Fatchiyah Fatchiyah, Madridge J Food Technol. 2017
http://dx.doi.org/10.18689/2577-4182.a1.006

madridge CONFERENCES

International Conference on
Obesity and Weight Loss

November 6-8, 2017 Barcelona, Spain

The Biological Function of the Bioactive Peptide of Alpha-S2 Casein Goat Milk Prevent AGEs and RAGE Interaction in Cellular Mechanism

Fatchiyah Fatchiyah
Brawijaya University, Indonesia

The interaction nutrients, lifestyles and genetic factor modulate molecular pathway in human related to developing chronic diseases. Healthy nutrients composition can reduce the incidence of cardiovascular, obesity, and type 2 diabetes mellitus diseases due to repairing abnormality molecular mechanism signaling. AGEs provide new possible targets for the treatment of both diabetes. Hyperglycemia is an abnormally high blood glucose (blood sugar) level. Among the irreversible changes that occur as a result of hyperglycemia is the formation of AGE through a reaction between sugars and the free amino groups on proteins, lipids, and nucleic acids. AGEs react with their receptors (RAGEs) to induce oxidative stress. Recent study, we found the local caprine milk CSN1S2 protein has eight peptide residues contain seven to twelve amino acid residues which are suggested to reveal multifunctional properties. The goals to be achieved in managing diabetes are prevention or control of pancreatic β-cells damage, prevention of loss of function, and reduction of complication. This study used 24 rats of control and diabetic models treated with CSN1S2of Caprine milk and then analyzed the physiological character, protein expression and in silico analysis. The study results showed that the body weight gaining and some organ weight reduced, the level of sRAGE up-regulated and AGE level down-regulated on DM-750mg/kg caprine milk compared with DM group. The fragment 41-47 of CSN1S2 has inhibitor activity of Argypirimidine-RAGE interaction. In other hand, CSN1S2 fragment 214-221 can also require the imidazole bind to arginine residue 221 of the peptide. These results indicated the possibility of Caprine CSN1S2 peptide able to take place biological function as a competitive inhibitor of AGEs and RAGE interaction that may intervenes its cellular mechanism and impaired signal transduction cascade at the cellular level.

Biography:

Prof. Fatchiyah F., PhD., is a professor of Molecular Genetics and has completed a PhD program at the Graduate University for Advances Studies, Department of Molecular Biomechanics, National Institute for Basic Biology, Okazaki, and Aichi, Japan, 2006. She is senior lecturer in molecular genetics at Biology Dept. Faculty of Sciences, Brawijaya University. Malang, Indonesia since 1989 till present; as director of Center Laboratory of Life Sciences, UB during 2007-2012; as director of Institute Biosains of UB, 2012-present, and as a head of Center Research of SMONAGENES UB focus on: Nutrigenomics study of Natural Genetics Resources, Molecular Biomechanics of Gene Cascade of Metabolic and Degenerative Diseases and Genes Mapping.