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Does Inactivated Probiotic Hydrogel have skin inflammation effects?

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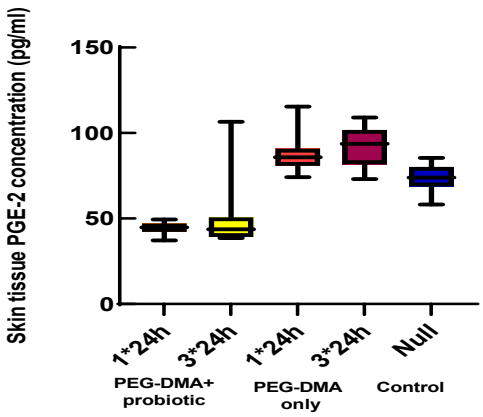
Abstract
S.epidermidis consumes poly(ethylene glycol) dimethacrylate (PEG-DMA) as a carbohydrate source and can produce short chain fatty acids (SCFAs). It remains unclear that applying the hydrogel containing inactivated probiotic bacterial PEG-DMA on skin have skin irritating or cutaneous inflammation effects.

We aimed to identify inflammation inducing potentials of S. epidermidis-PEG-DMA fermented hydrogel in a mouse tissue model. Moreover, we applied PEG-DMA hydrogels with and without S. epidermidis three times for 24 hours in the right ear, and once for 24 hours in the left ear of the experimental groups of mice. Four mice were selected as a control group which did not apply any substances. Following experiments, PGE2 concentration was determined in mice ear's tissue supernatant in triplicates. Kruskal-Wallis test was used to compare the median values of the PGE2 measured by competitive ELISA. The tissue PGE2 concentration was detected at 44.78pg/ml [95%CI 41.51, 47.19] in PEG-DMA probiotic hydrogel applied group, 91.29pg/ml [95%CI 79.89, 95.67] in PEG-DMA only hydrogel applied group, and 73.00pg/ml [95%CI 69.79, 78.00] in control group mice, respectively. PGE2 concentration differed between groups of mice ($p<0.0001$), and also differed by dosage (the amount of hydrogel) of the hydrogels ($p<0.004$). Interestingly, PEG-DMA probiotic hydrogel did not cause skin inflammation and furthermore decreased PGE2 level in contrast to inflammatory PEG-DMA hydrogels.

Biography
Dr. Romario M. Ramos is a neurologist and psychiatrist. He graduated with a degree in Bachelor of Science in Psychology (Cum Laude) and in Medicine from the University of Santo Tomas (UST). He completed his residency training in Neurology and Psychiatry from the UST Hospital Department of Neurology and Psychiatry. He is Head of Section of Neurology at the MMGHMCOM, a member of the Oriental Mindoro Medical Society, a fellow of the Philippine Neurological Association (PNA), Cluster Head of Mindoro PNA Southern Luzon Chapter and a member of PNA Advocacy Committee. His research interests include stroke, digital and mental health.



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Biography

Battogtokh Chimeddorj is working as a head of Department of Microbiology and IPC, Mongolian National University of Medical Sciences. Her main research focuses on clinical virology, in the recent years she has been investing into the probiotic studies as well. She has been working in good collaboration with Prof. Chung-Ming Huang, who is one of the experts in the dermatology research field. Together they conducted Taiwanese-Mongolian Joint Research Project 2018- 2021, under the topic "An Inactivated Probiotic Hydrogel with SCFAs for Adipogenic differentiation, successfully". The current abstract shows some results from the project's data.

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