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A century of natural product synthesis: From concept to practice

The present-day level of achievements in organic synthesis methodology in general, and natural products in particular, is the highest ever compared to as recently as a decade ago. Natural products varying in their structures and biological activities continue to provide synthetic chemists with the incentives to initiate, and the perseverance to pursue challenging research programs. This has also led to the development of innovative methods toward efficient and highly stereocontrolled bond-forming reactions. Stereochemical control in the synthesis of biologically relevant molecules and drug prototypes is a primordial factor in ensuring productive interactions with target enzymes, receptors and other macromolecules. When presented with the structure of a target molecule to synthesize, our first contact is visual. What follows is a subliminal interplay between the eye and the mind's eye, triggering a complex, yet quasi-instantaneous series of visual relational and visual reflexive chemical thought processing events that are a part of the psychobiological basis of generating a synthesis plan. The heuristic aspects of visual and mental thinking paradigms will be discussed in the context of viable synthetic strategies toward biologically relevant molecules.

Biography

Stephen Hanessian holds the Ionis Pharmaceutical Research Chair at the Université de Montréal, Canada. He is also a faculty in the Department of Pharmaceutical Sciences, University of California, Irvine as the Director of the Medicinal Chemistry and Pharmacology graduate program. His research interests are in organic, bio-organic and medicinal chemistry with nearly 550 original publications and several patents to his credit. His recent book *Design and Strategy in Organic Synthesis* Wiley-VCH, 2013 is a widely acclaimed monograph.

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