# Article information:

Bioinspired protein corona strategy enhanced biocompatibility of Ag-Hybrid hollow Au nanoshells for surface-enhanced Raman scattering imaging and on-demand activation tumor-phototherapy - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0142961221000867>

# Article summary:

1. This article presents a bioinspired protein corona strategy to develop Raman tagged Ag-hybrid hollow Au nanoshells with bovine serum albumin (BSA) layer protection for enhanced SERS-based tumor detection and synergetic on-demand laser-induced photothermal/Ag ion/ROS therapy.

2. The BSA is used as a bioinspired protein corona to provides the structural, photostability, and biocompatibility for enhancing the potential of nanoshells for practical treatment.

3. The nanoshells enable to mitigate the cytotoxicity to the normal cells and tissues by inhibiting the release of Ag ions and ROS, owing to BSA corona, after intravenous injection into mice.

# 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:

This article presents a novel bioinspired protein corona strategy to develop Raman tagged Ag-hybrid hollow Au nanoshells with bovine serum albumin (BSA) layer protection for enhanced SERS-based tumor detection and synergetic on-demand laser-induced photothermal/Ag ion/ROS therapy. The authors provide evidence from both theoretical and experimental calculations that demonstrate the efficacy of this approach in detecting colorectal solid tumors, liver tiny metastasis (~0.18 mm), and then laser-triggered photothermal therapy, simultaneously assisted with released toxic Ag ions/ROS for destroying cancerous cells.

The article is generally well written and provides sufficient evidence to support its claims. However, there are some areas where more information could be provided in order to increase its trustworthiness and reliability. For example, while the authors provide evidence from both theoretical and experimental calculations that demonstrate the efficacy of this approach in detecting colorectal solid tumors, they do not provide any data or evidence regarding its efficacy in treating other types of cancers or diseases. Additionally, while they discuss potential risks associated with using this approach such as toxicity induced by Ag ions or ROS generation, they do not provide any data or evidence regarding how these risks can be minimized or avoided when using this approach in clinical settings. Furthermore, while they discuss potential benefits associated with using this approach such as improved accuracy of tumor detection and increased therapeutic efficacy due to simultaneous release of toxic Ag ions/ROS for destroying cancerous cells, they do not provide any data or evidence regarding how these benefits can be maximized when using this approach in clinical settings.

In conclusion

# Topics for further research:

* Risk mitigation strategies for Ag ion/ROS therapy
* Maximizing therapeutic efficacy of Raman tagged Ag-hybrid hollow Au nanoshells
* SERS-based tumor detection accuracy
* Bioinspired protein corona strategies
* BSA layer protection for enhanced SERS-based tumor detection
* Laser-induced photothermal/Ag ion/ROS therapy

# Report location:

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