

good oil and maintaining the axles so the wheels do not rust, derailments will not occur. Rusting in the brain is due to the reactive oxygen species, but there are antioxidants which can prevent it. For example, vitamin E, polyphenols and γ -oryzanol. In particular, astaxanthin which is a component of the red pigment found in salmon, shrimp and crab has more than 500 times the antioxidant activity of vitamin E, and is a health supplement which has been drawing attention in recent years. Both department stores and brains have many trucks. When the trucks get rusty, it corresponds to “forgetting things or loss of concentration”; when trucks are derailed here and there, scattering garbage all around and the department store is closed, that corresponds to “mild cognitive impairment”; and when the whole store goes bankrupt, that corresponds to dementia”.

Aldehyde dehydrogenase 2 (ALDH 2) is an enzyme that we expect will offer even better prevention of Alzheimer's disease than the above antioxidants. The human population is divided into three types: humans with a pair of this gene, those with only half, and those with none at all. In East Asia, approximately half of people have an enzyme-inactive ALDH2 corresponding to the latter two. As these people have a hard time decomposing acetaldehyde, the causative agent of hangovers, when they drink alcohol, they immediately go “red in the face”, and even if they consume dregs of “*ake* (Japanese rice wine), they get “heart palpitations”. Statistical data show people with this inactive ALDH2 tend to get Alzheimer's disease only 1.6 times more than those with the active gene. However, the situation is more serious in humans who have apolipoprotein E (ApoE) type 4, since they are 3 times more likely to develop Alzheimer's disease. Moreover, people with both inactive ALDH2 and ApoE4 genes can't drink alcohol at all, and their risk of Alzheimer's disease is a whopping 30 times higher.

of the lysosomal membrane. As a result, by the age of 65, neurons in the hippocampus and the precuneus degenerate by the lysosomal permeabilization, finally leading to Alzheimer's disease.

Looking at the incidence of Alzheimer's patients worldwide, the incidence is overwhelmingly high in Japan. In Japan, the number of people with Alzheimer's disease is more than twice, compared to the United States and the EU countries in terms of the ratio of the population. The reason for this is that mountain areas occupy the

majority of the country's land area, and electromagnetic waves and exhaust gases that cause oxidative stress are concentrated in narrow plains where the majority of the people live. Besides, most Japanese people like foods containing a large amount of hydroxynonenal such as tempura, fried potatoes & fish, cutlets and fried chicken cooked in vegetable oil. However, I believe that the major reason is that Japanese people are racially weak in the enzyme activity of ALDH2, and cannot detoxify this cytotoxin, hydroxynonenal, derived from vegetable oil.