

1 **Supporting information**

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3 **Highly regioselective and stereoselective hydroxylation of free amino acids by a 2-**
4 **oxoglutarate-dependent dioxygenase from *Kutzneria albida***

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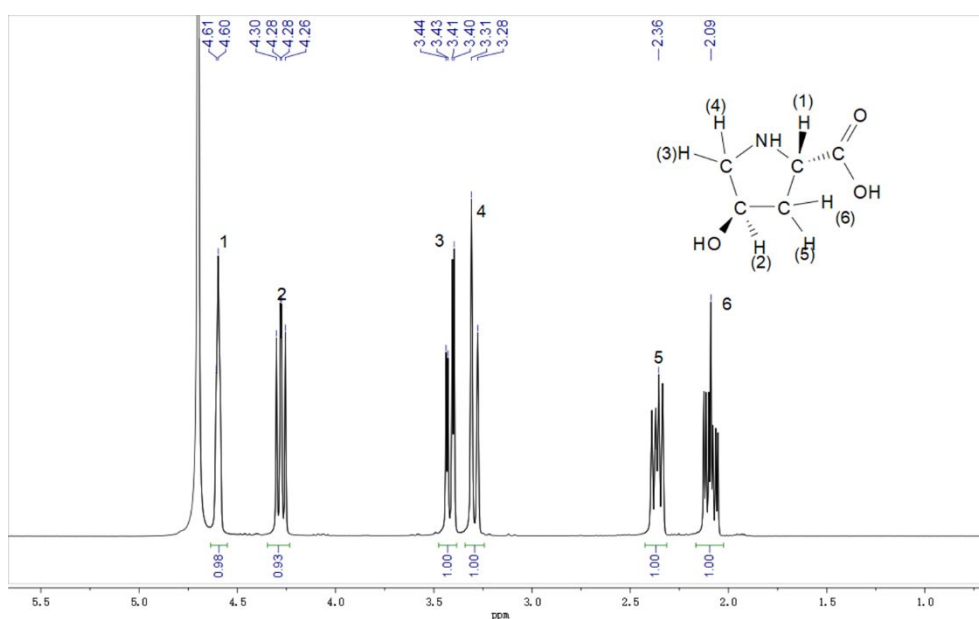
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25 **NMR analysis**

26 ^1H , ^{13}C NMR were recorded on Avance 400 (Bruker, Billerica, MA, USA) at 400 MHz (^1H
27 NMR), 100 MHz (^{13}C NMR). Chemical shifts were reported in ppm down field from internal
28 Me₄Si. Multiplicity was indicated as follows: s (singlet), d (doublet), t (triplet), q (quartet), m
29 (multiplet), dd (doublet of doublet), br (broad). Coupling constants were reported in Hertz
30 (Hz).

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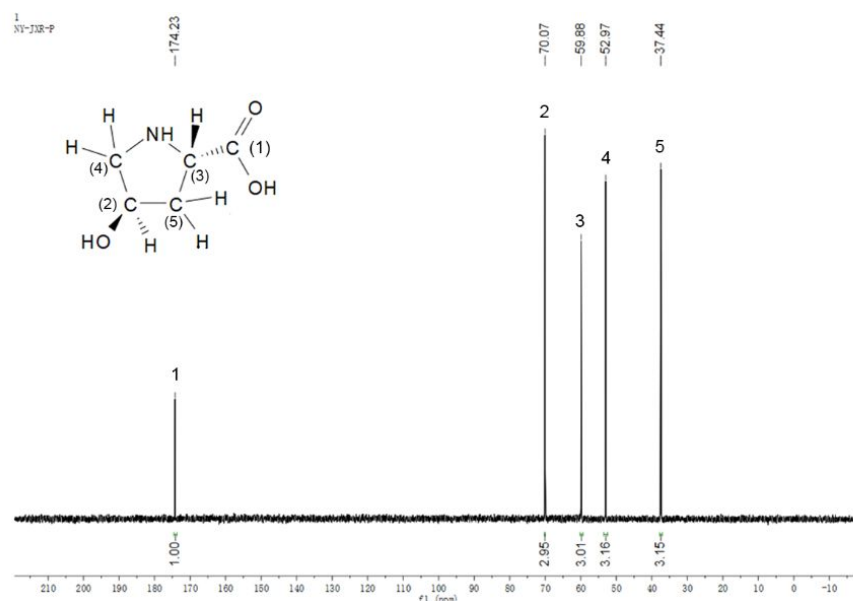
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^1H NMR (400 MHz, D₂O), δ 4.60 (s, 1H), 4.28 (d, J = 2.0 Hz, 1H), 3.40 (d, J = 3.7 Hz, 1H),
3.34 – 3.21 (m, 1H), 2.35 (d, J = 8.0 Hz, 1H), 2.09 (s, 1H)

Figure S1 Analysis of product generated from L-proline hydroxylation by ^1H -NMR spectrum

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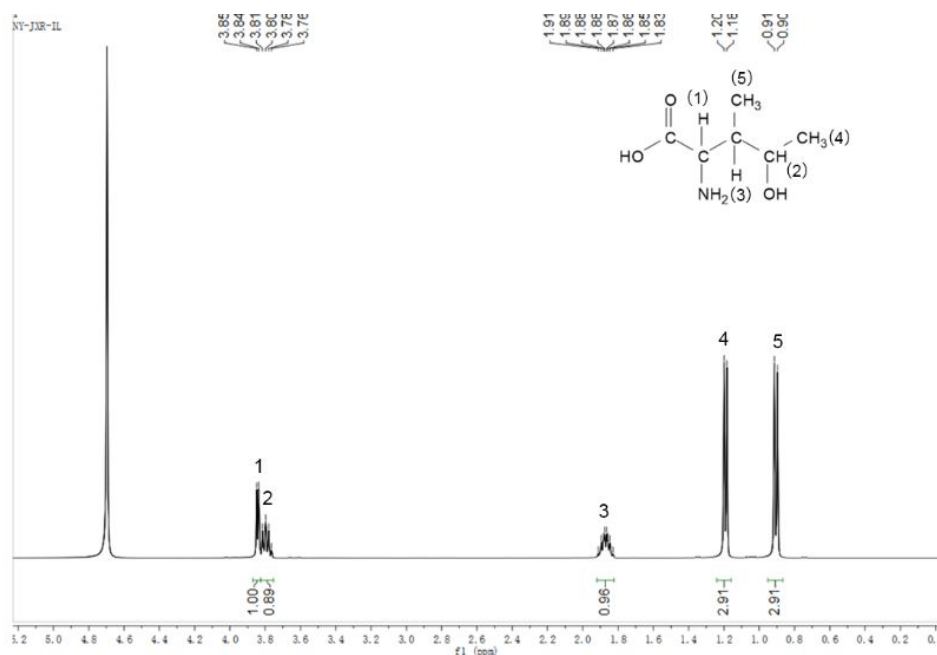


¹³C NMR (101 MHz, D₂O) δ 174.23 (s), 70.07 (s), 59.88 (s), 52.97 (s), 37.44 (s).

Figure S2 Analysis of product generated from L-proline hydroxylation by ¹³C-NMR spectrum

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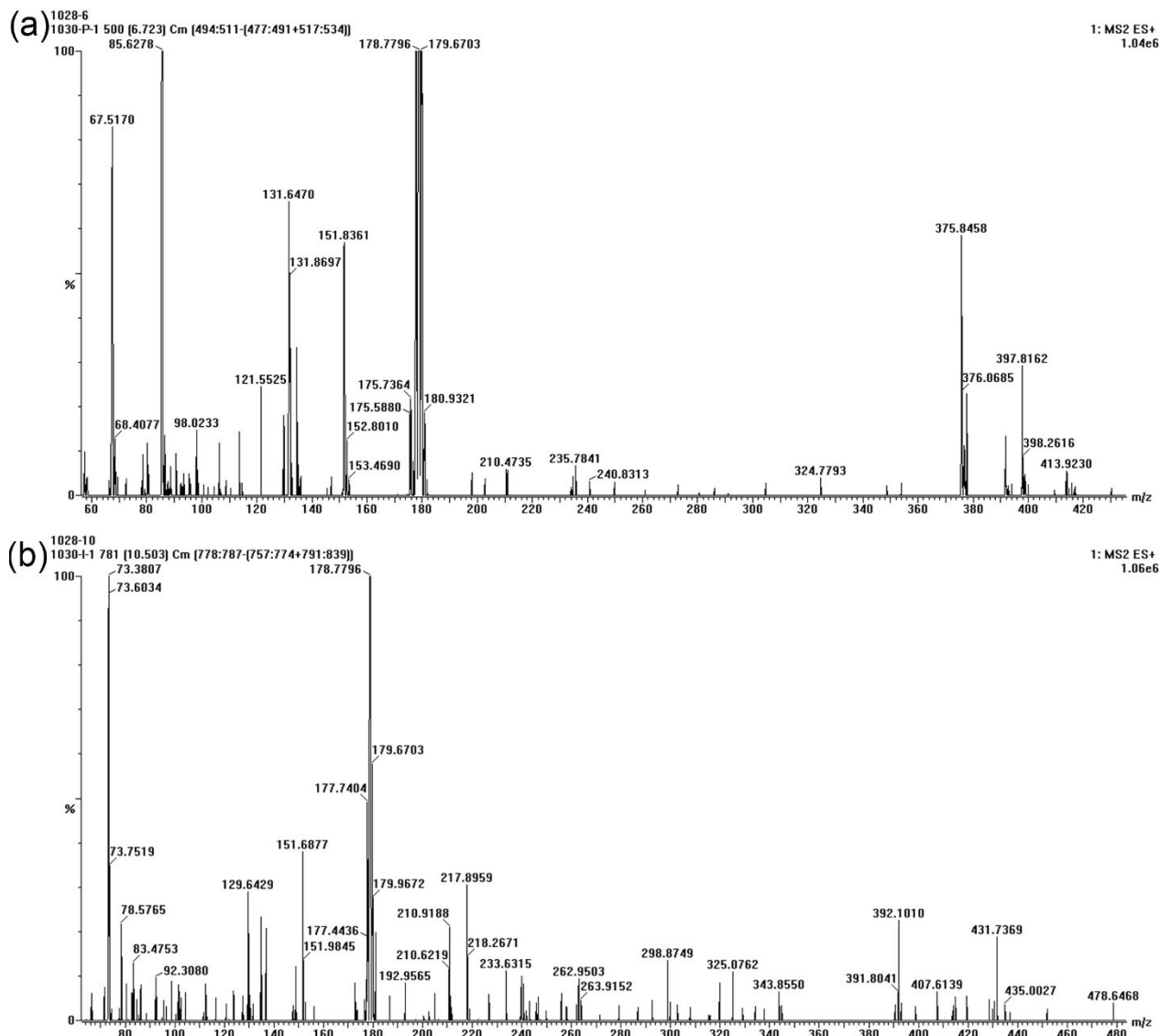
^1H NMR (400 MHz, D₂O) δ 3.84 (d, J = 4.4 Hz, 1H), 3.79 (dd, J = 13.6, 6.8 Hz, 1H), 1.92 – 1.82 (m, 1H), 1.19 (d, J = 6.3 Hz, 3H), 0.91 (d, J = 7.1 Hz, 3H).

Figure S3 Analysis of product generated from L-isoleucine hydroxylation by ^1H -NMR spectrum

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LC-MS analysis

LC-MS analysis of three products were recorded on the ACQUITY UPLC-MS/MS SYSTEM-WATERS instrument.



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Figure S4 LC-MS analysis of products after the incubation of *KaPH1* with different amino acids as substrate. (a) Fmoc-4-Hyp detected in the reaction mixture was analyzed by MS; (b) Fmoc-4-HIL detected in the reaction mixture was analyzed by MS.