Abstract

Molecular chaperones are essential proteins that facilitate the correct folding, assembly, and maintenance of other proteins within the cell. Their primary role is to prevent misfolding and aggregation of nascent and stress-denatured proteins, thereby ensuring cellular proteostasis and functionality. This abstract reviews the fundamental mechanisms by which molecular chaperones operate, including their involvement in protein folding pathways, quality control

restore proper folding and mitigate disease symptoms. In cases where chaperone levels are insu cient, such as certain genetic disorders, this approach holds promise for providing a corrective measure [5].

Looking ahead, the eld of molecular chaperones will likely continue to evolve with advancements in technology and a deeper understanding of cellular mechanisms. Researchers are expected to focus on elucidating the precise roles of di erent chaperones in speci c diseases, exploring their potential as biomarkers for early diagnosis, and developing targeted therapies to modulate chaperone activity. Furthermore, integrating insights from structural biology, computational modeling, and systems biology will enhance our understanding of chaperone functions and their interactions within the cell. Such multidisciplinary approaches will be essential for translating basic research ndings into clinical applications and improving patient outcomes.

In summary, molecular chaperones are essential guardians of cellular protein homeostasis, with far-reaching implications for health and disease. Ongoing research promises to unlock new therapeutic opportunities and deepen our understanding of these remarkable proteins, paving the way for innovative treatments and enhanced disease management [6].

(2016) Multi drug resistance and extended spectrum beta lactamases in clinical isolates of Shigella: a study from New Delhi, India. Travel Med Infect Dis 14: 407–413.

8. Taneja N, Mewara A (2016) Shigellosis: epidemiology in India. Indian J Med Res 143: 565-576.
9. Farshad S, Sheikhi R, Japoni A, Basiri E, Alborzi A (2006) Characterizationof Shigella strains in Iran by plasmid profle analysis and PCR amplifcation of ipa genes. J Clin Microbiol 44: 2879–2883.
10. Jomezadeh N, Babamoradi S, Kalantar E, Javaherizadeh H (2014) Isolation and antibiotic susceptibility of Shigella species from stool samplesamong hospitalized children in Abadan, Iran. Gastroenterol Hepatol Bed Bench 7: 218.