

**Invitation to M.Tech. Thesis Defense of Satakshi Gupta: May 30, 2022 (Monday): 12:30 PM-01:15 PM IST**

In Partial Fulfilment of the Requirements for the Degree of

**M.Tech. CB**

**Satakshi Gupta (MT20215)**

Will defend her thesis

**Title: “Database on bacterial vaccines and prediction of bacterial protective antigens”**

IIIT-D Faculty and Students are invited

**Date: May 30, 2022 (Monday)
Time:** **12.30 PM-01.15 PM IST**

**Venue: Room No: A-320 (Meeting Room), R & D Building**

**Examiner: Internal:   Jaspreet Kaur Dhanjal**

**External/~~Internal~~: Manish Kumar (University of Delhi)**

**Advisor: G P S Raghava**

**Co-Advisor NA**

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**Abstract**

Bacterial diseases are the reason for millions of deaths worldwide thus preventing them is very important. Vaccines are the most cost-effective prevention against many infectious diseases. There are different kinds of bacterial vaccines like live attenuated, inactivated, subunit, toxoids and conjugate with each type having its own way of providing immunity for preventing human bacterial diseases such as pulmonary tuberculosis, diphtheria and many others. In literature, a compiled resource, providing relevant information about vaccines against bacterial diseases was not available. In this study, we have developed a manually curated exhaustive database of bacterial diseases vaccines, to aid researchers in developing novel vaccine candidates. We have created BacVacDB, which is a web-based freely accessible database of bacterial vaccines maintaining comprehensive information related to vaccines. This database comprises 371 vaccine entries covering 30 human bacterial diseases manually extracted from research articles, websites and public databases. Each entry provides detailed information about vaccine name, type, age, description, manufacturer, manufacturing country, year of manufacture, clinical phase status, etc. We have covered details of both approved vaccines as well as the vaccines undergoing different human clinical trials. It provides all the bacterial vaccines information on a single platform to perform efficient and time saving search. The database is accessible at https://webs.iiitd.edu.in/raghava/bacvacdb/. Protective antigens are very important in the research for the development of new and improved vaccines against infectious and non-infectious diseases. Protective antigens are those antigens that are specifically targeted by the acquired immune response of the host. They are capable of stimulating the production of antibodies and induce cell mediated immunity. Identification of protective antigens is the most critical step in the vaccine development process as once the protective antigens are identified, researchers can use these antigens to develop effective subunit and DNA vaccines. In this study, we have developed prediction method to predict if a particular protein could be used as a bacterial protective antigen or not in vaccine development process using different machine learning techniques.