 **12/08/2023**

**Nguyen Tat Thanh University**

**Asst. Prof. Dr. Vy Anh Tran**

Subject: Submission of a new manuscript

**Dear Editor of Indonesian Journal of Chemistry**

I am sending herewith the manuscript entitled “***Nanomaterial for Adjuvants Vaccine: Practical Applications and Prospects”*** All the authors have read the paper and agree with its submission to **Indonesian Journal of Chemistry**.

 Adjuvants are included in vaccines to boost the recipient's immune defenses against pathogen infection or cancer. To address the need for more strong antigen-specific responses, certain kinds of immune responses, and a high margin of safety, a new generation of adjuvants is being created. It is feasible to develop antigen delivery systems with high bioavailability, controlled and sustained release patterns, and targeting and imaging capabilities by altering the physical and chemical characteristics of nanomaterials. The immune system may be modulated by certain nanomaterials such that the cellular and humoral immune responses are more similar to the targeted responses. Because of their combined immunomodulatory and delivery characteristics, nanoparticles are thought to considerably enhance the immunological consequences of vaccination. We will talk about the most recent advancements in the development of novel adjuvants employing nanomaterials in this study. Using the subunit vaccination, DNA vaccines, and RNA vaccines as the foundation, it will be looked at how surface charge and surface modification, two hypothesized methods by which nanomaterials influence vaccine-induced immune responses, affect the subsequent immunological effects. This study aims to provide succinct information on the use of nanomaterials for COVID-19 vaccines and possible new applications.

We have no conflicts of interest to disclose. Given the efforts and careful consideration of the research team, I think this study would be a great fit for the journal. I look forward to receiving a positive response from the Editor.

 Please find below a list of potential reviewers for this work.

 Your consideration is very much appreciated. We are looking forward to your favorable reply.

 Sincerely,

 Asst. Prof. Dr. Vy Anh Tran

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