

EES Catalysis

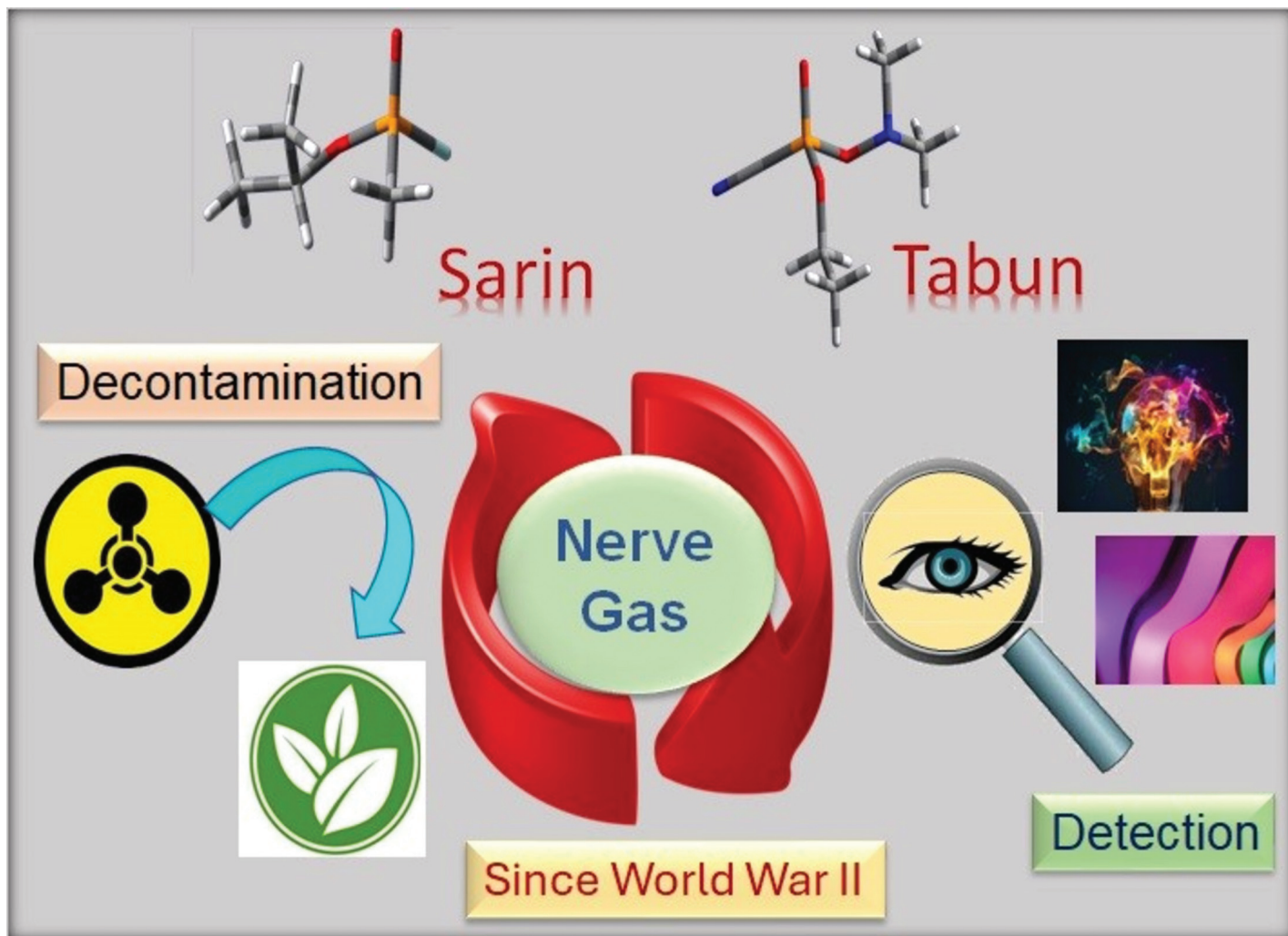
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**Fundamental questions
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Showcasing research from Professor Nilanjan Dey's laboratory, Department of Chemistry, Birla Institute of Technology and Science Pilani, Hyderabad, India.

Discerning toxic nerve gas agents *via* distinguishable 'turn-on' fluorescence response: multi-stimuli responsive quinoline derivatives in action

In this study, biocompatible fluorescent quinoline derivatives were synthesized, showing polarity-driven pH sensitivity and fluorimetric response. Changes in microenvironment induced distinct charge-transfer states and modulated fluorescence. The compounds formed self-assembled nanostructures in aqueous media, exhibiting both TICT and AIE emission. Interaction with nerve gas agents caused red-shifted UV-visible maxima, with different fluorescence responses for DCNP and DCIP due to nucleophilicity differences and carbonyl group involvement. Mechanistic and computational investigations elucidated these distinct signals, highlighting the role of functional groups and molecular flexibility.

As featured in:



See Nilanjan Dey *et al.*, *Analyst*, 2024, 149, 3097.