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Molecular recognition in innovative drug design

Molecular recognition is the study of non-bonded interactions between molecules. This field has flourished in the past decades, generating numerous rules and restrictions which govern intermolecular interactions through supramolecular host/guest chemistry and macromolecular structural biology. Besides the three commonly-used classical interactions (hydrogen bonding, Coulombic interaction and hydrophobic interaction), there are numerous other interactions that have not been utilized in drug design. This review will highlight these novel interactions useful for innovative drug design. The author will also highlight the first successful utilization of halogen bonding in rational drug design. We successfully utilized the electro-positive tip of halogen to replace amidine to interact with the conserved electro-negative asp 189 of Factor Xa.

Biography

Patrick Y S Lam is currently an Adjunct Professor at Drexel University College of Medicine and Baruch S. Blumberg Institute. He is also a consultant at Lam Drug Discovery Consulting, LLC. He recently retired from a director position in the Discovery Chemistry Department of Bristol-Myers Squibb Co. He joined DuPont in 1984 and moved to BMS in 2001. He was the group leader/co-inventor responsible for the discovery of Eliquis®/Apixaban, a novel Factor Xa anticoagulant recently launched on the market.Patrick is also internationally known as the co-discoverer of the powerful Chan-Lam Coupling Reaction. He has authored 85 papers/reviews/book chapters and is an inventor on 36 patents/patent applications. He received his PhD from the University of Rochester (Dr. Louis Friedrich) and was a postdoctoral fellow in UCLA (Prof. Mike Jung and the late Prof. Don Cram, 1987 Nobel Laureate).

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