

1. What are the two major effects of the CsrA protein binding to a mRNA of a gene whose function is inhibited by CsrA?

inhibiting translation (by binding to the ribosome-binding site)

decreasing the half-life (stability) of the message

2. In such a system where a function is inhibited by CsrA, what would be the effect of deleting the *barA/uvrY* or *gacS/gacA* two component regulatory system genes on the function regulated by CsrA? Explain your answer in a sentence or two.

The function would be further inhibited. *GacS/A* increases the expression of *csrB* and *csrC* small RNAs (sRNA). These sRNAs bind to and inhibit CsrA protein, so in their absence, CsrA will be more available to inhibit the mRNA of the inhibited function.

3. Would you expect CsrA to bind to rRNA or tRNA? Why or why not (one sentence).

No. CsrA recognizes GGA (better yet, AGGA) which is part of the ribosome-binding site of the mRNA. Since tRNA and rRNA are not translated, they should not have ribosome-binding sites, hence will not likely be bound by CsrA.