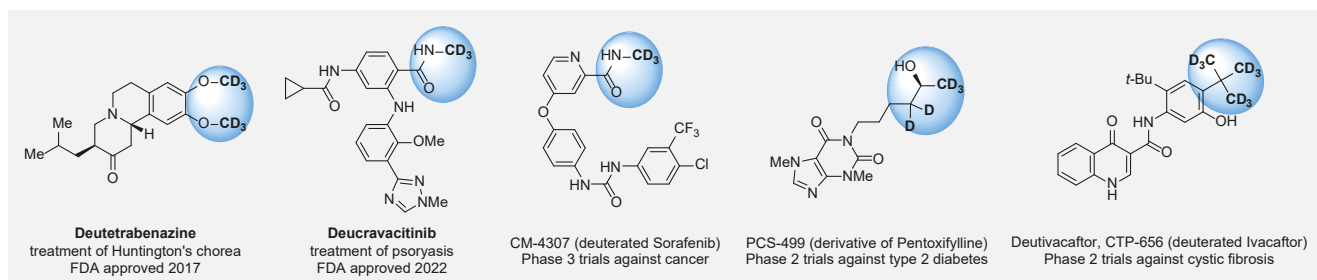


# Deuterium-containing Building Blocks

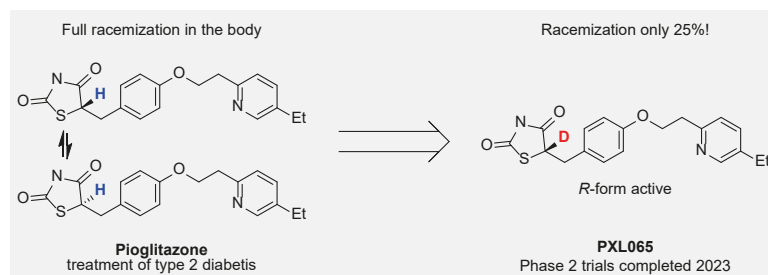
## Introduction

In 2022, the FDA approved the second deuterium-containing drug. Deuterium exchange has proven effects on drug pharmacokinetics, inhibiting demethylation, reducing oxidation, and slowing racemization. This leads to prolonged drug exposure, lower doses, and fewer side effects. Deuterium has improved many existing drugs, making it important to consider deuterated variants when filing patents for new pharmaceuticals.<sup>1-3</sup>

Enamine is the recognized leader in the synthesis of advanced building blocks for discovery chemistry. Our chemists have synthesized a sizable collection of deuterium-containing building blocks to design new therapeutics.

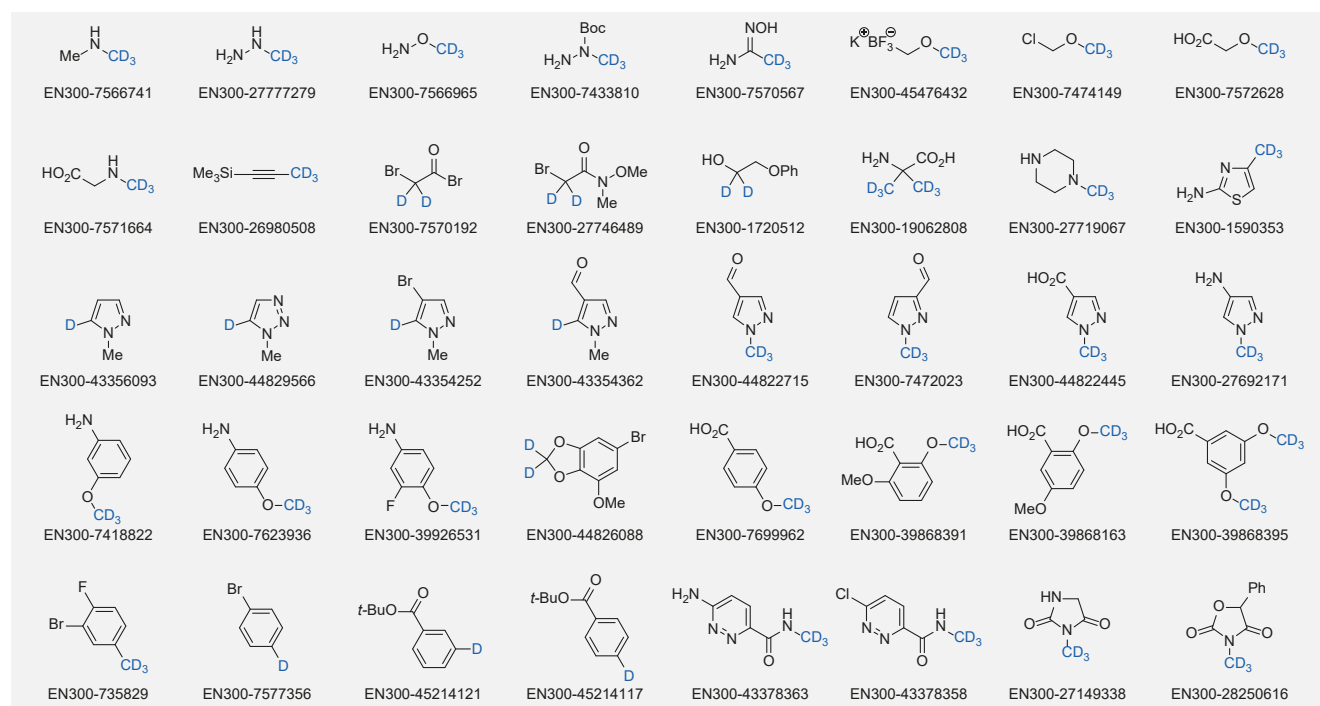


## Case study



Pioglitazone has been in medical use against type 2 diabetes since 1999. The substance was administered as racemate, as it undergoes full racemization in the patient's body. However, the incorporation of deuterium to the molecule significantly decreased racemization, resulting in a ratio ~4:1. Deuterium allowed to administer the substance in the *R*-chiral form, leading to a notable reduction in side effects.<sup>4</sup>

**We offer:** over 50 deuterium-containing building blocks on a gram scale.



## References

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3. S. T. Wroblewski et al. *J. Med. Chem.* **2019**, *62*, 8973.  
 4. S. A. Harrison et al. *J. Hepatol.* **2023**, *78*, 914.



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