



Direct Synthesis of Asymmetric α -Halo and α -Deutero Carboxylic Acids

α -Substituted carboxylic acids are widely utilized within the pharmaceutical industry. Radiolabeled compounds with deuterium are invaluable chemical species, and carboxylic acids especially so. Fluorine-substituted species are also in high demand, due to the similar size but increased chemical stability of fluorine relative to hydrogen. In particular, stereogenic fluorines in close proximity to carboxylic acid residues are of current relevance to the pharmaceutical industry.

Researchers in the Department of Chemistry at Colorado State University have developed a novel reaction that catalytically produces a variety of α -chloro, α -fluoro and α -deutero carboxylic acids. The reaction proceeds in high yield (80-90%) and displays excellent enantioselectivities (>90%). The deuteration reaction utilizes D_2O (heavy water), which is by far the cheapest and most abundant source of deuterons. This reaction is the first example of catalytic, asymmetric generation of deuterolabeled compounds wherein the deuterium is the single stereocenter and is potentially amenable to producing the analogous α -tritio compounds.

Contact us for further information regarding licensing and commercialization opportunities.

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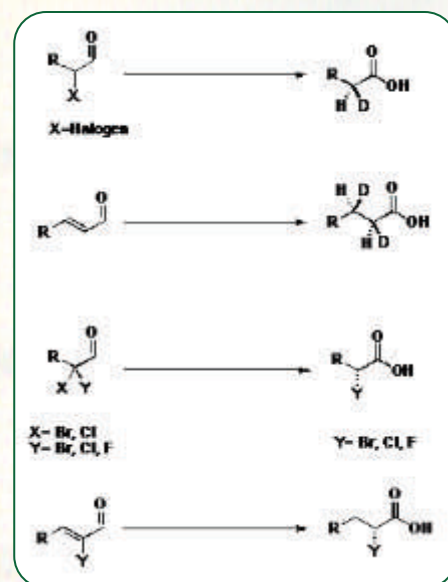
Patent Information
Patent pending

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Related Technologies
09-007

Features and Benefits

- Catalytic synthesis of asymmetric α -chloro, α -fluoro, and α -deutero carboxylic acids.
- Large substrate scope, high yields, excellent enantioselectivities.
- Mild reaction conditions, inexpensive deuterium source (D_2O).
- Potentially amenable to α -tritio carboxylic acids.



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