Fighting pneumococcal infections: Identification of fitness and virulence factors

*Streptococcus pneumoniae* is a versatile pathobiont colonizing on the one hand symptomless the respiratory tract of humans, while on the other hand causing severe diseases such as pneumonia, sepsis and meningitis. Pneumococci produce a versatile repertoire of adhesins and virulence factors to evade the immune defense mechanisms and to facilitate colonization and invasive diseases as well. However, a prerequisite for the successful conquest of the host is the pneumococcal ability to adapt to the conditions of the host niche. This ensures the maintenance of the pneumococcus in various host environments differing in nutrients, temperature and immune defense mechanisms. The structure-function analysis of pneumococcal fitness and virulence factors provides insight into their biological functions and role in pneumococcal pathogenesis. Here, pneumococcal proteins involved in different pathophysiological processes pivotal for full fitness and survival within the host will be discussed.