Prof.
NAKAMURA Yoshimasa

Activation of endogenous defense mechanisms by food constituents and their metabolites by gut microbiota

Electrophilic substances in foods possess potential to exhibit various biological activities through transcriptional regulation of cytoprotective genes involved in cellular defense against biotic stresses induced by xenobiotics, reactive oxygen species, and alcohol. We have been focusing on food-derived electrophiles such as isothiocyanates, flavonoids, and phenolic acid metabolites of quercetin 4´-glucoside, the major polyphenol in onion. Modulating effects of these compounds on cytoprotective gene expression and the underlying molecular mechanisms are investigated by the forward chemical genetics approach to elucidate their physiological significance.