



Protecting Groups for Boronic Acids

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WARF: P130142US02

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing novel protecting groups for boronic acids that make them easier to synthesize and use.

Overview

Boronic acids (i.e., compounds that have a single boron-carbon bond) are one of the most useful functional groups in organic chemistry and chemical biology. They have applications in polymer sciences, fine chemicals and pharmaceuticals.

Derivatives of boronic acids, called benzoxaboroles, are especially promising in medicine. They may aid antifungal, antimalarial and other treatments. Some benzoxaboroles currently are in preclinical and clinical trials.

Problematically, the unique characteristics that make boronic acids so valuable also make them difficult to synthesize and utilize.

The Invention

UW-Madison researchers have developed two novel protecting groups for boronic acids that make them easier to synthesize, manipulate and use. Protecting groups prevent undesired reactions.

Compound 1 is a divalent ligand to protect hemiboronic acids (e.g., benzoxaborole). Compound 2 is a trivalent ligand that complements another popular trivalent protecting group called MIDA (*N*-methyliminodiacetic acid). The protected boronic acids are liberated by aqueous acid.

Boronic acids treated with either of the protecting groups become highly luminescent when exposed to long-wave UV light, facilitating their use.

Applications

- Synthesizing boronates
- Polymer sciences, fine chemicals and pharmaceuticals

Key Benefits

- Makes boronic acids easier to synthesize and utilize
- The protecting groups are uniquely compatible with basic and reductive reaction conditions (potentially doubling usefulness in cross-coupling reactions).

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Related Technologies

- [WARF reference number P110315US02 describes a method using boronic acids to improve drug delivery.](#)
- [WARF reference number P110055US02 describes a method using boronic acids for biomass conversion.](#)

Tech Fields

- [Research Tools : Synthesis & purification](#)

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