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Editorial

The Origins of Life and Chirality

I was fascinated by a theoretical paper sent to me by one of the authors (Bielski, R. and Tencer, M. *Can. J. Chem.* **2003**, *81*, 1029) relating to absolute asymmetric synthesis, which has implications for the origins of life. A number of explanations for the origins of homochirality have been put forward in the past, including preferential enantiomorphic crystallisation, or even that enantiomers have very minute but calculable energy differences.

The new paper discusses the concept of using three independent but cooperative microscopic external factors (such as physical fields) to impart spatial directionality on reacting molecules, thus creating conditions for generating homochiral molecules. Since a high electric field is relatively easy to apply, it is suggested that the field is applied twice, but in orthogonal directions, to a prochiral molecule in the presence of a flat surface or template. Suggestions for possible candidates for this approach include nucleophilic substitution on racemates, nucleophilic reactions at carbonyl groups, Michael additions, or pericyclic reactions.

At present this is just a theory, and the authors are interested in hearing from anyone willing to test their predictions with practical experiments. If interested, contact Roman Bielski at bielski@ptcvalue.com. Any successful experiments would raise issues relating to the origins of homochirality and of life. It sounds like a fascinating project to work on.

Trevor Laird

Editor

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