3: Virulence expression in the host environment

It is well-known that S. aureus produce many kinds of virulence factors such as enterotoxin, leukocidin, TSST-1 and exfoliative toxin. Up to date, the regulation mechanism for virulence expression has been well demonstrated. Especially, quorum sensing system responsible for cell density (growth) has been well characterized. In S. aureus, agr sytem which is one of the TCSs regulates the virulence expression. By mediating agr system, cell surface molecules are highly expressed in exponential phase, while virulence factors are high in stationary phase. Also, other factors are also related with the regulation of virulence expression.

Generally, the analysis of these regulations was performed by using bacterial medium. However, we found that the pattern of virulence expression grown in serum is quite different with that of bacterial medium. We are now investigating the regulation mechanism of virulence expression in serum.