Plant-Scale Manufacturing Method for Covaxin, a Novel Inactivated COVID-19 Vaccine

(Technical Report)

Opposition to Vaccination in the United States

(STS Research Paper)

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Preface

Because International travel spreads pathogens, countries must prepare for epidemics by storing ample medical supplies and developing mass vaccination plans. Distrust of vaccinations, however, can hamper vaccination efforts.

The research team developed a plan to scale up COVID-19 vaccine production from Bharat Biotech of India to supply the U.S. In the upstream process, seed trains run in parallel; 1000-L bioreactors are used. Vero cells on microcarriers increase productivity. In the downstream process, a series of purification steps eliminates impurities. After the downstream process, during formulation, inactive ingredients are added to enhance vaccine efficacy and extend shelf life. The formulated product will be filled into 10 mL vials ready for packaging. Target production is 511 million doses annually.

Antivaccination groups use social media platforms to spread distrust of vaccinations. Opposition is attributable to misunderstanding of immunity, values associated with family and parenting, or a general distrust of expertise. To maintain herd immunity and increase vaccination rates, provaccination groups share their personal experiences and cite credible sources to validate the safety and the necessity of the vaccines. In response, government agencies and pharmaceutical companies have been working to increase vaccine transparency and to dispute misinformation.

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