# Highlights

* We show that families in the CPA/AT transporter superfamily consists of inverted repeat structures
* We classify the members of the CPA/AR superfamily in a new structural and evolutionary hierarchy: (1)Superfamily (2)Fold-type (3) Family (4) Subfamily, using an integrated topology annotation pipeline.
* The three fold types are: 5-helical-broken, 6-helical-reeentrant, and 7-helical-broken
* We show that the switch from the broken-reentrant switch has occured between the 7-helical-broken and the 6-helical-reentrant fold types.
* We show that the gain/loss of helices, change in orientation occurs between and even with in closely related families,

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