Arjun S. Mehta

Polymeric Nanoparticle & Biological Delivery Researcher

Mumbai, Maharashtra, India.

ABOUT

PhD-trained Veterinary Biotechnologist specializing in polymer-based nanoparticle formulation and biological cargo delivery. Experienced in chitosan nanoparticle formulation, encapsulation efficiency, controlled-release studies, and physicochemical characterization using particle-size analysis, zeta potential, PDI, FTIR, and TEM. Experienced in mammalian cell-based evaluation, confocal imaging, cytotoxicity assessment, and in-vivo studies in a guinea pig model. Interested in extending polymeric carrier formulation expertise toward targeted delivery of therapeutics and biologics.

RESEARCH EXPERIENCE

Doctoral Research **2020 –2025**

ICAR–INDIAN VETERINARY RESEARCH INSTITUTE

- Designed and optimized chitosan nanoparticle formulations for encapsulation of live and inactivated ΔgE infectious bovine rhinotracheitis virus, investigating polymer–virus interactions and formulation stability
- Standardized nanoparticle formulation conditions using live viral systems to evaluate encapsulation efficiency and release kinetics, and applied optimized conditions to inactivated virus.
- Characterized nanoparticle formulations using particle-size analysis, PDI, zeta potential, FTIR spectroscopy, TEM, and cytotoxicity assays.
- Investigated cellular uptake and nanoparticle internalization using FITC-conjugated chitosan nanoparticles and confocal microscopy
- Evaluated functional stability of encapsulated viral systems using TCID50 titration, plaque assays, virus inactivation studies, ELISA, and virus neutralization tests
- Conducted in-vivo evaluation in a guinea pig model, including immunogenicity, protective responses, histopathological analysis, and cytokine-expression profiling by qPCR.

Junior Research Fellow **2025 (3 MONTHS)**

ICAR–INDIAN VETERINARY RESEARCH INSTITUTE

- Developed chitosan nanoparticle-based systems for encapsulation of bioactive compounds (thymol, eugenol, carvacrol) and evaluated antimicrobial activity.

Master's Research **2018-2020**

ICAR–NATIONAL DAIRY RESEARCH INSTITUTE

- Cloned and expressed recombinant buffalo pregnancy-associated glycoprotein-8 (BuPAG-8) in E. coli.
- Performed PCR amplification, restriction digestion, ligation, and bacterial transformation for recombinant protein production.
- Conducted protein expression and purification, followed by analysis using SDS-PAGE.

CONTACT

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TECHNICAL EXPERTISE

Nanoparticle Formulation & Delivery
Chitosan nanoparticle formulation | Encapsulation efficiency | Controlled release | Release kinetics | Bioactive compound encapsulation

Physicochemical Characterization
Particle-size analysis | PDI | Zeta potential | FTIR spectroscopy | TEM

Cell Biology & Imaging
Mammalian cell culture | Cytotoxicity assays | Confocal microscopy | Cellular uptake studies

Virology & Immunology
Virus propagation | TCID50 titration | Plaque assay | Virus inactivation | ELISA | Virus neutralization test | qPCR

In-vivo Research
Guinea pig studies | Immunogenicity evaluation | Histopathology | Cytokine profiling

Molecular Biology
PCR | Molecular cloning | Recombinant protein expression | Bacterial transformation | SDS-PAGE

EDUCATION

PhD Animal Biotechnology
ICAR–Indian Veterinary Research Institute
2025

Master's Animal Biotechnology
ICAR–National Dairy Research Institute
2020

Bachelor of Veterinary Science
Maharashtra Animal & Fisheries Science University
2018

Publications

- *Mehta A.S., Rao B., Singh C., Iyer D. (2026). Chitosan nanoparticle based ΔgE IBRV vaccine: A novel DIVA compatible strategy for enhanced immunity in guinea pigs. International Journal of Pharmaceutics.*
- *Mehta A.S., Rao B., Iyer D., Khan E., Das F., Singh C. (2024). Preparation and evaluation of polymer nanoparticles: findings from in-vitro analysis. International Journal of Advanced Biochemistry Research.*
- *Khan E., Joshi G., Mehta A.S., Nair H., et al. (2025). Complete genome sequence of a bovine herpesvirus field isolate. GenBank (NCBI), Accession: XX000000.1.*

Research Interests

- Polymer-based viral stabilization and delivery systems.
- Nanoparticle-mediated vaccine formulation
- Controlled release systems for biologically active molecules.

Conferences & Presentations

- Poster Presentation – VIROCON 2025, ICMR National Institute of Virology.
- Poster Presentation – Indian Veterinary Congress 2026.
- Oral Presentation – Society for Veterinary Biotechnology Conference

Awards and Achievements

- First Prize – Best Oral Presentation – SVBBI Conference.
- Best Poster Presentation Award – 26th Indian Veterinary Congress (ICAR-IVRI).

LANGUAGES

English: Fluent

REFERENCES

Dr. Sample Reference One
Principal Scientist, Department of Veterinary Biotechnology ICAR – Indian Veterinary Research Institute, India
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Dr. Sample Reference Three
Senior Scientist, Division of Centre for Wildlife, ICAR – Indian Veterinary Research Institute, India
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Dr. Sample Reference Two
Director, ICAR – Central Institute for Research on Cattle, India
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