

Supplementary Information

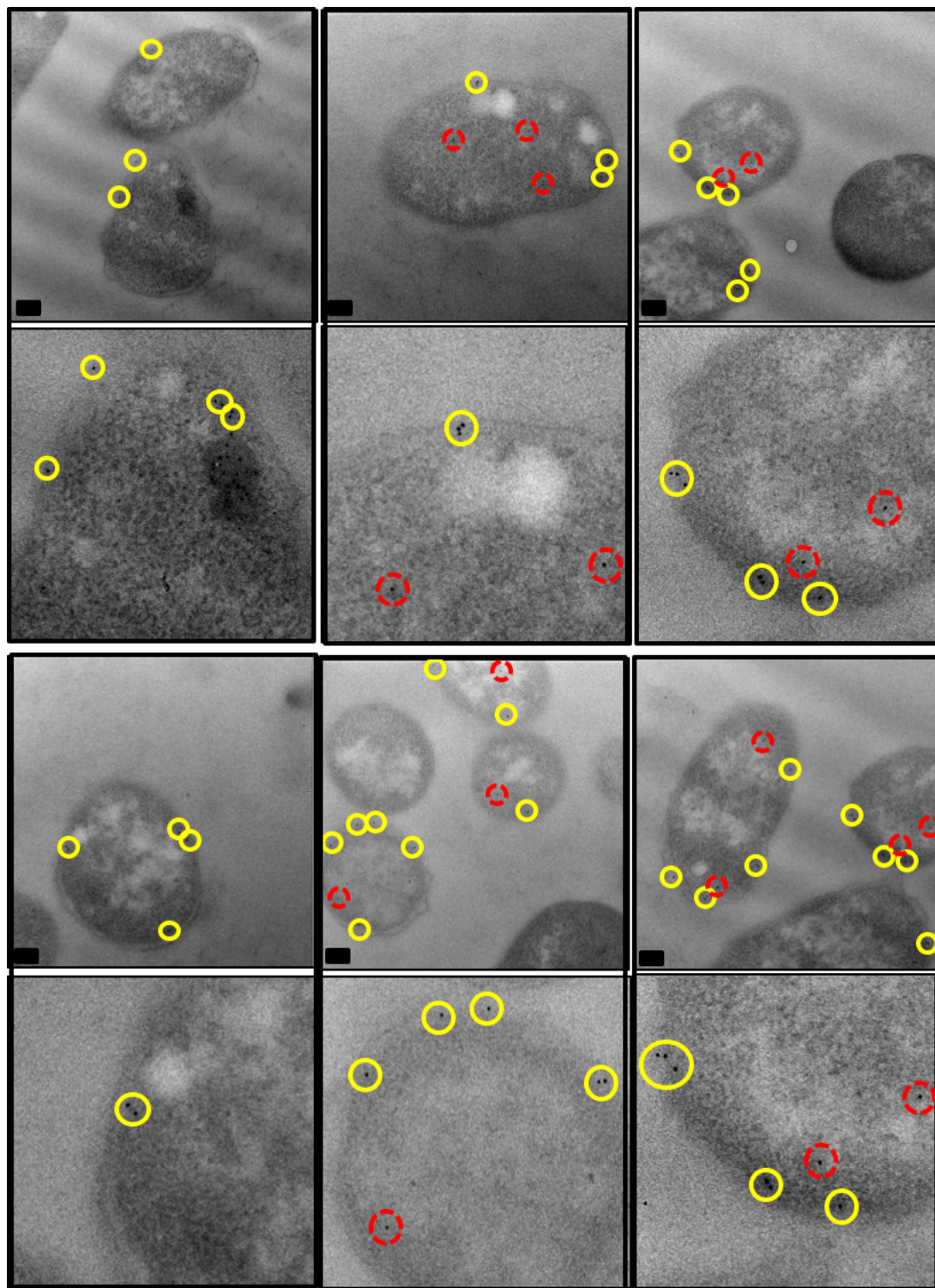


Figure S1. Electron micrographs of *E. coli* cells, overexpressing TorA-hGH (WT precursor), immunogold-labelled following primary antibody detection against hGH protein. Ultrathin sections of *E. coli* cells overexpressing TorA-hGH (WT precursor) were immunolabelled using a polyclonal antibody raised against hGH (shown in rows 1 and 3, with rows 2 and 4 showing close-ups of individual gold particles from rows 1 and 3, respectively). At 1hr 45 min after induction, hGH was found to exhibit a random distribution in the inner membrane (yellow circles) and was also present in the cytoplasm (red circles). Images were taken on a JEOL 2010F at 15,000X magnification. Scale bar = 200 nm.

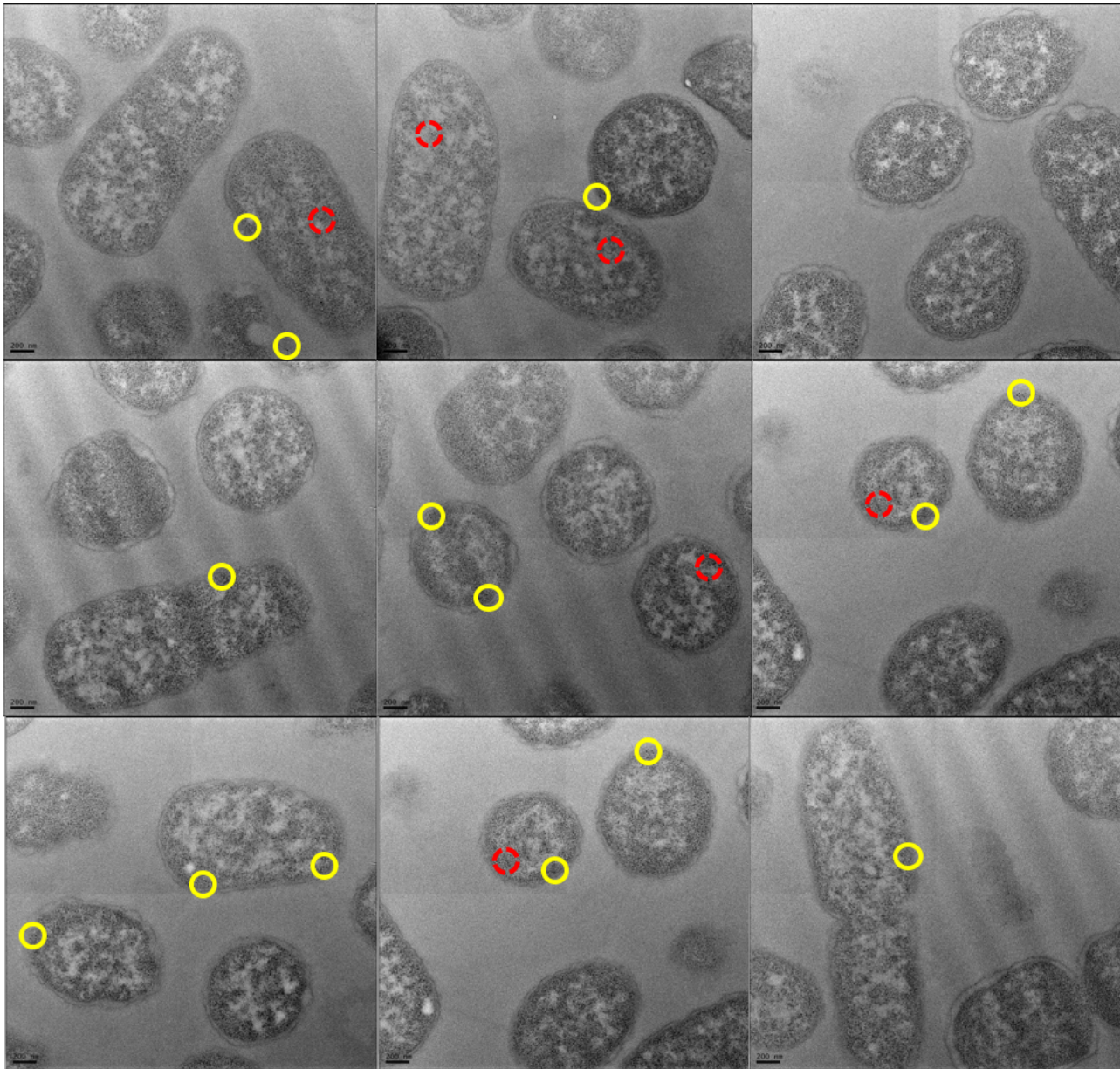


Figure S2. Electron micrographs of *E. coli* cells, lacking expression of TorA-hGH, immunogold-labelled following primary antibody detection against hGH protein. Ultrathin sections of *E. coli* cells lacking expression of TorA-hGH were immunolabelled using a polyclonal antibody raised against hGH to serve as a negative control. An abundance of cells lacking gold binding were detected. A minority of cells bound gold at the cytoplasm (red circles) and the inner membrane (yellow circles). However, the difference between these control cells and cells overexpressing TatA protein was confirmed to be statistically significant. Images were taken on a JEOL 2010F at 15,000X magnification. Scale bar = 200 nm.

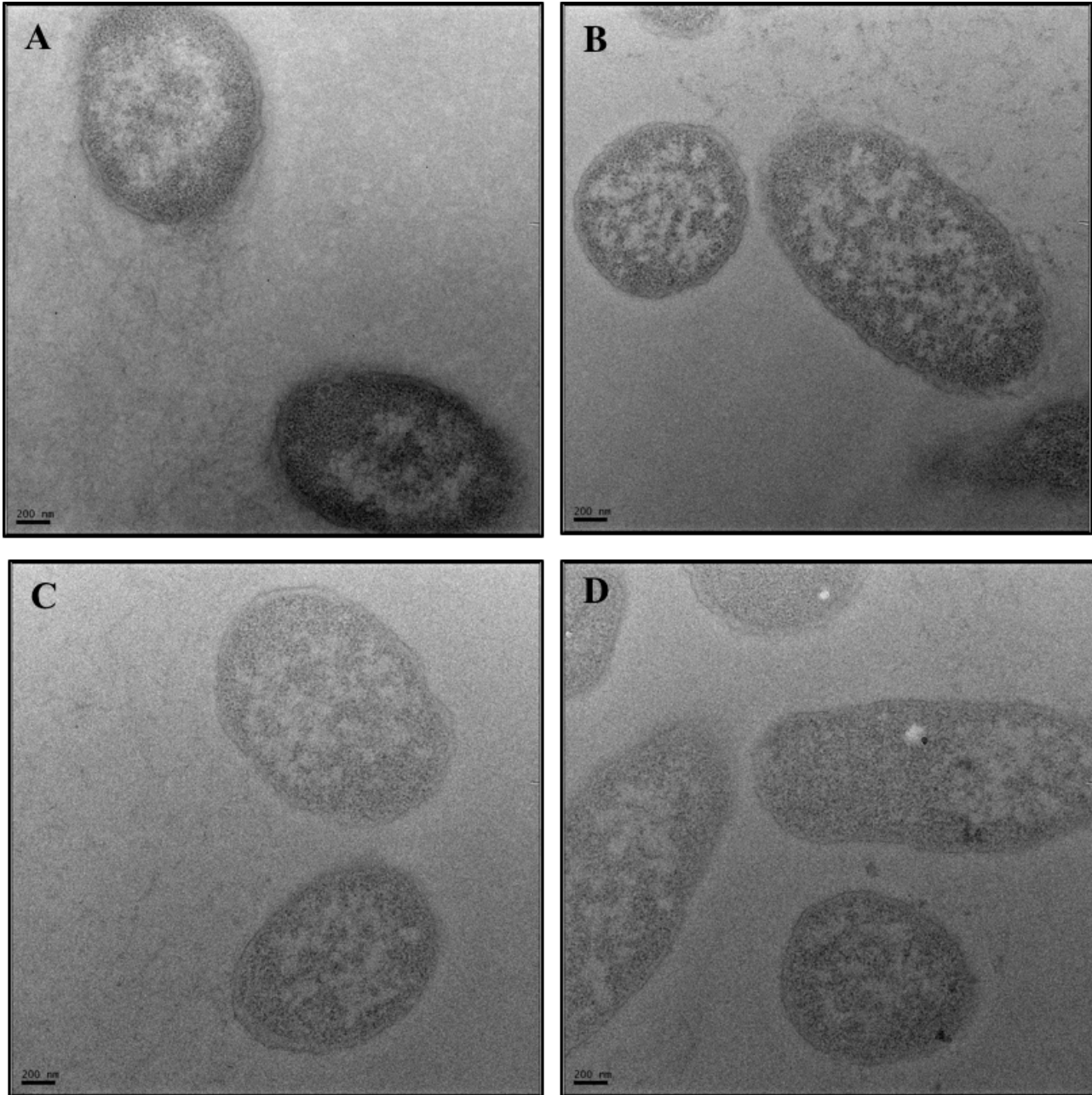


Figure S3. Electron micrographs of *E. coli* cells, overexpressing TorA-hGH, immunogold labelled omitting the use of primary antibody and using a different secondary antibody.

Ultrathin sections of *E. coli* cells overexpressing TorA-hGH (WT or mutant precursor- A and B, respectively), were immunolabelled without the use of a primary, polyclonal antibody raised against hGH and thus labelled with a gold-conjugated secondary antibody only. The lack of gold particles in both samples (A and B) confirmed that non-specific binding was attributable to solely the primary antibody. The same cell types (WT or mutant precursor- C and D, respectively), were immunolabelled with a gold-conjugated secondary antibody directed towards a different animal species. The lack of gold particles in both samples (C and D) confirmed that the cells do not have a non-specific attraction for gold particles. Images were taken on a JEOL 2010F at 15,000X magnification. Scale bar = 200 nm.

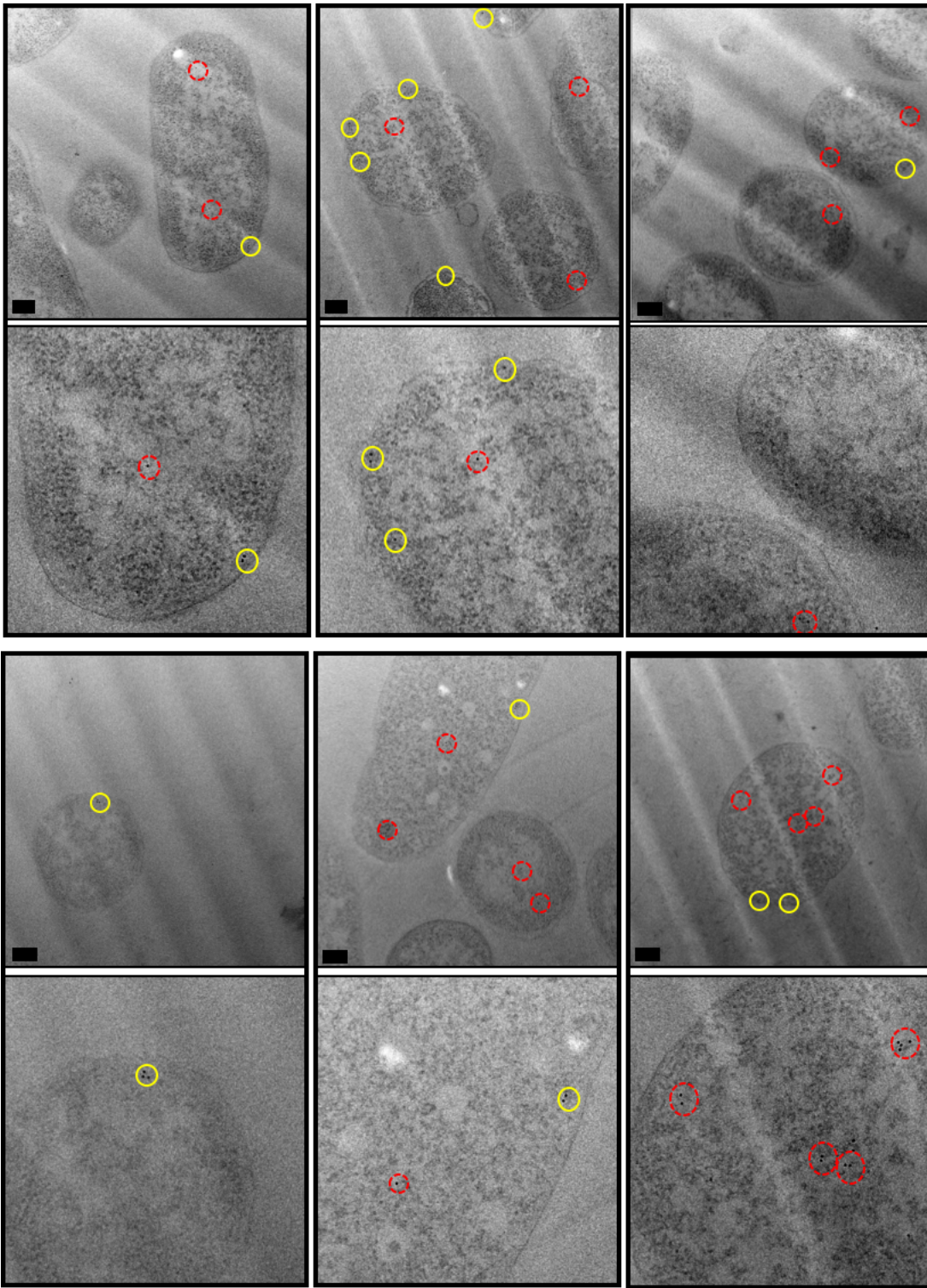


Figure S4. Electron micrographs of *E. coli* cells, overexpressing TorA-hGH (mutant precursor), immunogold-labelled following primary antibody detection against hGH protein. Ultrathin sections of *E. coli* cells overexpressing TorA-hGH (mutant precursor) were immunolabelled using a polyclonal antibody raised against hGH (shown in rows 1 and 3, with rows 2 and 4 showing close-ups of individual gold particles from rows 1 and 3, respectively). At 1hr 45 min after induction, hGH was found to exhibit a random distribution in the inner membrane (yellow circles) and was also present in the cytoplasm (red circles). Images were taken on a JEOL 2010F at 15,000X magnification. Scale bar = 200 nm.