Child-adult differences in evaluation of *in vivo* genotoxicity of acrylamide

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The recent discovery of acrylamide (AA), a potent carcinogen, in a variety frying or baking of foods raises human health concerns. In particular, young people like snacks, cereals, and baby foods, which contains relatively high doses of AA. AA is known to be metabolized by CYP2E1 to glycidamide (GA) which is responsible for genotoxicity and carcinogenicity. The activity of CYP2E1 is different between adults and children. To compire *in vivo* genotoxicity of AA and its child-adult differences, we treated adult or neonatal male rats (*gpt*-delta transgenic F344 rats (3w,11w) with 0, 20, 40, 80 ppm and SD rats (3w,7w) with 0, 50, 100, 200 ppm) of AA in drinking water for 28 days, and examined several genotoxicities in the blood, liver and testis. As a result we observed the dose-dependent increases of micronuclei in peripheral blood and testis. In alkaline Comet assay, in livers and testis was also significantly increased in the middle and high doses. However, there is no difference of these genotoxic responses between the adults and neonatal rats. On the other hand, the *gpt* mutation in liver was not observed in both the adult and neonatal transgenic rats. We are now analyzing anti-genotoxic effect of several daily foods in these tissues of in adult and neonatal rats.

Keywords: acrylamide; glycidamide; *gpt*-delta transgenic rat; genotoxicity;