# Article information:

Bioavailability and toxicity of silver nanoparticles: Determination based on toxicokinetic–toxicodynamic processes - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0043135421007983?via%3Dihub>

# Article summary:

1. A novel pulsed-gradient Ag+ (AgNO3) exposure was conducted with zebrafish larvae to simulate dissolved gradient concentrations of Ag+ from polyvinylpyrrolidone (PVP)-coated AgNPs.

2. The toxicity of the pulsed-gradient Ag+ (AgNO3) and, in the meantime, the released Ag+ from PVP-AgNPs were predicted using a toxicokinetic–toxicodynamic (TK–TD) model with obtained Ag+ parameters.

3. Toxicity (survival rate) was predicted by the total bodily Ag(I) concentration, suggesting that AgNP toxicity in larvae was mainly due to gradually released Ag+ rather than AgNPs themselves.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is overall reliable and trustworthy as it provides evidence for its claims through experiments conducted with zebrafish larvae and subcellular fractions of zebrafish to simulate realistic in vivo scenarios. The article also presents a novel framework by which to investigate the toxicity of metal nanoparticles and corresponding metal ions in biological systems. However, there are some potential biases that should be noted when evaluating this article. For example, the authors do not explore any counterarguments or present both sides equally when discussing the role of silver ions in silver nanoparticle toxicity. Additionally, there is no mention of possible risks associated with silver nanoparticle exposure or any discussion of potential long-term effects on aquatic organisms or humans. Furthermore, while the authors provide evidence for their claims, they do not provide any additional evidence to support their conclusions beyond what is presented in their experiments. Finally, there is a lack of discussion regarding other factors that may influence silver nanoparticle toxicity such as particle size or surface chemistry which could potentially affect bioavailability and toxicity levels.

# Topics for further research:

* Silver nanoparticle toxicity risks
* Silver nanoparticle long-term effects
* Silver nanoparticle size and surface chemistry
* Silver nanoparticle bioavailability
* Silver nanoparticle toxicity mechanisms
* Silver nanoparticle toxicity in aquatic organisms

# Report location:

<https://www.fullpicture.app/item/832f7428dc6a3456fe4a28bcb50187f5>