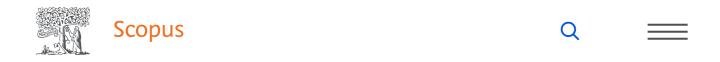
Brought to you by INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA



Back

Unlocking the potential of in silico approach in designing antibodies against SARS-CoV-2

Frontiers in Bioinformatics • Short Survey • Open Access • 2025 •

Cited by (0)

DOI: 10.3389/fbinf.2025.1533983

Impact

```
Subramaniam, Tasshitra a; Mualif, Siti Aisyah a, b ⋈; Chan, Weng Howe;

Abd Halim, Khairul Bariyyah d, e

a Biomedical Engineering and Health Sciences Department, Faculty of Electrical Engineering,
Universiti Teknologi Malaysia, Johor, Johor Bahru, Malaysia

Show all information

O
Citations ♠

View PDF Full text ∨ Export ∨ □ Save to list
```

Abstract

Document

Antibodies are naturally produced safeguarding proteins that the immune system generates to fight against invasive invaders. For centuries, they have been produced artificially and utilized to eradicate various infectious diseases. Given the ongoing threat posed by COVID-19 pandemics worldwide, antibodies have become one of the most promising treatments to prevent infection and save millions of lives. Currently, in silico techniques provide an innovative approach for developing antibodies, which significantly impacts the formulation of antibodies. These techniques develop antibodies with great specificity and potency against diseases such as SARS-CoV-2 by using computational tools and algorithms. Conventional methods for designing and developing antibodies are frequently costly and time-consuming. However, in silico approach offers a contemporary, effective, and economical paradigm for creating next-generation antibodies, especially in accordance

References (133)

Similar documents

with recent developments in bioinformatics. By utilizing multiple antibody databases and high-throughput approaches, a unique antibody construct can be designed in silico, facilitating accurate, reliable, and secure antibody development for human use. Compared to their traditionally developed equivalents, a large number of in silico-designed antibodies have advanced swiftly to clinical trials and became accessible sooner. This article helps researchers develop SARS-CoV-2 antibodies more quickly and affordably by giving them access to current information on computational approaches for antibody creation. Copyright © 2025 Subramaniam, Mualif, Chan and Abd Halim.

Author keywords

antibody; bioinformatics; computational approach; in silico; molecular dynamic simulation; SARS-CoV-2

Funding details

Details about financial support for research, including funding sources and grant numbers as provided in academic publications.

Funding sponsor	Funding number	Acronym
Ministry of Higher Education, Malaysia See opportunities by MOHE 7	FRGS/1/2022/SKK06/UTM/02/3	МОНЕ
Ministry of Higher Education, Malaysia See opportunities by MOHE 7		МОНЕ

Funding text 1

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article. The research is funded by Ministry of Higher Education under Fundamental Research Grant Scheme (FRGS) No: FRGS/1/2022/SKK06/UTM/02/3.

Funding text 2

The authors would like to thank Ministry of Higher Education for providing financial support under Fundamental Research Grant Scheme (FRGS) No: FRGS/1/2022/SKK06/UTM/02/3. The title of the FRGS grant: Elucidation of antiviral properties of SARS-CoV-2 membrane and envelope proteins recombinant diabody. The present study is a review for the methodology of antibody discovery using in silico technology.

Corresponding authors

Corresponding S.A. Mualif

author

Affiliation Biomedical Engineering and Health Sciences Department, Faculty of

Electrical Engineering, Universiti Teknologi Malaysia, Johor, Johor Bahru,

Malaysia

Email address

aisyahmualif@utm.my

© Copyright 2025 Elsevier B.V., All rights reserved.

Abstract

Author keywords

Funding details

Corresponding authors

About Scopus

What is Scopus

Content coverage

Scopus blog

Scopus API

Privacy matters

Language

日本語版を表示する

查看简体中文版本

查看繁體中文版本

Просмотр версии на русском языке

Customer Service

Help