PRELUDE

People are more prone to cancer due to chemical and infectious agents. World's 15-20% cancers are caused by infectious agents, leading to stomach, colon, liver, prostate, lung, gall bladder cancer etc. Statistics rank gastric cancer as the second most common cancer in the world. Infectious agents when infected cause cancer only in a subset of the population and not to all people of a population. Till day Helicobacter pylori infection leading to stomach cancer was the only cancer characterized and the rest of the cancers are yet to be characterized in detail. Other Helicobacter species known for causing cancer upon infection are Helicobacter felis, Helicobacter salmonis, Helicobacter bizzozeronii and Helicobacter heilmannii (stomach cancer), Helicobacter bilis (biliary tract cancer) and Helicobacter hepaticus (liver cancer). Non Helicobacter species such as Neisseria gonorrhoeae, Campylobacter jejuni and Chlamydophila pneumoniae are also known for causing prostate cancer, stomach cancer and lung cancer respectively.

World Health Organisation (WHO) established H. pylori as class I carcinogen. H. pylori's infection leads to gastritis, ulcer and gastric cancer. Almost half of the world's population harbor H. pylori. Socioeconomic factors, hygiene standards, wide spread of antibiotics, age at which the host is infected with the bacterium are the attributes influencing outcome of the infection. Standard first line therapy to treat H. pylori consists of triple therapy proton pump inhibitor omeprazole, antibiotic clarithromycin and amoxicillin. Alternative proton pump inhibitors are pantoprazole and rabeprazole; and alternate antibiotic for clarithromycin is levofloxacin and for amoxicillin is metronidazole. When initial therapy fails due to antibiotic resistance, alternative strategy such as quadruple therapy is implemented in the form bismuth colloid which includes bismuth subsalicylate.

Rising antibiotic resistance necessitates the need to identify new drugs and also to consider the alternative therapeutic strategy ‘routes of immunization’ to provide immune protection in the form of vaccine to control H. pylori. This drive has pushed the research community to search or identify new drug targets to discover or design new drugs. The discovery and exploitation of new drug targets is a key focus for both the pharmaceutical industry and academic research in order to discover and design novel drugs. This study has harnessed the potential of bioinformatics approach to identify new drugs targets and drugs that can be used for therapeutic intervention of gastric cancer.