



DR SHELDON PINNELL

SKINCEUTICALS

With the cosmeceutical industry booming, **Rosalind Hill** speaks to SkinCeuticals' founding scientist to find out what sets their products apart from the others

THE AESTHETIC INDUSTRY has rapidly developed over the past two decades—not least with the increased use of botulinum toxins and dermal fillers; but the techniques used to attain youthful and healthy skin have also improved. We are now able to access a plethora of treatments that perhaps were not once readily available, just as easily as it is to colour one's hair.

And an area of industry that has hugely progressed over this period is that of cosmeceuticals. One might say that with the rise of botulinum toxin, men and women have become more savvy when it comes to skin care, and indeed, the cosmeceutical market plays a big role in this need for skin protection from both environmental damage and ageing processes.

One company that has made massive strides in this domain is SkinCeuticals, a brand dedicated to the health of skin.

Trial and error

Dr Pinnell is the founding scientist of SkinCeuticals, and has a long career as a dermatological scientist, specialising in collagen chemistry, and skin cancer and disease research. SkinCeuticals pioneered the advent of cosmeceuticals with the original topical vitamin C technology that protects skin from premature signs of ageing. These signs are often caused by the free radicals generated by sunlight, pollution and especially, smoking cigarettes. And to combat and prevent the damage caused to the skin, Dr Pinnell managed to harness the power of antioxidants into topical formulations.

'Antioxidants are compounds which neutralise oxygen radicals so that they

can no longer cause harm,' he explains.

'What happens over the course of time is that you accumulate damage in all parts of the skin—the lipid structures, DNA structures, RNA structures—and this can eventually lead to photoageing changes, and even skin cancer. And so, antioxidants are the natural way in which the body deals with that.'

And it was this 'natural' aspect that led Dr Pinnell to use the natural strategies of the body and plants, applying them directly to the skin, to increase the natural protection that already exists within.

It was a matter of trial and error, testing approximately 100 antioxidants, to find that only two were suitable (i.e. the only two that penetrated the skin); the pure form of vitamin C (L-ascorbic acid) and vitamin E (alpha-tocopherol), two vitamins that scientists know are very beneficial for the skin.

'The first product that was used by SkinCeuticals was a topical vitamin C product,' says Dr Pinnell. 'We learnt how to formulate it so that it would go into the skin quite readily, and found that it had a number of advantages that other sun protection technologies didn't have.'

After that, he was able to combine vitamin C and vitamin E to develop an even more enhanced photoprotection product.

'These formulations are unusual in that the chemicals are in very high concentrations, but low in pH, which is very different to the usual products you might use on your skin,' says Dr Pinnell.

Dr Pinnell's research has shown that for the antioxidant formulas to work effectively as photoprotective products, and to be absorbed by the skin, they need to follow three key criteria for formulation:

- Use pure active forms of vitamins (L-ascorbic acid and α -tocopherol)
- Be formulated at a low pH
- Be at a high concentration (approximately 10-15%).

Enhancing photoprotection

Approximately 5 years ago, Dr Pinnell was also able to channel the efficacy of two more antioxidants from plants: ferulic acid and phloretin. In order to discover the photoprotective properties of these organic compounds, SkinCeuticals purchased a number of antioxidants in chemical form, testing a range of formulations to see whether they could penetrate the skin. Again, only these two could.

These two products are also wholly natural; ferulic acid is something that all plants produce to protect themselves from the sun, and phloretin is predominantly found in apples.

Interestingly, ferulic acid and phloretin helped to enhance the photoprotective power of the original formulas containing L-ascorbic acid (vitamin C) and α -tocopherol (vitamin E),' says Dr Pinnell. 'So, these ingredients interact with each other and provide supplemental protection.'

And this is basically the backbone to the technologies that SkinCeuticals

produces—these antioxidants get into the skin, provide substantial photoprotection, and even inhibit the DNA mutations that the sun causes, and that can lead to skin cancer. And, what is better, is that these antioxidant products are based on the very ingredients that the skin uses

naturally to protect itself by reinforcing the skin's protective system these products help to improve skin health and protect it against premature ageing. Furthermore, the skin is able to repair itself when well protected.

However, Dr Pinnell emphasises that it is also important to use sunscreen as the SkinCeuticals products won't prevent sunburn.

'They do something different to sunscreen in my opinion,' he says. 'What they do is allow increased defence against these things that cause harm, so it makes sense to use them on a daily basis. But they work by a mechanism that's different to sunscreen, so if you want to optimise your photoprotection, then use both.'

Advocating evidence-based practice

Dr Pinnell initially trained as a biochemist at the National Institutes for Health, during which time his research focused on collagen chemistry, before choosing to specialise in dermatology. It is perhaps this background that has made him a great advocate of clinical trials and evidence-based research and practice—he himself has spent almost five decades researching new technologies to prevent skin cancer and photoageing, as well as holding nine patents.

SkinCeuticals has carried out extensive studies to assess the efficacy of antioxidants under the stress of the sun's UV spectrum, as well as other sources of free radicals. The brand also anticipates further studies in skin repair, but these often take a significant amount of time to carry out. One thing that is clear, however, is that this research has produced some state-of-the-art products containing antioxidants, such as C E Ferulic and Phloretin CF.

'They both give the same amount of protection,' Dr Pinnell explains. 'But the C E Ferulic product has vitamin E,

which is an oil, so is more beneficial for those with older or dry skin. Phloretin CF is better for oily skin, and those living in humid environments may prefer to use this.'

However, the beauty of the SkinCeuticals range is that there is now a 'menu' from which people with different skin types are able to choose, in order to find the right product that works for them.

Conclusions

Coming from a dermatological background, Dr Pinnell's life-work has focused on processes of the skin and the protective qualities of products that can be developed. In a world in which appearance-based treatments are constantly advancing and changing dramatically, I'm reminded how important it is to protect your investment by ensuring that you protect your skin and treat it well. Dr Pinnell believes that this is something that all physicians should reinforce to their patients, while embracing the power of antioxidants in their daily practice.

