



**CONCORSO PUBBLICO, PER TITOLI ED ESAMI, PER IL RECLUTAMENTO DI N. 1 UNITÀ DI PERSONALE AFFERENTE ALL'AREA DEI FUNZIONARI - SETTORE AMMINISTRATIVO-GESTIONALE, CON RAPPORTO DI LAVORO SUBORDINATO A TEMPO DETERMINATO E PARZIALE ALL'83,33% PRESSO L'UNIVERSITÀ DEGLI STUDI DI MILANO - DIPARTIMENTO DI SCIENZE PER GLI ALIMENTI, LA NUTRIZIONE E L'AMBIENTE - CODICE 22516**

La Commissione giudicatrice della selezione, nominata con Determina Direttoriale n. 1709 del 05/02/2025, composta da:

Dott.ssa Paola Galimberti	Presidente
Dott.ssa Elisabetta Onelli	Componente
Dott.ssa Cristina Rita Serenella Lombardo	Componente
Dott.ssa Alessia Jarna De Porcellinis	Segretaria

Comunica i quesiti relativi alla prova orale:

Gruppo quesiti 1:

Descriva le diverse forme di peer review.

Legga e traduca il seguente testo:

Nanoparticles (NPs) have unique sizes, shapes, and structures, and this makes them ideal components for various applications (Carbone et al., 2015). Silver nanoparticles (AgNPs), in particular, are exponentially used in medical, health, industrial, and precision agricultural sectors because of their unique features, such as chemical, optical, electrical, and thermal properties (Zhang et al., 2016; Duhan et al., 2017). Moreover, AgNPs are usually added to the polymeric matrices of food packaging to enhance food protection to extend its shelflife. However, AgNPs may transfer and accumulate through the food chain, risking the human health (Fröhlich and Fröhlich, 2016; Tsiaoussis et al., 2019). The effects of AgNPs on the intestinal human microbiota, the so far neglected “essential organ” (O’Hara and Shanahan, 2006), should be considered. The microbiota provides several advantages to the host through a variety of physiological functions: host immunity promotion, pathogens control, and energy harvest (Thursby and Juge, 2017).

Domingo G. et al., “Label-Free Proteomic Approach to Study the Non-lethal Effects of Silver Nanoparticles on a Gut Bacterium”, *Frontiers in Microbiology*, Volume 10 - 2019, 04/12/2019, <https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2019.02709/full>.

Gruppo quesiti 2:

Descriva le licenze d’uso per una rivista open access.

Legga e traduca il seguente testo:

Cell walls had a typical *E. coli* wall structure, where the periplasmic space (PS) is sandwiched between the plasma membrane and the outer membrane (OM), while the peptidoglycan layer is localized under the OM (Figure 5C) (Beveridge, 1999; Silhavy et al., 2010). Farther away from the polycarbonate membrane (outer biofilm, Figures 5B,D), biofilm cells revealed a more heterogeneous cytoplasm with a granular region surrounding the nucleoid clear area (Figures 5B,D,F), as in the growing cells observed by Rowlett et al. (2017). After AgNP treatment, cytoplasm morphology did not change both in the inner and the outer biofilm layers. However, in the outer biofilm, cell wall OM appeared to be more electron dense than the control (Figure 5F, arrow), suggesting AgNP deposition. Cell wall of the inner biofilm, on the contrary, was similar to the control (compare Figures 5C,E). The presence of an electron-dense OM was also evident in samples exposed to chronic and chronic acute + treatments (Figure 6). The cell wall thickness under all treatments is reported in Figure 7.



Domingo G. et al., “Label-Free Proteomic Approach to Study the Non-lethal Effects of Silver Nanoparticles on a Gut Bacterium”, *Frontiers in Microbiology*, Volume 10 - 2019, 04/12/2019, <https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2019.02709/full>.

Gruppo quesiti 3:

Descriva i criteri di qualità per una rivista scientifica.

Legga e traduca il seguente testo:

In this study, we demonstrated that AgNPs led to changes in protein expression that is directly related to biofilm formation and maturation. In particular, we observed the downregulation of proteins that have key roles in bacterial adhesion, such as flagellins and fimbrial proteins, which are necessary for biofilm formation (Zhou et al., 2014). The proteomic investigation revealed many altered membrane- and cell-wall-associated proteins. This result was further confirmed by the reduction in the cell wall thickness, as observed in TEM analyses. The presence of AgNP aggregates in the cytoplasm was not detected in TEM analyses. Glucose utilization pathways were also altered, and some evidence indicated the possibility of DNA damages, as shown by the upregulation of proteins related to the DNA repair system. Furthermore, to deepen the understanding of AgNP effects on the gut interactive ecosystem, the proteomic response of Caco-2 intestinal cells to AgNP sublethal concentrations will be carried out.

Domingo G. et al., “Label-Free Proteomic Approach to Study the Non-lethal Effects of Silver Nanoparticles on a Gut Bacterium”, *Frontiers in Microbiology*, Volume 10 - 2019, 04/12/2019, <https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2019.02709/full>.

Milano, 20 febbraio 2025

La Commissione

Dott.ssa Paola Galimberti - Presidente

Dott.ssa Elisabetta Onelli - Componente

Dott.ssa Cristina Rita Serenella Lombardo - Componente

Dott.ssa Alessia Jarna De Porcellinis - Segretaria