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New face of an old drug: Celecoxib as an antibacterial agent

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Staphylococcus aureus, one of the opportunistic Gram positive bacteria, is known for multidrug resistance to antibiotics. The frequency of Methicillin-resistant *Staphylococcus aureus* (MRSA) and Vancomycin-resistant *Staphylococcus aureus* (VRSA) infections are increasing globally. MRSA is one of the two common bacterial pathogens that cause mastitis in cows and buffaloes leading to great loss to Indian economy. Misuse and overuse of antibiotics for the treatment of microbial infections has increased the emergence of pan-antibiotic resistant organisms, superbugs. Discovery of new antibiotics is both time and money dependent. Drug repositioning or drug repurposing is encouraged by Food and Drug administration (FDA) and has gained importance in last few years. With this background we have demonstrated that cyclooxygenase-2 (COX-2) specific inhibitor, Celecoxib, is not only an anti-inflammatory drug but also has the property of antibacterial activity when used in combination with antibiotics on laboratory strains of S aureus (Kalle and Rizvi, 2010). We are evaluating efficacy of this therapy on MRSA strains isolated from humans and bubaline mastitis samples. The preliminary results are convincing and indicate that celecoxib could be used in combination with antibiotics to treat multidrug resistance in bacteria.