

New Products that Benefit from Million-Year-Old Blueprints

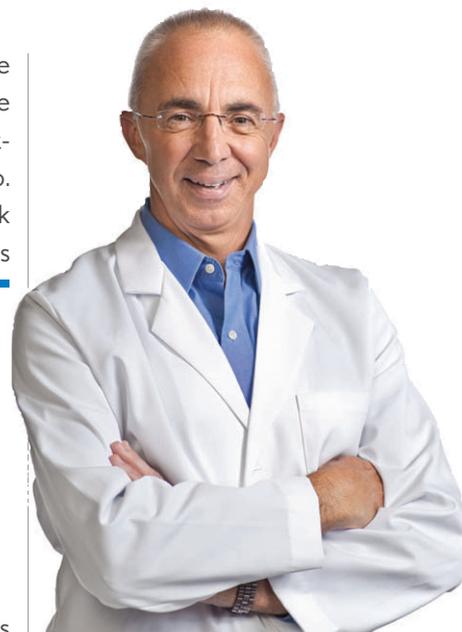
If you were given the choice of using a product that had undergone 3 years of clinical trials in a few thousand patients or a product that had undergone hundreds of millions of years of trials with exponentially more study subjects, which product would you feel more confident in? If you chose the latter, then you are interested in bio-inspired products. Before we define bio-inspiration, let's talk about what it's not. Bio-inspiration is not "green" or "natural" or "organic" - these are labels that describe how something was produced. Bio-inspiration is the "how" a product works. Bio-inspiration is a discipline that studies nature's best ideas and then imitates those designs and processes to generate breakthrough ideas. You may also hear other names for bio-inspiration, such as biomimetics and biomimicry,¹ but these all refer to the same concept of examining a system that occurs in nature, determining how it works, and then applying that system for other purposes.

Scientists and engineers are increasingly turning to nature for inspiration, but this is not a new science. Da Vinci based his early designs of a flying machine on the bird, and today's jets have followed his example. The wings are based on the bird's ability to generate lift from having wind flow beneath them. The body of the plane is also cylindrical, like a bird's, which limits

the amount of drag that the plane encounters as it moves through the air. Another commonly known example of bio-inspiration is Velcro. The design is based on the burdock seed, which you may also know as

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a "sticky ball". These are the seeds from trees that stick to clothes and pet hair. The burdock seed is surrounded by a coat of very small hooks and Velcro has mimicked this with very small hooks on one piece that fit into very small loops on another piece. That familiar ripping sound is from the hooks being removed from the loops. Nature's designs can be a good starting point for answers to scientific and technical problems,² and one of the perceived benefits of bio-inspired products is that they work in conjunction with nature rather than interfering with it or dominating it.³ Now science is looking at the body as a starting point for bio-inspired products. Indeed, why not ask the eye what type of product it would like to associate with? Bio-inspired materials and treatments are already making inroads into all segments of health care, including eye care. As these new bio-inspired



JOE'S VIEW with Joe Barr, OD, MS, FAAO Bausch + Lomb

products come to market, you may ask yourself, "Now why didn't I think of that?" But it's OK, nature already did.

Thanks for reading. I'm looking forward to your comments at JoesView@bausch.com.

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