CONCLUDING REMARKS
According to South-eastern Central Asia reports the annual acute diarrheal cases for *Vibrio cholerae* infection were estimated more than 0.5–0.7 million. Recent, outbreak in Sierra Leone has recorded 23,124 cases of cholera, including 299 deaths. These situations again reveal the devastating nature of cholera. Moreover, the number of bacterial infection may be increasing gradually due to the resistance to antibiotics. Phage therapy is among one of the re-emerging approaches of treatment and has been considered since the late 1980s.

In this study, we have explored the efficacy of phage cocktail in treating *Vibrio cholerae* infection in *in vivo* with fully developed immune system like adult mice and adult rabbit. However, successful therapeutic animal models were established against *Vibrio cholerae* infection. These models showed the promising nature of vibriophages in curing *Vibrio cholerae* infection with reduced colony counts at each time interval of sampling which was statistically significant.

This study also revealed that five vibriophages used here could withstand a wide variety of pH levels as well as temperature levels. The nontoxic nature of this phage, as revealed in this study, as well as its ability to survive for a prolonged period, makes it an ideal candidate for phage therapy.

This translational research also claims that the level of inflammatory cytokines, IL-6 and TNF-α produced during infection in sera of mice treated with phage cocktail was much lower than in the sera of untreated, antibiotic treated and ORS treated mice. IL-6 and TNF-α are pre-dominant pro-inflammatory cytokines, phage therapy not only helped in the clearance of bacteria from the body, but also endangered the host from ensuing inflammatory damage because of their decreased levels.

Further in depth studies explored villi of control animals lost their normal shape and showed more inflammatory cellular infiltration in the lamina propria compared with the phage treated animals.

Over all we conclude that a better way of delivery with suit-able development of phage cocktail with the help of the technology may bridge the gap between antibiotics and phages. The better will be the bioavailability of phage the better will be the treatment. To the best of our knowledge, this is the first report of treating orally developed *Vibrio cholerae* infection in a anima model with oral application of phage.
cocktail. Our experiment might be established as a milestone toward the therapeutic use of bacteriophages for cholera infection as an alternative to antibiotics.