

3rd Annual Congress on

INFECTIOUS DISEASES

August 21-23, 2017 San Francisco, USA

A suggestion about rapid rational conditions of CNS safety from various vaccine strategies

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The most realistic way before the recent epidemic that occurred in unexpected times and places in the world is rapid supplying of vaccines related with the infectious diseases within limited times. However, little considerations about rapid supplying a precise manual for the safety assurance of central nervous system (CNS) were established well so far. Thus, this careless in the development of general and/or emergent vaccines should be corrected with a certain secure of safety protocol which can reduce the risks on CNS damages before distribution. Hereby, the present study is undertaken to establish a manual which a certain material can make CNS damage such as breaking down blood-brain barrier (BBB) protecting brain. Since BBB is a critical morphological structure which is selectively permeable between blood vessels and brain, it would be very important to know which conditions (i.e. post-injection, -time) can make BBB vulnerable by pyrogenic inflammatory agent such as lipopolysaccharide (LPS) systemic injection. Following IP administration of the LPS to the mice, the mRNA levels of typical markers of the damaged BBB tight junction such as ZO-1 and CLDN 5 were checked out. Based on conditions in the LPS, IV Evans Blue should be administered after IP LPS administration according to each concentration (four conditions of concentration) of LPS. BBB damages were able to be measured by Evans Blue existence checks by fluorescence wavelength ranges from (ex: 620 nm/em: 680 nm) in the brain tissue. Ultimately, we could observe the mutual relations by comparison with the two methods (mRNA and wavelength levels). According to the results, set LPS concentration can open BBB and by the mRNA levels of tight junction, we can apply these results to general/emergency vaccine strategy.

Biography

Sun Shin Yi has completed his PhD from Seoul National University, Republic of Korea, and Post-doctoral studies from Marquette University, USA. Now, he is a Professor in the Department of Biomedical Laboratory Science, an Associate Dean of Special Affairs for Planning and Chair of IACUC at the Soonchunhyang University. He has published more than 60 papers in reputed journals, and is a Board Member of Korea Mouse Phenotype Center.

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