

# State of Globe: Biofilm Formation in *Staphylococcus aureus* Isolates

Biofilms and their ability to stick to surfaces, in particular, pathogenic organisms that use this property for the onset of the disease are known as an important phenomenon. Biofilm formation by many bacteria gives the ability to cause severe infections.<sup>[1,2]</sup> Biofilm formation is a main virulence determinant in infection by *Staphylococcus aureus* isolates.<sup>[3]</sup> *S. aureus* is a commensal that colonizes the skin, and mucous membranes of the human body and biofilm formation by *S. aureus* isolates have been found in human skin lesions.<sup>[4,5]</sup>

Biofilm formation in *S. aureus* is usually considered as a four-step process of adherence, aggregation, maturation, and dispersal. Biofilm forming properties have been well described in the members of *Staphylococcus* spp., especially in *S. aureus* and *Staphylococcus epidermidis*.<sup>[6,7]</sup> In many studies are discussed to biofilm formation and antibiotic resistance levels.<sup>[8]</sup> High levels of biofilm production have been observed in multidrug resistance organisms such as *S. aureus* isolates.<sup>[9,10]</sup> Moreover, the incidence of multidrug-resistant *S. aureus* has increased in the hospital settings and community over the last decades and also most of them produce biofilm formation.<sup>[4,11]</sup>

In certain unique clinical settings, the ability of the bacteria standardization may be quite important.<sup>[12,13]</sup> The absence of any standardized method for concise description makes it difficult to compare the results from different laboratories. In the other hand, persistent infections are challenge for humans also deal with the spread of antibiotic resistance and treatment of these infections is more valuable.<sup>[1,13,14]</sup>

In final, these results from Singh, *et al.*<sup>[1]</sup> portend a strong dependence of biofilm formation in *S. aureus* and human diseases and also the biofilm production is well described in members of *S. aureus*. The results of this study showed that *in vitro* tissue culture plate assay can be standardized for biofilm formation in clinical isolates of *S. aureus* based on their biofilm-forming capacity. Identify biofilm-producing of *S. aureus* strains could be important. In fact, the development of biofilm is main factor of associated infections and drug resistance. *S. aureus* is one of the most important cause of nosocomial infections that biofilm formation is a most contribution to it, involved in many infections such as such as tooth decay, periodontitis, stye, carbuncle, impetigo, and pyoderma to persistent tissue infections such as wound infection, otitis media, osteomyelitis, rhinosinusitis, recurrent urinary tract infection, and endocarditis. Singh, *et al.*<sup>[1]</sup> showed strong and moderate biofilm forming isolates were found to be more resistant to commonly used antibiotics compared to nonbiofilm formers. Nevertheless, the correlation between the profile of antimicrobial drug resistance and biofilm production

in other bacteria with delayed wound healing remains would be valuable.

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<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.jgid.org">www.jgid.org</a>
	<b>DOI:</b> 10.4103/jgid.jgid_83_17

**How to cite this article:** Dastranj M, Farahani A, Shoja S, Dinarvand G. State of globe: Biofilm formation in *Staphylococcus aureus* isolates. J Global Infect Dis 2017;9:91-2.