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Rational engineering of ornithine decarboxylase with greater selectivity for ornithine over lysine through protein network analysis

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Highlights:

- ODC is identified as having promiscuous substrate specificity.
- ODC from *Lactobacillus* sp. was selected to improve its substrate specificity.
- The access tunnel *k*-clique community was analyzed for protein engineering.
- Engineered mutant enhanced the local rigidity of the enzyme structure.
- two-fold enhanced selectivity was achieved by the engineered biocatalysis.

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