

## **Iron nanoparticles - 'rustproof transition' from diagnostics to therapeutics**

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The recent COVID-19 pandemic highlighted RT PCR for rapid, easy detection and containment of the disease.

We exemplify herein our pioneering contributions, with Biochemistry, Chemistry and Process Chemistry to projects in diagnostics and therapeutics. We coupled our expertise in PCR with extensive research on multifarious applications of uncoated nanoparticles of iron oxide. A spectacular confluence of advances in these and in cognate fields have led to dramatic transformation in diagnosis and treatment of diseases.

Multiple drug resistance remains a challenge; we aim to meet this in non-traditional/unconventional ways. Using clues gleaned from multifaceted molecules in nature, we achieved good results highlighting diverse applications of uncoated nanoparticles of iron oxide (replacing gold nanoparticles) in

1. boosting PCR in molecular diagnostics,
2. arresting amyloid polymerization
3. Inducing glial cell differentiation.

Our studies on hitherto overlooked iron oxide nanoparticles, will unravel, epitomize, and focus on their untapped potential in developing possible cures for "impossible" diseases.