



## METHOD FOR PRODUCING TERTIARY BETA-HYDROXY-ALPHA-AMINO ACIDS

[View U.S. Patent Application Publication No. US-2024-0026396 in PDF format.](#)

**WARF: P220362US02**

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### The Invention

UW-Madison researchers from the department of chemistry have developed a synthetic route for producing tertiary  $\beta$ -hydroxy- $\alpha$ -amino acids. Their approach utilizes a pyridoxal-phosphate (PLP)-dependent enzyme in combination with a ketone substrate and a primary or secondary  $\beta$ -hydroxy amino acid. The reaction yields the desired amino acid with a tertiary alcohol sidechain.

The researchers have demonstrated this route using two different PLP-dependent enzymes: L-threonine aldolases and L-threonine transaldolases (e.g., ObiH). While previous reports have shown these enzymes to react with aldehydes to yield chiral secondary alcohol sidechains, the researchers were able to successfully react certain enzymes with ketone-containing substrates to yield the desired end products. All told, this route can be used to produce tertiary  $\beta$ -hydroxy- $\alpha$ -amino acids inexpensively and at high yield. These molecules are particularly important intermediates in the biosynthesis of cyclic peptide and small molecule antibiotics.

### Additional Information

#### For More Information About the Inventors

- [Andrew Buller](#)

#### Tech Fields

- [Materials & Chemicals : Synthesis](#)

For current licensing status, please contact Rafael Diaz at [rdiaz@warf.org](mailto:rdiaz@warf.org) or 608-960-9847