

21st Annual European Pharma Congress

May 20-22, 2019 | Zurich, Switzerland

Bio-conjugated gold nanoparticles for *in vitro* diagnosis of typhoid

Jishnu Naskar and Mercy A. Boatemaa

Jacob Institute of Biotechnology and Bioengineering, India

Despite the discovery and continuing effort in developing new drugs and antibiotics, typhoid remains a major public health issue in developing nations due to lack of appropriate diagnostic tools which have not significantly improved over the years. The advent of newer drugs has further triggered the emergence of multi-drug resistant strains of the pathogenic bacteria. According to WHO estimation, 22 million cases of typhoid fever and 200,000 related deaths occur worldwide each year with an additional 6 million cases of paratyphoid fever are estimated to occur annually with the highest incidence in children, resulting in high death rate. More than 90% of this morbidity and mortality occurred in Asia and sub-Saharan Africa. The hazard is compounded as typhoid is frequently mistakenly attributed to malaria due to the likeness of symptoms and inexperience of medical staffs especially in rural areas of developing nations. The diagnoses for typhoid are tests on bone marrow culture, stool culture and the Widal test. In low-income countries and rural areas where typhoid is prevalent, efficient bacterial diagnostics is not common due to the cost, technical difficulty of the procedure and lack of adequately equipped public healthcare and point-of-care units. The Widal test remains the common method of typhoid diagnosis despite its high cost, efficiency and sensitivity including poor specificity, increase in antibody titer and a cutoff titer. The current study investigates the various aspects of gold nanoparticles (GNPs) with a focus on the ability of bio-conjugated nanoparticles for the detection of pathogen associated molecular patterns. The study also investigates the efficacy of GNPs on the inhibition of growth of Salmonella strains isolated from clinical and contaminated food samples. It may be concluded from the study that nanobioconjugated gold may be used for *in vitro* diagnosis of *S. typhi* and *S. paratyphi*.