Abstract:

Streptococcus pneumoniae encodes single serine/threonine protein kinase StkP and its cognate protein phosphatase PhpP. This signalling couple phosphorylates/dephosphorylates many target proteins involved in various cellular processes. So far, only few ot them was characterized in detail. Global phosphoproteomic analysis in the Δ*stkP* mutant strain background resulted in the identification of protein Spr0175 as phosphorylated on threonine 7. The main aim of this work was to characterize this new substrate. The Δ*spr0175* mutant strains were prepared in the wild type genetic background Rx and R6 and then monitored for their growth and cell morphology. Mutant strains exhibited morphological defects revealing potential involvement of Spr0175 in the process of cell division. In the wild type D39 the deletion was unsuccesful, which may entail possible essentiality of Spr0175 in D39 strain. The results obtained also confirmed that the Spr0175 is modified in *in vitro* and *in vivo* conditions at threonine 7. *In vitro* study also confirmed minor phosphorylation at T4 residue. By using co-immunoprecipitation assay we demonstrated that Spr0175 protein can form oligomeric structures. Another aim of this work was cellular localization of Spr0175. By using fluorescent microscopy we showed that GFP-Spr0175 fusion protein localized in the cytoplasm.