

INVITATION TO BID FOR TRANSFER OF TECHNOLOGY OF “A METALOSOME ASSEMBLY AND A PROCESS FOR PREPARATION THEREOF”

A team of scientists from Panjab University (PU), Chandigarh have successfully developed a Metalosome assembly comprising of metal based surfactants and a pharmaceutical composition thereof. The technology has been granted an **Indian patent** and at **TRL4**.

This invention provides an efficient substitute for natural phospholipid-based liposomes with multiple advantages. These metalosomes have been fabricated with an economical and green approach from commercially available starting materials. Hybrid surfactants known as metallosurfactants were utilized as starting materials and due to the antimicrobial nature of these surfactants, the metalosomal suspensions possess high antimicrobial efficiency. These are water-based suspensions and can perform far better than the alcohol-based formulations against the resistant bacterium species. Hence, they can be easily used as disinfectants. They are structurally analogous to natural liposomes and as a result, they have been proven excellent drug carriers and have exhibited excellent binding abilities toward biological DNA. The present invention discloses a process for the preparation of such metalosome assembly. The metalosome assembly of the current invention possesses various biological activities and thus, a single assembly possesses the capability to act as disinfectants, drug, and gene carriers.

Details of the technology may be found below:

Patent Details

Application No. 4055/DEL/2015 Date of Filing: December 10, 2015 Patent No: 333028

Publications in Journals

- 1) *Phys. Chem. Chem. Phys.*, 2017, 19, 25764.
- 2) *J. Mater. Chem. B*, 2019, 7, 3679.
- 3) *J. Mol. Liquid* 2020, 300, 112326.
- 4) *J. Mol. Liquid*, 2020, 318, 114034.
- 5) *Colloids Surf. A: Physicochem. Eng. Asp.*, 610, 2021, 125697

Specifications

- One pot synthesis of metalosomes (metal embedded liposomes) using a single chain cationic surfactant in a specific stoichiometric ratio of surfactant to metal.
- This work has been designed to prepare dual functional colloidal formulations having metallic as well as amphiphilic character.
- This invention provides stable metalosomes (liposomes with metal ion) using a water soluble surfactant (single chain surfactant), which otherwise is the property of a water insoluble lipid.
- By optimizing the metalosomal composition, size, membrane fluidity, surface charge, and steric stabilization, it is possible to extend the therapeutic index of such carriers.
- These metal based colloidal formulations have shown enhanced antimicrobial activity in comparison to the conventional quaternary ammonium salt CPC.

Applications

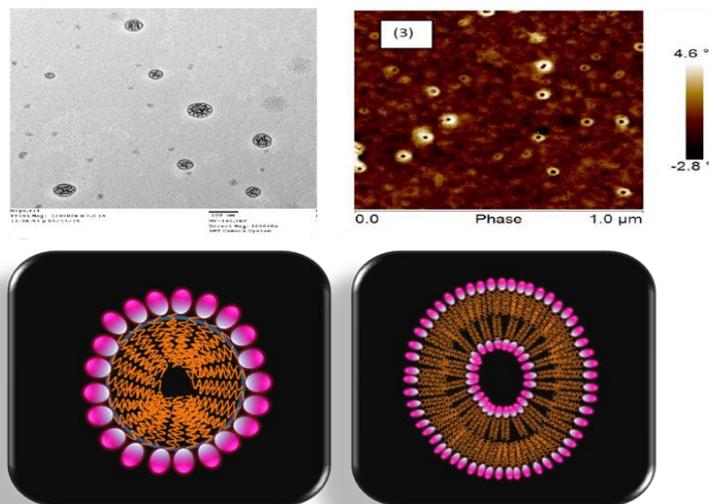
- Efficient antimicrobial agents.
- Drug delivery
- Vectors to carry biological materials.
- Capable DNA binders.

- Gene delivery

These can be explored in various fields *viz.*, in drug delivery, in gene therapy, disinfectants, etc. The cationic metal based surfactants possess antimicrobial properties and can act as potential disinfectants. Moreover, the dual functionalized metalosomes can be used as vector of nucleic acids, drugs, can be used collectively for diagnosis (due to presence of metal ion) and treatment (due to presence of drug).

Present Status

- Present Technology Readiness Level TRL4 (Technology Validated in lab)



Transfer of Technology

The Inventors of formulation are planning for ‘Transfer of Technology’ (ToT) for commercialization and are in process to shortlist the manufacturers in different region of country for fabrication and commercialize the formulation within the country as well as globally, as per the following broad terms and conditions.

- The Transfer of Technology will be through a mutually acceptable Agreement document, to be signed by the inventors (i.e. Licensor) and a representative of the company (Licensee) authorized to sign on behalf of the company. Once the Agreement is signed, the inventors will share the relevant information regarding synthesis, characterization etc.
- The Inventors of the technology (Licensor) will grant to the Licensee a limited, non-exclusive, non-transferable, non-sublicensable, revocable license to the Technology, for the purpose of commercialization of the technology as quickly as possible.
- The Licensee is expected to commercialize technology in the market within 1 year of execution of the Agreement (i.e. Transfer of Technology) at a reasonable price. The technology and its components should be as per standard grade, and be compliant with the relevant national standards.
- Failure of adherence to this timeline, and documentation of monthly milestones will be a sufficient reason for unilateral cancellation of the Agreement by the Licensors.
- The Licensee is expected to make an offer (i.e. bid) of a one-time payment of **License fee** to the Licensor, not less than **5 Lakhs**.
- **Royalty @ of 4 % of net sale price** is to be paid to the Licensors by the Licensee, after every 6 months, during tenure of the Agreement.

- Licensor will make efforts to support the Licensee during the process towards commercialization by helping licensee in scaling of formulation and product at pilot plant level through emails and in-person visits.

Invitation to Bid

Reputed companies should submit the following information in response to this invitation:

1. A brief description of the company and products/services of company.
2. Audited balance sheet of three immediate past preceding years', including profit and loss account and annual report.
3. Reference list of similar engineering supplies of fabrication and services during past 2-3 years
4. A notarized affidavit conforming that the company has not been banned or blacklisted at any time for supplies to government agencies
5. Bid/offer of License Fee and Royalty (minimum expectation already mentioned above).
6. Clear vision and roadmap towards commercialization, with timelines.
7. Scope of shortening the above-mentioned timelines.
8. Anticipated price of the product in the market

Interested companies are requested to apply with all the required documents through email with subject "Bid for ToT" to pu_tec@pu.ac.in latest by 31st July 2022.



For further information please contact

Sr. Manager

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