gojiberries have been used for boosting immunity, improving eyesight, and providing protection to the liver and kidneys as well as for a flawless wonderful complexion. They contain a variety of different nutrients such as Calcium, Potassium, Vitamin C, Iron, Zinc, Selenium, Beta-carotene and B12, all of which go into the growth and repair of damaged tissue, formation of collagen in the skin and tendons, proper wound healing and reduction of scarring.

They also contain 11 different amino acids, phytosterols and polysaccharides all of which are used as building blocks to help form new, strong and elastic skin cells. Gojiberries have been rated number one on the (ORAC) scale – oxygen radical absorbance capacity. The most potent ingredients are the zeaxanthins, carotenoids and flavonoids. They contain over 5 times the antioxidant activity of any other fruit and 15 times that of any vegetable to help reduce inflammation, ageing and cancer of the skin.

SkinResponse Serum – phytohormone

There are several hormones that change as we age, and each one has a detrimental effect on the skin, causing it to age more quickly than it otherwise would.

Growth hormone, our body's anti-ageing hormone, begins to drop in our late 20s or early 30s. This causes a slowed response in cellular metabolism, cell turnover and repair from damage. It also weakens the immune system allowing for prolonged infections and inflammation to further break down skin integrity.

Cortisol, our body's stress hormone, naturally increases with age. This hormone increases the release of inflammatory products in the skin, body tissues and blood vessels. It also increases the production and activity of collagenases, the enzymes in the body that break down collagen. Both of these factors weaken and age the skin over time, creating wrinkles, poor skin tone, thinned skin and increased swelling and oedema.

Finally, the reduction in oestrogen that occurs in women as they age, also greatly impacts the quality of the skin. Lowered oestrogen levels weaken the hydration barrier of the skin, causing it to become dry and altered fluid distribution leads to increased puffiness and oedema. In addition, reduced oestrogen increases inflammation, which results in further damage.

SkinResponse serum phytohormone:

- ⌚ Decreases visible signs of hormone depletion in the skin such as dullness, dryness, loss of elasticity and tone.
- ⌚ Decreases the puffiness and inflammation associated with weakened, aged skin
- ⌚ Improves the quality, texture and durability of skin.

Ark SkinResponse serum phytohormone contains the following active ingredients:

Soya Isoflavones

Soya contains a high concentration of the botanical oestrogen-like compounds, phyto-oestrogens. These have partial agonist (activating) activity on oestrogen hormone receptors but at a level one thousand times weaker than the endogenous human hormone. The characteristic isoflavones of soya are: daidzein, genistein, glycitein and its derivatives.

The benefits of soya isoflavones on skin include support and rejuvenation of mature skin which is showing signs of ageing as a result of post-menopause hormonal depletion. Research has indicated that additional effects include protection of DNA from damage by up to 100% and increased cell activity and fibroblast function by up to 200%.

This is an innovative ingredient whereby the active isoflavones from soya are encapsulated to allow controlled release into the skin.

Red Clover or Phytosterols

A class of lipid-like compounds, phytosterols play an important role as a structural component of cell membranes. They have a chemical structure that is very similar to human sterols and therefore are easily absorbed and work in harmony with our own skin. In human skin, sterols are a prime component of the stratum corneum lipid cement, hence aiding and maintaining optimal skin barrier function.

Additionally, phytosterols provide a soothing, anti-inflammatory effect, due to their cell membrane stabilising and leukotriene (inflammatory response lipids) inhibiting properties. Phytosterols are very effective at combating extremely dry skin conditions, calming inflammation and retarding the ageing process.

Oat Kernel Extract

A natural sugar derived from purified oat extracts. It has highly elastic and flexible properties due to its three-dimensional, high-molecular weight network made of complex sugars linked by intra- and inter-chains.

Oat Kernel Extract adheres strongly to the skin and provides a non-sticky, non shiny lifting and toning effect with immediate and lasting results up to 4 hours. In addition it provides short and long-term anti-wrinkle effects and improves the hold of make-up on the skin.

- ⌚ In a clinical study 86% of volunteers felt an immediate tightening effect.
- ⌚ Instrumental analysis showed short-term tensor, smoothing & anti-wrinkle effects 30 minutes after application and a long-term anti-wrinkle effect 1 month after twice-daily applications.
- ⌚ In a clinical study 72% of volunteers found make-up to last longer on the skin.

Grapeseed Extract

Grapeseed, otherwise known as *Vitis vinifera*, contains powerful water-soluble flavonoids called oligomeric procyanidins (OPCs), which provide 50 times more antioxidant protection than Vitamins C and E. They help prevent and correct damage to capillaries throughout the body and increase blood supply to the skin, which helps to prevent the breakdown of collagen. When applied topically, Grapeseed extract also acts as an alpha-hydroxy acid, to increase the strength and rate at which cells turn over and repair, improving skin tone and reducing fine wrinkles.

Horse Chestnut Extract

Horse Chestnut, also known as *Aesculus hippocastanum*, is a compound that protects and strengthens the veins and capillaries. It also prevents cellular filtration or leakage from the vasculature, increases the strength of the collagen in the blood vessel wall and decreases inflammation. Together, these actions help to reduce oedema, puffiness, varicosities, redness, and inflammation of the small fine blood vessels at the surface of the skin.

SkinResponse Serum – firming

As we age, the number and activity of fibroblasts (collagen and elastin producing cells in the skin) decreases. This leads to less collagen/elastin production, and therefore thinner, less elastic, weaker skin. In addition, the body's ability to incorporate amino acids and other building blocks into the structural components of skin cells becomes less efficient. With less building material, the skin begins to sag, grooves and wrinkles appear, and the integrity of the skin is greatly altered.

Changes in the hydration barrier of the skin also occur with age. This compromises the distribution of fluids throughout the skin, impairing its moisture retention and resilience. In addition, dehydration inflames the skin and further impairs collagen synthesis. All of these variables weaken skin tone, creating dull weakened, sagging skin.

ARK SkinResponse serum firming:

- 🕒 Actively lifts, tones and tightens the skin all the while decreasing the look of fine lines and minimising the depth of wrinkles.
- 🕒 It contains 100% HA that is readily absorbed, and maximally utilised to promote elasticity and overall skin appearance.
- 🕒 Improves skin structure, stimulating collagen and elastin synthesis so that skin appears younger, more flexible and firm

Ark SkinResponse serum firming contains the following active ingredients:

Oat Kernel Extract

A natural sugar derived from purified oat extracts. It has highly elastic and flexible properties due to its three-dimensional, high-molecular weight network made of complex sugars linked by intra- and inter-chains.

Oat Kernel Extract adheres strongly to the skin and provides a non-sticky, non shiny lifting and toning effect with immediate and lasting results up to 4 hours. In addition it provides short and long-term anti-wrinkle effects and improves the hold of make-up on the skin.

- 🕒 In a clinical study 86% of volunteers felt an immediate tightening effect.
- 🕒 Instrumental analysis showed short-term tensor, smoothing & antiwrinkle effects 30 minutes after application and a long-term anti-wrinkle effect 1 month after twice-daily applications.
- 🕒 In a clinical study 72% of volunteers found make-up to last longer on the skin

Anti-Wrinkle Complex (Liftonin®)

Liftonin® is a plant-based ingredient with extract of Millet (*Panicum Miliaceum*) and tannins from Oak Apple leaf galls (outgrowths). It diminishes existing wrinkles

and helps prevent their further appearance providing a natural alternative to fillers or Botox?. All the ingredients are plant extracts and have been scientifically tested for their effect and safety. The excellent effect in the care of rough skin has also been confirmed in two in-vivo measurements and by visual assessment.

Liftonin® gently firms the epidermis resulting in a finer upper surface of the skin. Valuable mineral elements, in particular silicic acids, from the Millet extract nourish the skin and strengthen cell structure resulting in visible improvement in the skin matrix. These conclusions are based on and supported by in-vivo test results and clinical studies confirm an improved skin structure with a reduction in wrinkles and lines, as well as a generally younger appearance.

Hyaluronic Acid

A patented low molecular weight Hyaluronic Acid, which is preservative-free and approved for ecological and organic cosmetics. It stimulates tight junction protein synthesis to reinforce cell cohesion and maintain skin hydration. A clinical study confirms that Hyaluronic Acid significantly reduces skin roughness versus placebo and helps relieve dry skin. It has also been demonstrated to improve skin biomechanical properties; it increases skin firmness by enhancing collagen-I synthesis, and improves skin tonicity.

Hyaluronic Acid or HA, is the major component of the “ground substance” which imparts fullness and flexibility to the dermis. It is a large glycosaminoglycan molecule that attracts and holds water to maintain skin turgor. HA has the following properties:

- ⌚ Rheological - electrostatic potential which helps direct the flow of therapeutic ingredients in the skin.
- ⌚ Viscoelastic – flexible, resists deformation and maintains shape.
- ⌚ Hygroscopic - attracts and holds water to maintain turgor and prevent inflammatory dehydration.

HA is able to attract and hold more water than any other natural or synthetic polymer molecule. It also helps to increase the migration of epithelial cells to the skin surface providing a “fresh” look, without increasing cellular turnover, which would speed the rate of ageing. HA promotes fibroblastic proliferation and differentiation in ageing skin and inhibits the degrading action of enzymes such as collagenase. It also stimulates the immune cells within the skin to react more quickly to damage and promotes faster repair.

HA binds proteins known as hyalderins, such as fibrinogen and albumin, which increase strength and hydration, augmenting protection from UV light, free radicals and hormonal changes.

Centella Asiatica

Centella Asiatica is a small herbaceous plant indigenous to Asia that is widely used in Ayurvedic medicine. It has been used historically in the healing of leprosy wounds, abraded (surface injured) skin, cuts, burns and ulcers. Research has shown that it contains a compound that dissolves the waxy protective coating around bacteria thereby assisting the immune system in fighting infection.

Centella Asiatica contains active ingredients called triterpenes that have modulating properties on connective tissue, improving the synthesis of collagen and other tissue proteins by modulating the action of fibroblasts, and by stimulating collagen remodelling. This effect increases tissue firmness, skin elasticity, skin appearance and texture and prevents abnormal scar formation.

SkinResponse Serum - de-stress

As we age, the amount of stress hormone, cortisol, that we release for each stressor increases. These stressors are numerous and include variations in temperature (such as going from the cold outside to the warmth of inside), hormonal changes, low blood sugar levels, relationship problems and traffic or work deadlines. Whatever the cause, the hormonal reaction is the same and that affects your skin.

Cortisol has a great impact on the look and feel of the skin. It increases the production of collagenases and metalloproteases, both of which break down collagen in the skin and joints, as well as reducing the body's natural production of collagen. This leads to weakened, less elastic skin that is more sensitive to injury and prone to wrinkles and laxity.

Cortisol also impairs our skin's immune system. It inhibits the production of our body's Natural Killer cells (antiviral and anti-cancer cells) and increases the production of NF-KB (inflammatory cells). This can contribute to prolonged infection, weakened immune response and impaired skin cell regeneration, all of which damage and age the skin.

Finally, cortisol alters the distribution of fluid in and around skin cells. It increases fluid retention through the kidneys, yet decreases the ability of water to enter cells, resulting in excess fluid in the supporting matrix. This increases bloating, puffiness and oedema.

Skin Response serum de-stress:

- ⌚ An anti-irritant serum with enzymes that helps to decrease the look of fatigue and loss of skin vitality
- ⌚ Increases the strength of the skin's moisture barrier to maintain hydration and durability of the skin
- ⌚ Protects against further damage from environmental pollutants.

SkinResponse serum de-stress defends the skin against the effects of everyday stress. Stress stimuli for skin cells include:

- ⌚ Heat and cold
- ⌚ Radiation
- ⌚ Oxygen deficiency
- ⌚ Heavy metals
- ⌚ Alcohol
- ⌚ Disease pathogens

Ark SkinResponse serum de-stress contains the following active components:

Anti-stress Enzyme Cocktail (Cell Active® - VIP)

The principal enzyme cocktail in Cell Active® - V.I.P. is obtained from Pineapple. Extract of Rosemary and Essential Cell Boost-Factor are added to further reduce the visible signs of skin stress including skin "fatigue", excess laxity and loss of vitality.

Pineapple: The enzyme cocktail from Pineapple regenerates and rejuvenates skin cells by means of gentle and natural enzymatic peeling. In addition, stressed cells are supplied with co-enzymes, carbohydrates, vitamins and trace elements. Pineapple enzymes fight free-radical damage and are known to reduce age spots and fine lines to leave the skin supple; they also cleanse the skin by dissolving dead cells from the skin's surface. Pineapple contains alpha-hydroxy-acids (AHAs), a group of organic acids that work on the corneal layer of the skin to reduce the cohesion of corneocytes (dead cells of the stratum corneum). This results in a thinner corneal layer, which improves its elasticity and flexibility regardless of the degree of skin hydration. The use of AHAs gives better results than simple hydration; its action is more significant in cases of extreme dryness. The Pineapple sugars and their derivatives form hydrogen bridges to retain water on the surface of the skin, thus maintaining hydration of the horny layer to enhance the elasticity, resilience and softness of the skin.

Rosemary: Extract of Rosemary protects the skin. It promotes the natural stress defence mechanisms, neutralises free radicals, improves blood perfusion and has antibacterial and anti-inflammatory effects. Its superb skin regenerative and wound healing properties make Rosemary verbenone especially useful for treating stress-related skin conditions such as dermatitis, eczema and psoriasis. Acne prone skin responds favourably to the renewing effects of Rosemary through its antibacterial action and ability to promote glandular balance and function. Its skin nourishing action makes it ideal for dry and mature skin. Rosemary's pronounced stimulating effect on the circulatory systems (lymph, nerve and blood) makes it especially helpful for lowering blood pressure, as well as for promoting cellular respiration and detoxification.

Essential Cell Boost-Factor aids in cell division, promotes the production of cell adhesion proteins and enhances the mechanical stability of the skin. The skin appears vitalised and richer in energy, more youthful, and acquires increased resilience.

An in vitro study using a 3-dimensional skin model confirmed a reduction of stress markers on the molecular level. A clinical study demonstrated alleviation of visible skin stress markers.

Creatine

A natural amino acid derivative shown to play an important role in revitalising cell energy metabolism, supporting skin protection and increasing moisture.

Physiologic skin fatigue and the early signs of ageing are caused by stress and environmental impact. The underlying process involves a decrease in available energy stored within skin cells along with reduced capability to synthesise proteins such as collagen, elastin and keratin. As cells are exposed to increased oxidative stress as they age, the amount of energy required for internal defence is higher. Providing adequate energy support is therefore vital to combating stress and ageing.

The “cell energising” effect of Creatine was assessed in vitro in human keratinocyte cell culture. The keratinocytes were incubated with Creatine for 24 hours at 37 °C after which cell vitality was measured. The results showed that vitality of the cells treated with Creatine was about 60% higher than controls.

Calming Ayurvedic Herb

Stress leads to increased skin sensitivity, inflammation and a “prickling sensation”. Derived from the root of the Indian Ayurvedic herb, *Boerhavia diffusa*, this is an active ingredient rich in hydroxybenzoic compounds with soothing properties that allow restoration of the normal skin sensitivity threshold. *Boerhavia diffusa* reduces inflammation by limiting cellular inflammatory mediator activity. *Boerhavia diffusa* also limits neurogenic inflammation and restores tissue integrity by favouring the production of the anti-inflammatory neurohormone α -MSH. The result is normal sensitivity, reduction of “prickling”, and less skin redness.

SkinResponse Serum - clearing

As we age, the function and production of many of our immune cells decreases. These cells and the factors they produce are responsible for identifying and destroying noxious foreign materials including bacteria and viruses, before they can damage the body or skin. Immune components include Langerhans and Natural killer cells, TNF, Interleukins and antibodies.

With a lowered immune response, the invading substrate is allowed more time to replicate, spread throughout the body and cause more damage. They can bind to the DNA of cells, destroying or mutating them and increasing the rate of skin ageing. They can infect a tissue or skin area, increase collagen breakdown and inflammation, destroy surrounding tissues, and cause permanent scarring or redness.

SkinResponse serum clearing:

- ⌚ Decreases the frequency and severity of break-outs and skin congestion by regulation and normalising sebum secretion.
- ⌚ It draws out impurities and tightens pores.
- ⌚ Decreasing the shiny appearance and redness caused by oily build up.

Ark SkinResponse serum clearing contains the following actives:

Tocopherol Phosphate

A new and unique bio-functional form of Vitamin E with proven anti-erythema (redness) and anti-inflammatory benefits. Tocopherol Phosphate has recently been identified as a naturally occurring alpha-tocopherol derivative and has been detected in several human tissues and plants. In this form, it is said to have bio-functional activity as a modulator of cellular inflammation pathways as well as an antioxidant. Studies show that it appears to be more effective than Vitamin E acetate and control formulae in the reduction of erythema (redness) and similar in effectiveness to the corticosteroid, but obviously without steroidlike side-effects.

The properties make it ideal for the treatment and prevention of acne-prone skin with additional benefits in the prevention and remediation of sunburn, ageing and environmental stress.

Sebum Regulating Botanicals

This highly soluble sebum-regulation formula is a complex of 3 herbs designed to cleanse, soothe and normalise the skin. The 3 herbs, Watercress, Nettle and Horsetail, each provide unique properties.

Watercress was traditionally used to treat skin blemishes, spots and cuts. It contains natural antiseptic ingredients to gently cleanse the skin and help prevent acne.

Nettle is used to wash insect bites and wounds and possesses strong astringent and anti-bacterial properties that help to clean out pores, while tightening them at the same time. Not only does this prevent further bacteria from accumulating inside pores but it also minimises signs of ageing on the skin.

Horsetail is used as an astringent to tighten and strengthen skin but also to help improve the elasticity and mobility of the skin. It acts as an anti-inflammatory and haemostatic (reduces blood flow) to the blood vessels that supply to the skin to help reduce redness, inflammation and irritation.

Margosa Leaf Extract

All parts of the Margosa plant are highly regarded in medicine. The stem bark is an astringent and antiperiodic (prevents regular recurrence of symptoms); the root bark and fruits are used as bitter tonics. The flowers are used for dyspepsia (indigestion) and the berries are purgative (cleansing), emollient and anthelmintic (destructive to parasitic worms). But the leaf is by far the most important and its extracts are antiseptic, antifungal, antibacterial and antiviral. Its active ingredients are so strong that it has been shown to inhibit E coli and *Candida albicans* replication. Used topically, the Margosa Leaf extract is a fabulous antiseptic that helps to clean deep into the layers of the skin, especially in exfoliators where the dead rough surface has been removed. This is an ideal extract to help prevent acne, infections, and keep dry irritated skin clean.

SkinResponse Serum – hydrating

As we age the hydration barrier in our skin begins to weaken and break down. When this occurs, the skin's ability to retain moisture, elasticity and strength is greatly compromised, allowing for increased infection, inflammation and abnormal tone, becoming more wrinkled and lax. In addition it loses its ability to act as a barrier to the environment, including pollution and UV radiation.

Living in an environment that is heavily polluted and where the skin is exposed to UV radiation or where artificial heating lowers humidity, the moisture barrier is needed to protect the underlying tissues from damage. Additionally, stress, poor diet and hormonal changes, that naturally occur as we age, also affect the integrity of this barrier and therefore the integrity of the skin. In order to reduce the production of wrinkles, soften dry and rough skin and maintain normal elasticity and moisture, it is important to protect and rebuild this moisture barrier.

SkinResponse serum hydrating:

- ⌚ Provides immediate hydration and highly concentrated levels.
- ⌚ Locks elevated water levels into the skin, plumping it and protecting it from moisture loss.
- ⌚ Helps to reduce roughness and cracking by maintaining strength and integrity of the moisture barrier.

Ark SkinResponse serum hydrating contains the following active components:

Optimised Moisture Complex

A complex formula containing active ingredients, Glycerin, Sodium PCA, Urea, Trehalose, Polyquaternium-51 and Sodium Hyaluronate. It provides exceptional moisturisation, improves barrier function to prevent water loss, optimises moisture balance, maintains lipid balance and increases cellular renewal. Sodium PCA and urea are naturally occurring integral molecules within the skin, forming part of a moisture-protection complex called the Natural Moisturising Factors (NMF). Clinical studies confirm its superior efficacy compared to Hyaluronic Acid alone.

The components are:

Glycerin is derived from natural vegetable lipid glycerides, this hygroscopic (water-attracting) active closely resembles the Glycerin content of our own epidermal lipids and therefore provides exceptional hydration and barrier protection.

Sodium PCA is even more hygroscopic than Glycerin or Sorbitol, Sodium PCA is a powerful moisturiser found naturally in the stratum corneum layer of our own skin. It is an important NMF.

Urea is another of the skin's NMFs and holds water within the stratum corneum, providing a barrier to evaporation while improving tone and flexibility. As an adjunctive function, Urea is a gentle exfoliant, removing flakes from desiccated skin.

Trehalose is a glucose disaccharide common to organisms living within dry environments such as fungi, bacteria, amphibians and invertebrates. Trehalose stabilises membranes and intra-cellular proteins as water evaporates and prevents damage from dehydration by maintaining the liquid crystalline lamellar structure of the epidermal lipid permeability barrier. It facilitates osmoregulation and, by acting as a carbohydrate reserve, stabilises proteins during heat shock. It is a molecule vital to the survival of organisms forced to survive in hostile desiccating habitats, providing protection against osmotic and oxidative stress. Topically it is used for its barrier and anti-oxidation properties.

Polyquaternium-51 was originally developed for the contact lens industry to maintain moisture and counteract dry eyes. Polyquaternium-51 is a phospholipid copolymer that improves the moisture retention capability of the epidermis. It holds approximately fifty times more water than Hyaluronic Acid. The phosphoryl-choline moiety of Polyquaternium-51 helps stabilise the phospholipid lamella and functions as a barrier to prevent further water loss as well as forming a protective film on the surface of the skin.

Sodium Hyaluronate is the sodium salt of Hyaluronic Acid (HA). In the dermis, Sodium Hyaluronate aids in cellular repair and preserves moisture balance. Studies have shown that in the presence of HA, skin heals wounds faster, with better tissue integrity and less fibrous scarring. As skin ages, HA levels decrease dramatically, reducing its moisture retaining capacity. Sodium Hyaluronate molecules applied topically can hydrate and create an ionic barrier as well as a reservoir of bound water.

Extensive clinical testing has shown Optimised Moisture Complex to be far superior to Hyaluronic Acid as a skin therapy. Moisturisation is up to six times more effective with results lasting beyond eight hours. Overall increase in moisture content is maximised at four hours with 78% improvement. Even at 72 hours there was still an increase of 25% above control subjects.

Laminaria Algae

Aqua Shuttle is a unique combination of encapsulated and non-encapsulated ingredients with proven high moisturising efficiency and ability to hydrate the epidermis. The three main nano-encapsulated actives are marine based Laminaria extract, Glycerin and Sorbitol, all providing long-lasting therapy.

Laminaria maintains hydric balance and contains polysugars, which are able to trap water molecules preventing trans-epidermic loss. Glycerin and Sorbitol have similar properties and attract water back into the epidermis from the environment.

Aqua Shuttle creates a surface film which prevents moisture loss and allows for sustained delivery of non-encapsulated ingredients such as thermal water, Aloe Vera gel, Centella Asiatica extract and Vitamin A.

Efficacy testing has demonstrated Aqua Shuttle to be over 50% more effective than Hyaluronic Acid application at 1 hour and nearly 500% more effective at 4 hours.

Cucumber Extract

Cucumber is known for its beneficial effects on the skin as it is abundant in water, Vitamin E and natural oils. It freshens and hydrates, restoring texture and suppleness in a gentle and natural fashion.

ARK
AGE AWARE SKINCARE