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Electrophoresis of an emulsion droplet near a charged plane

Shan-Chi Tsai and **Eric Lee**
National Taiwan University, Taiwan

Middle East respiratory syndrome coronavirus (MERS-CoV) has emerged as a new pathogen that can transmit between humans as well as animals and humans, causing severe complications and high mortality rates. Since the MERS was first discovered at the end of 2012, it spread and has caused more than 1,800 infections and 650 deaths. No direct treatments are available yet, highlighting the importance of prevention through suitable vaccination regimes. The viral spike (S) protein has been characterized as a key target antigen for vaccines. The MERS-CoV spike (S) protein is responsible for receptor binding and virion entry into the cell and is highly immunogenic and induces neutralizing antibodies. In this study, we constructed a human endogenous retrovirus (HERV) envelope-coated, baculovirus-based, MERS-CoV DNA vaccines (S full gene, S1, and receptor binding domain (RBD) gene delivering vaccines. AcHERV-MERS (1×107 FFU) were intramuscularly injected into mice, and blood samples were collected every 10 days after immunization. The immunized sera showed high titers of MERS-Cov antibodies and neutralizing activity against MERS-CoV without adjuvant. The AcHERV-MERS could be a potential DNA vaccine candidate.

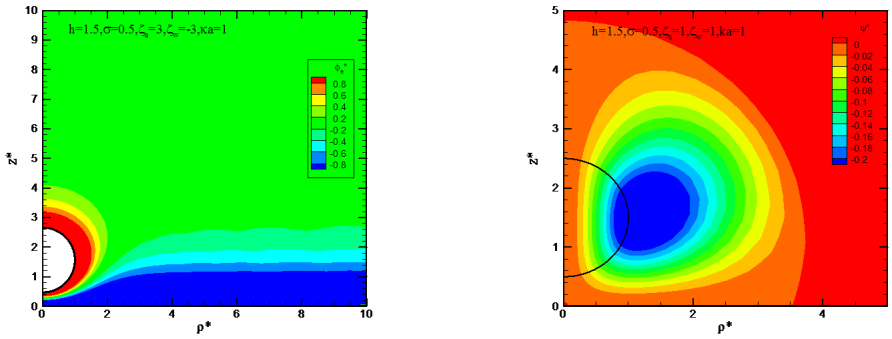

Figure: Equilibrium electric potential Contour of streamline

Biography

Shan-Chi Tsai is currently a PhD student under the guidance of Professor Eric Lee. She has a journal paper published in *Langmuir* in 2016, "Electrophoretic and Electroosmotic Motion of a Charged Spherical Particle within a Cylindrical Pore Filled with Debye–Bueche–Brinkman Polymeric Solution. Langmuir.".

D05524015@ntu.edu.tw

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