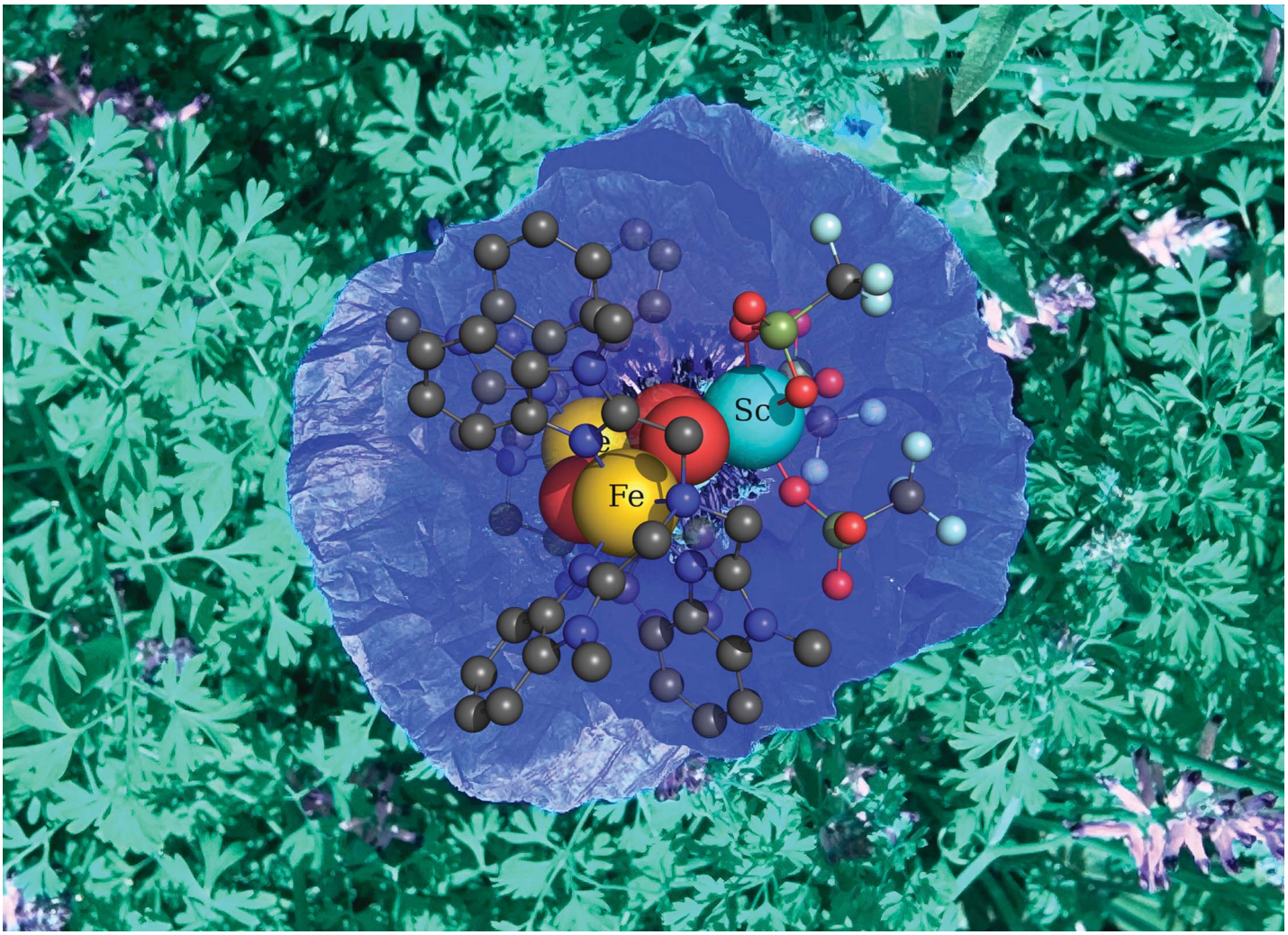


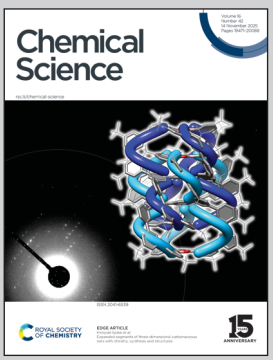
Showcasing research from the "Nonheme iron-oxo oxidants" team: Guo lab (Carnegie Mellon Univ.), Que lab (Univ. Minnesota) and Swart lab (ICREA and Univ. Girona).

Mimicking sMMOH chemistry: trapping the Sc^{3+}-bound nonheme Fe^{III}–O–O–Fe^{III} adduct prior to its conversion into an $Fe^{IV}_2(\mu\text{-}O)_2$ core

Di-iron systems that activate O_2 to form high-valent, oxo-bridged Fe^{IV}_2 or $Fe^{III}Fe^{IV}$ products are of great interest to bio-inorganic chemists due to their relevance to the chemistry of soluble methane mono-oxygenase (sMMOH). In this study, the $[Fe^{III}_2(Me_3NTB)_2(\mu\text{-}O)(\mu\text{-}O_2)]^{2+}$ adduct (Me_3NTB = tris((1-methyl-1H-benzo[d]imidazol-2-yl)methyl)amine) reacts with two Sc^{3+} to break the O–O bond that in turn forms the target $Fe^{IV}(\mu\text{-}O)_2Fe^{IV}$ product. This study provides the first evidence that a Lewis acid can interact directly with a diferric-peroxo complex to initiate O-O bond cleavage, as evidenced *via* vibrational and X-ray absorption spectroscopy.

Image reproduced by permission of Marcel Swart from, *Chem. Sci.*, 2025, **16**, 19608.

As featured in:



See Yisong Guo, Marcel Swart, Lawrence Que *et al.*, *Chem. Sci.*, 2025, **16**, 19608.

ROYAL SOCIETY OF CHEMISTRY

15 YEARS ANNIVERSARY

rsc.li/chemical-science

Registered charity number: 207890