

Genes Related to Caloric Restriction (CR) and Lifestyle- Related Diseases.

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To limit calorie intake to 50-70% is better for human health. When mammals limit their intake calories, the aging process slow down. It is known that, this kind of restriction can lead to a fall in blood pressure, triglyceride (TG) level, cholesterol level, and so on. Dyslipidemia is one of the lifestyle-related disease.

Nampt is an enzyme plays an important role in NAD biosynthesis pathway, and it decreases blood glucose level. It also increases the activity of Sirt1, which is key enzyme related to caloric restriction (CR). Therefore, it is very likely that variations of CR-related gene are related to lipid metabolism. In this study, I investigated the relationship between genetic variations of CR-related genes and lipid metabolism.

At first, gene polymorphisms were determined using RFLP (restriction enzyme fragment length polymorphisms) method. Next, I investigated whether the combination of genetic polymorphisms and fat intake affects lipid metabolism.

The results showed a significant relationship between Namnt polymorphism and TG level ($p = 0.011$). Other results showed a significant relationship between Sirt1 polymorphism and both HDL and LDL cholesterol levels ($p = 0.022, 0.001$). Furthermore, when analyzed in relation to fat intake, in the group of people with much fat intakes, the relationship between Namnt and TG level become stronger ($p = 0.0002$). These results suggest that Namnt and Sirt1 polymorphisms affect lipid metabolism.

In addition, Sirt1 is closely related to signaling pathway of insulin. I continue to analyze relationship between genetic polymorphisms about signaling pathway of insulin and lifestyle-related diseases now.