

There are 3 special features associated with Ashland to create new and improved products for today and sustainable solutions for tomorrow

A conversation with Joel Mantelin, Vice President of Marketing and Business Development and Anne Clay, Marketing and Business Development Manager, Biofunctionals and Naturals of Ashland



Joël Mantelin joined in 2007 through the acquisition of Vincience, of which he was previously an owner and founder. Located in Sophia-Antipolis, France, one of Europe's most important hub for Scientific Research, he holds a global role for leading the Biofunctionals' business of Ashland worldwide. His creativity associated with an excellent market knowledge, expanding beyond the Personal Care market, has allowed him to develop breakthrough concepts and innovative solutions for the skin care industry for 30 years. Altogether, Joël Mantelin has launched and supervised the launches of over 200 active ingredients. He is a well recognize talented partner among the global skin care industry.



Anne Clay manages the launch of new biofunctionals for both skin and scalp applications. She also promotes the company's latest scientific advances in biofunctionals for skin and scalp care products. Anne is also in charge of the validation of Ashland natural solutions in accordance with COSMOS, the European standard for organic and natural cosmetic products. Post-graduated from the Faculty of Pharmacy in Lyons, France, Anne holds a M. Sc in Cutaneous Biology and Immunology, and a Master Degree in biochemistry from the University of Nice-Sophia Antipolis, France.

EURO COSMETICS: *In April, you introduced santalwood™ biofunctional, a natural extract obtained from the sandalwood tree. What are the special features of your new product?*

Anne Clay: There are 3 special features for sandalwood. First, its sourcing. Santalwood™ biofunctional is sourced from up-cycled wood chips, left over from the sandalwood essential oil, creating value out of a byproduct, and minimizing the use of natural resources. Second, its development. Santalwood™ is also the first bio-functional developed using Artificial Intelligence, as a tool to unveil unexplored biological pathways and predict biological activities. And third, a new approach towards skin aging. Santalwood™ biofunctional brings a new approach to skin aging through the skin olfactory receptors.

Joël Mantelin: I would add to what Anne just indicated that, for me, the special feature that really makes this ingredient unique and different is the Bioinformatic/

Artificial Intelligence approach because it was integrated at the very beginning of the development process of santalwood™ biofunctional. Without this approach, the product would have been totally different. It is the first time in my whole carrier that I launch a product this way, and it was extremely exciting and new.

EURO COSMETICS: *The aspect of sustainability plays an important role in the manufacturing process. Please tell us a bit more about this.*

Joël:
Sustainability and respect of Nature are very important at Ashland

Anne Clay: Indeed, the sustainability aspect is at the core of all new development at Ashland. For santalwood™ biofunctional we start our process from upcycled wood chips, as part of a circular economy model, with full transparency over the supply chain. Then the supercritical CO2 extraction methodology is used as a premium technology respecting the environment and the integrity of the molecules.

Joël Mantelin: And sustainability starts form the very beginning: the Sandalwood forest is grown and sustained under the principles of "regenerative agriculture" which focuses on topsoil regeneration, improving the water cycle, etc. to ultimately increase resilience to climate change and strengthen the health & vitality of farm soil. Sustainability is also about "respect": Sandalwood is a precious material that deserves to be respected from the way it is grown, to the way it is processed into our biofunctional.





Shinrin Yoku

EURO COSMETICS: *The focus here is also on the trend “Shinrin Yoku”, the Japanese name for “forest bathing”. Where did the idea come from?*

Anne Clay: The idea came from the health and wellness industry, where this trend is already successfully adopted by many consumers worldwide as a sustainable approach to increase health by reconnecting with nature, especially in Japan where this trend finds its roots.

Joël Mantelin: An ingredient, its positioning, and in a sense its “personality” also reflects the personality of the person that leads the project and the launch. The “Shinrin Yoku” aspect of the product was Anne’s idea because it corresponds to her, to her sensitivity to nature and well being.

EURO COSMETICS: *What is behind this trend and how do you use it?*

Anne Clay: Behind this trend is the traditional use of sandalwood in medicine and in aromatherapy. The common point between these traditional uses and the forest bathing trend are the odorant, volatile molecules emitted by the trees and called forest VOCs or F-VOCs. These F-VOCs are responsible for a large part of the health benefits of bathing in the forest. Our research showed that sandalwood™ biofunctional was rich in many F-VOCs, some unique to the Sandalwood and other more ubiquitous and found in other trees. Additionally, our Artificial Intelligence research identified a link between these F-VOCs

from sandalwood™ biofunctional and the skin olfactory receptors.

Joël Mantelin: Yes indeed, and in a sense, Forest Therapy is an “in-situ Aromatherapy” because its benefits are mediated by our olfactory receptors; and in the case of sandalwood™ biofunctional Ashland’s scientists have shown that the skin benefits of our ingredient were mediated by olfactory receptors present in our skin.

EURO COSMETICS: *You also encounter the forest in an olfactory way. How can the forest be discovered through aromas and what effects does it have on our skin?*

Anne Clay: The artificial Intelligence research predicted many different biological activities from 17 odorant molecules that were evidenced in sandalwood™ biofunctional. The activities were then subsequently tested and proven to be accurate skin targets, delivering the predicted skin benefits.

Joël Mantelin: To continue what I just said previously, from a biological perspective, our skin has the ability to sense and “smell” our environment directly through embedded olfactory receptors such as OR2AT4. Even if the skin hosts the sense of “touch” in the past 5 years, Ashland’s scientists have also shown that it hosted other senses such as taste receptors, photoreceptors, and now olfactory receptors, all have an impact on the quality of the skin and aging.

EURO COSMETICS: *And what scientific studies are there about this?*

Anne Clay: Scientific studies highlight the benefits of forest medicine as a new sustainable approach to decrease stress and anxiety and describe the health benefits of breathing in the forest. Other scientific studies show the effects of some synthetic odorant molecules on the olfactory receptors OR2AT4.

Joël Mantelin: Cosmetic science is also about translating to the skin scientific discoveries that have been done in other fields, and at Ashland we love to do this.

EURO COSMETICS: *Ashland supports the Nature Conservancy’s forest restoration efforts to plant a billion trees by 2030. How important are trees for us and what’s behind the project?*

Joël Mantelin: Sustainability and respect of Nature are very important at Ashland, and we take action: we are “innovating with a conscience for the future”. Science and conscience indeed drive our Biofunctionals development, and even though we already have several extracts based on tree extracts, trees have much more to tell & give us.

Ashland | supporting The Nature Conservancy’s Plant a Billion Trees effort

Anne Clay: There is an evolution on how trees are considered. Yesterday, they were treated as objects and moving forward trees are increasingly considered as living organisms. A growing number of books

Anne:
Our mission is to provide brands with safe and efficacious ingredients that respect the environment

and conferences on trees show that trees are “smart”, and that they have many subtle ways to communicate with their environment, one of them is with the odorant molecules that they release in the soil or in the air.

EURO COSMETICS: *You used artificial intelligence in product development for the first time. What considerations played a role in this process and what benefits did it offer?*

Anne Clay: The first consideration was the type of molecules found in the Sandalwood; These molecules allowed the network pharmacology system to analyze all potential target genes and proteins associated to these molecules and their potential benefits in the skin. This saves time and efforts in screening all potential biological pathways starting from a huge amount of data. Additionally, this opens the door for customization in looking at other types of predicted activities.

Joël Mantelin: As Anne just said, Artificial Intelligence in our domain does not “make the product”, the human input is of tantamount importance. At Ashland we have been working on this subject for more than 10 years, and I look at Artificial Intelligence as a tool, a brand new and promising tool, linked to “big data” processing, that enables us to “see” things that we would not have seen without it ... and make new discoveries. I like to compare it to the invention of the microscope which enabled scientists to see beyond their “normal senses” and better understand the intrinsic. For me, it is more than a breakthrough, it is a revolution.

EURO COSMETICS: *What can you tell us about the test results for improving skin aging?*



Santalwood nuts

Anne Clay: The results show for the first time that Santalwood™ can reduce the skin olfactory signature of aging. Our skin produces volatile molecules, and some of these molecules are typically found in skin after 40, representing a new marker of skin aging. Ashland scientists observe a decrease in these volatile molecules produced by aged skin after applying a cream with Santalwood™ biofunctional, and in parallel, observe a better skin turnover, an increase in skin luminosity and firmness and less visible wrinkles.

EURO COSMETICS: *What do you think are the qualities that make santalwood™ biofunctional different from other line of beauty products?*

Anne Clay: Santalwood™ biofunctional brings the true benefits of forest bathing to the skin and to the hair. Ashland scientists have shown that the skin loses its olfactory receptors OR2AT4 with age and with pollution. Santalwood™ biofunctional can restore the skin olfactory acuity with a forest therapy approach through odorant molecules delivered by this sandalwood extract with the final objective to make skin and scalp age better.

Joël Mantelin: What really impressed me in this development was that 100% of the AI predicted activities of our ingredient were confirmed by the evaluation tests. So, beyond the sustainability aspect which we already discussed, what makes santalwood™ biofunctional really different from other lines of products is both its unique and unseen activities derived from

Artificial Intelligence and the know how of our scientists, and its unique composition resulting from a multifold extraction process of recycled sandalwood wood chips. santalwood™ biofunctional is inimitable.

EURO COSMETICS: *In which way is Ashland’s approach and mission different to competitors?*

Anne Clay: Our mission is to provide brands with safe and efficacious ingredients that respect the environment, using technologies and tools such as AI that make these ingredients unique, with scientifically proven benefits for both skin and hair applications. We do not follow the trends but try as much as possible to be ahead of the trends, providing brands with new ideas and concept and many ways to differential on a crowded marketplace.

Joël Mantelin: It is matter of intention: we want to be different; we want to imagine how the future could be, we want to invent this future, through Science; and translate this vision to our customers through our innovations.

EURO COSMETICS: *Are there new things that we should look forward to from Ashland?*

Joël Mantelin: Too soon to tell, but In Cosmetics 2022 in Paris will see more innovation coming from Ashland. We’ll let you know in time.

EURO COSMETICS: *Thank you for the conversation.*