

**B7** Acrolein produced from polyamines as one of the uremic toxins

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It is well known that the addition of spermine or spermidine to culture medium containing ruminant serum inhibits cellular proliferation. This effect is caused by the products of oxidation of polyamines that are generated by serum amine oxidase. Among the products, we found that acrolein is a major toxic compound produced from spermine and spermidine by amine oxidase. We then analyzed the level of polyamines (putrescine, spermidine and spermine) and amine oxidase activity in plasma of patients with chronic renal failure. It was found that the level of putrescine and the amine oxidase activity were increased, whereas spermidine and spermine were decreased in plasma of patients with chronic renal failure. The levels of free and protein-conjugated acrolein were also increased in plasma of patients with chronic renal failure. Increase in putrescine, amine oxidase and acrolein in plasma was observed in all cases such as diabetic nephropathy, chronic glomerulonephritis and nephrosclerosis. These results suggest that acrolein is produced during the early stage of nephritis through the damage of kidney and also during uremia through accumulation of polyamines in blood due to the decrease in their excretion into urine.