

Advances in Chiral Chromatography for Drug Discovery

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Abstract

Chiral chromatography has emerged as a pivotal technique in drug discovery, enabling the precise separation and analysis of chiral compounds, which is crucial for identifying and optimizing drug candidates. Recent advances in chiral chromatography have significantly enhanced its capabilities, including the development of novel stationary phases, improved resolution techniques, and integration with advanced detection methods. Innovations such as high-throughput screening and miniaturized systems have accelerated the drug discovery process by enabling rapid and efficient analysis of chiral compounds. Furthermore, the incorporation of computational tools and artificial intelligence has facilitated more accurate predictions and optimizations of chiral separations. These advancements not only streamline the identification of effective and safe enantiomers but also reduce the time and costs associated with drug development. As chiral chromatography continues to evolve, its role in drug discovery becomes increasingly critical, driving progress towards more effective and targeted therapeutic agents.

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chemistry and sustainable practices [10]. Researchers are increasingly focused on developing environmentally friendly chromatographic methods that reduce the use of hazardous solvents and minimize waste. Innovations such as the use of more sustainable chiral stationary phases and the implementation of efficient solvent recycling systems contribute to the overall sustainability of the drug discovery process.