

AGEING GRACEFULLY

Active ingredients | Belinda Carli from IPCS* explains how to select the right actives for best results.

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While the theory of exactly how and why cells age and die as we grow older may vary, the visible results remain the same: lines form and deepen, skin becomes thinner and starts to sag, and uneven skin tones develop. Luckily, with the right actives formulated into good delivery bases, these visible effects can be largely halted and in many cases, reversed.

Consumers want to get the best results from the products they purchase, but to make sure this happens, it is important to promote the right anti-ageing result for the actives selected, specific to their individual age-related concerns.

What happens within the epidermis and dermis as the skin ages and what visible effect does this have on the skin? And most importantly, what sort of actives can best address and correct these concerns, with appropriate claims, in relation to their activity?

Reducing expression lines

Repeated facial movements and muscular contractions will lead to fine lines, and eventually, deeper wrinkles. The expressions and facial movements made throughout our youth starts to catch up with us in our 30s – usually as temporary fine lines at first, and then as progressively deeper and more lasting wrinkles. If the facial movements can be reduced or stopped, the number and depth of fine lines (and wrinkles) that would otherwise start and/or deepen over time can be reduced. The concept of injectable products such as **Botox** do exactly this: they stop the muscular contractions to prevent formation of lines and lessen the lines

SKIN AGEING

The theories of **how** and **why** cells age vary

Stopping the **muscular contractions** prevents the formation of lines

that may already be present. However, it is not necessary to revert to injections for results; there are now some great peptide materials in this area which work to:

- destabilise the normal muscular contraction 'SNARE' complex and/or
- interfere with SNAP-25 and/or
- inhibit glutamate release to avoid calcium ion release into the neuron to prevent contractions occurring.

Some key actives that help in one or more of these areas include **Lipotec's** active ingredients **Argireline** and **Snap-8** and **DSM's Syn-Ake**. If addressing this mechanism of skin ageing with the help of this sort of actives, products should be promoted using claims such as 'visibly reduces deep wrinkles/expression lines' or 'smooths the appearance of the skin'. Depending on the active and evidence provided, the visible reduced depth of wrinkles over a specified time period may also be quoted.

Improving skin suppleness

Suppleness is another way to describe how 'full', 'plump' or even 'dewy' the skin looks. Supple skin relies on a relatively high content of the following three substances in the dermis:

- collagen provides visible 'fullness'
- elastin provides elasticity to hold the skin in place after it is stretched or contorted (typically through muscular contractions)
- hyaluronic acid provides the appearance of 'volume' to the skin

All three substances decrease with age due to a reduced synthesis of collagen, elastin and hyalu- ▶

"TARGETING THE RIGHT MECHANISM
WITH THE RIGHT ACTIVES"

INGREDIENTS

ronic acid and higher degradation through enzymes such as collagenase, elastase and hyaluronidase. If the production of these enzymes is slowed and/or the synthesis of these three key substances is boosted, then the signs of ageing can be halted and even reversed by making the skin appear fuller with more volume. The more supple the skin, the shallower the wrinkles and skin folds will appear, and the faster skin is restored to a pre-expression state. To increase suppleness, active materials have to be selected that will:

- rebuild the dermal structure
- boost collagen synthesis and/or reduce activity of collagenase
- boost elastin synthesis and/or reduce activity of elastase
- boost hyaluronic acid synthesis and/or reduce activity of hyaluronidase
- restore dermal/epidermal communication
- reduce trans-epidermal water loss
- boost skin thickness through lasting hydration.

There are multiple active materials that work on one or more of these mechanisms. Choosing actives with multi-functional benefits and/or a strong marketing story helps to boost strong claims in the marketplace. However, claims cannot be made about the physiological effects of an active (e.g. boosting synthesis or reducing activity of enzymes), but instead need to be 'visible' or 'appearance'-based. Because such claims can be rather general, using actives with clinical data to support 'xx% visibly more supple skin in yy days' can help boost a good marketing story, as can the use of exotic or revolutionary actives to help provide products with a point of difference in the marketplace.

Re-firm sagging skin

Correcting the first two mechanisms of ageing can be easier in



Some great peptides work comparably to injectable products

COLLAGE & CO

Supple skin relies on a high content of collagen, elastin and hyaluronic acid

No single anti-ageing active will solve all consumer concerns

comparison to what gravity does to skin over time. Visible sagging is most noticeable beyond the mid-40s, and most noticeably affects the eyelids and jaw line. As skin ages, the assembly of collagen and elastin starts to be affected, which impacts the skin's natural firmness and resistance to gravitational effects. In order to effectively firm the skin, actives need to:

- lift and reshape the contours of the face
- restructure the dermis; in particular:
 - restore the correct assembly to collagen and elastin either by boosting elastin and collagen synthesis and/or
 - activating and increasing key proteins within the dermal structure to effectively hold elastin and collagen in place.

Some key actives that help in one or more of these areas include **Gattefossé's Gatuline Lifting**, **Lipotec's Uplevity** and **DSM's Syn-Hycan**. If addressing this mechanism of skin ageing using these types of actives, products should be promoted using claims such as, 'visibly firms/lifts/reshapes the facial contour by xx%

within yy days' (in accordance with the in vivo results obtained). 'Instant' lift effect active materials can also be used in conjunction with the restructuring actives. Using materials with activity on the dermal structure will provide more lasting results. However, the instant result of film forming-tenser actives can give consumers more rapid gratification while the true contour correction takes place. Thus, it is important to use appropriate claims for the instant and/or long term effects of the materials used in the formulation.

Evening out the complexion

Daily UV and free radical onslaughts not only contribute significantly to visible ageing of the skin by affecting collagen and elastin, not to mention DNA damage, but can also lead to the accumulation of darkened areas of skin and age spots. The best way to combat these changes comes in the form of products with UV agents present; a very easy and everyday way to achieve this is by adding UV filters, antioxidant and anti-pollution actives to make-up products. Daily moisturisers can also be created using suitable anti-pollution active ingredients, naturally high in antioxidant activity and preferably with some UV protective or restorative action.

Some actives with proven anti-pollution activity include **Sederma's Citystem**, **IBR's Pristinizer**, **Mibelle's Detoxophane** and **Lipotec's Pollushield**. If addressing this mechanism of skin ageing with these actives, products should be promoted using claims such as (in accordance with the in vivo results of the raw material selected):

- 'provides a protective barrier against pollution'
 - 'provides antioxidant benefits'
 - 'protects skin against pollution-induced visible changes'
- The exposure to UV light will also stimulate one or more pathways

to melanin synthesis. To stop colouration of the skin, actives should work to inhibit one or more of the pathways to melanin production, such as:

- preventing and/or neutralising reactive oxidants
- inhibiting tyrosinase activity
- inhibiting melanocyte dendricity
- blocking the transfer of melanosomes to keratinocytes

There are multiple whitening and brightening actives now available; here, the ones that work on either the whole complexion or specific age spots should be chosen, depending on the chosen development and/or the target market needs. If addressing this mechanism of skin ageing with the help of these actives, products should be promoted using claims such as:

- 'visibly brightens the complexion by xx% within 28/56 days';
- or could be more generalised such as, 'visibly evens the skin complexion';
- or very specific such as, 'visibly lightens the appearance of age spots by xx% within yy days'

The in vivo results should be reviewed carefully and visible/appearance-based claims should only be made in accordance with the in vivo results obtained; if stating a % improvement or change, it is important to specify the time frame over which this change was attained.

PEPTIDE MATERIALS:

NO NEED TO REVERT TO BOTOX

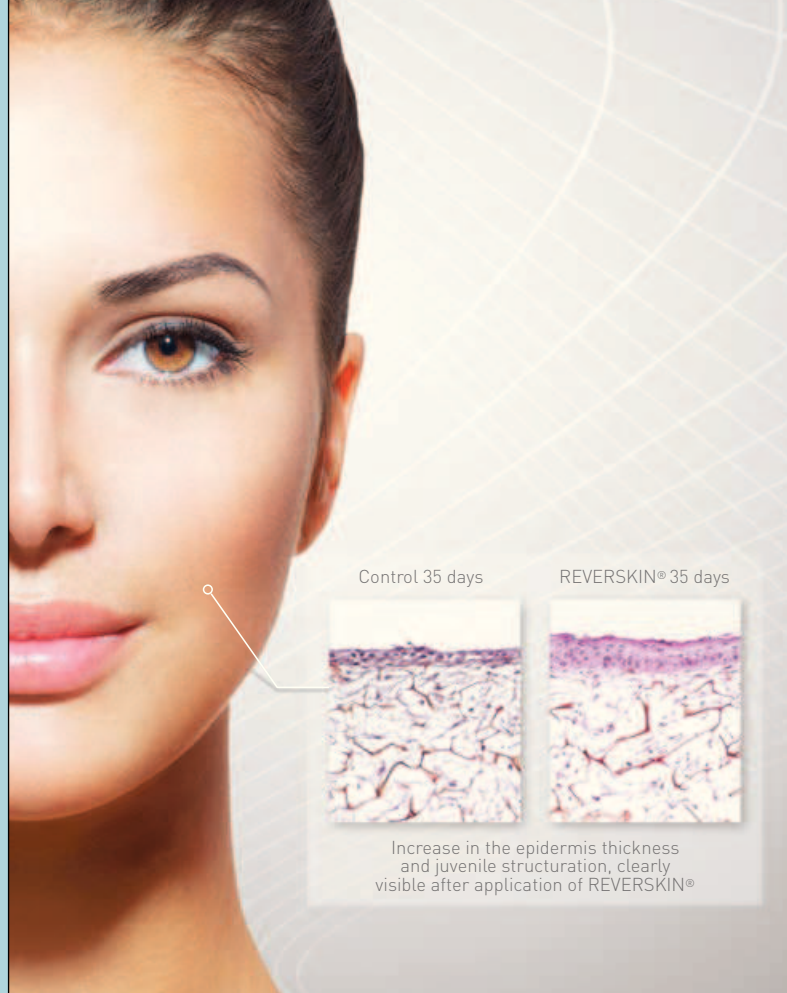
Helping consumers to age gracefully

No single anti-ageing active is going to solve all consumer concerns; so it is relevant to:

- carefully select the actives with the right target of action to match product claims
- hold suitable in vivo evidence to support all claims made
- translate the physiological results obtained to suitable cosmetic claims
- provide the right claims to guide consumers in their product selection
- put key actives in a suitable delivery base to ensure optimum activity.

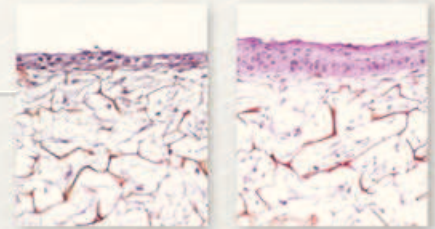
These are the key mechanisms that contribute to the visible effects of ageing along with multiple ways to correct these mechanisms. It is important to focus on targeting the right mechanism with the right actives and the right claims to make consumers happier with that mirror on the wall, regardless of their age. □

*IPCS, the Institute of Personal Care Science, provides distance and on-site training in cosmetic formulation, brand management and regulatory affairs as well as providing formulation, product development and regulatory consulting services.



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