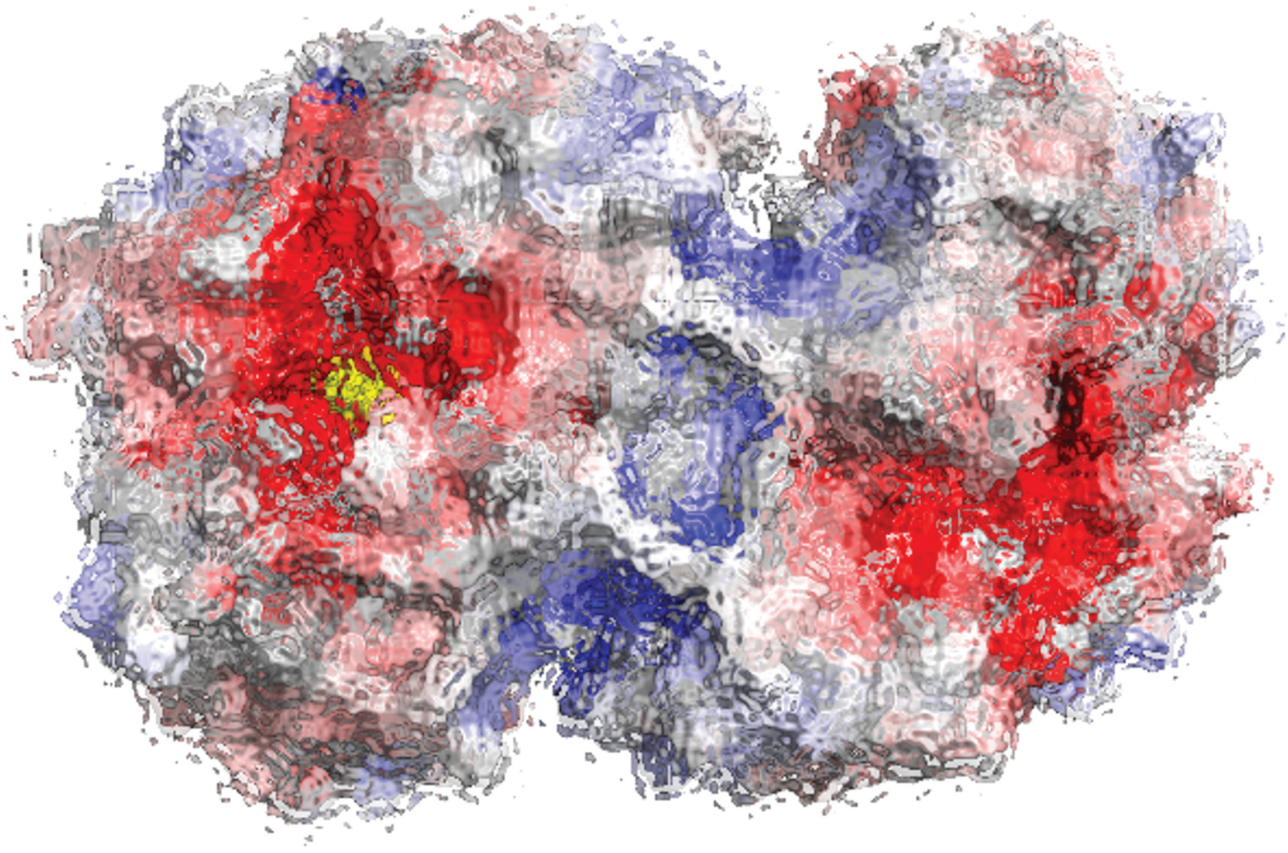
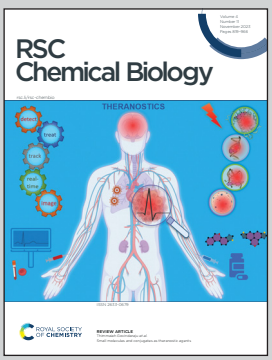


Showcasing research from Professor Distefano's laboratory, Department of Chemistry, University of Minnesota, Minneapolis, MN, USA.

Thinking outside the CaaX-box: an unusual reversible prenylation on ALDH9A1

ALDH9A1 catalyzes the oxidation of certain biogenic aldehydes producing key metabolites including carnitine and GABA, which in turn play central roles in cellular energy production and neurotransmission. Here we report the discovery of ALDH9A1 prenoylation, a new post-translational modification involving thioesterification of a cysteine residue with a farnesoyl or geranylgeranoyl group. Since the site of ALDH9A1 acylation is an active site nucleophile, covalent modification of that residue results in enzyme inhibition. By modulating global ALDH9A1 activity through changes in its acylation state, a range of cellular processes could be regulated.

As featured in:



See Mark D. Distefano *et al.*, *RSC Chem. Biol.*, 2023, **4**, 913.

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