It was an open question for a while if there existed a simple, separable, exact $C^*$-algebra which was not isomorphic to its opposite algebra. In a recent work with C. Phillips we gave an example of such a $C^*$-algebra $A$ and showed that it has the following additional properties. It is stably finite, approximately divisible, has real rank zero and stable rank one, and has a unique tracial state. Moreover, the order on projections over $D$ is determined by this unique trace, and the $C^*$-algebra tensorially absorbs the Jiang–Su algebra $Z$, and the $3^\infty$ UHF algebra. We could also explicitly compute the $K$-theory of $D$, namely $K_0(D) \cong \mathbb{Z}\left[\frac{1}{3}\right]$ with the standard order, and $K_1(D) = 0$. Some open questions about simple, separable $C^*$-algebras with some additional properties which are not isomorphic to their opposite algebras will also be discussed.