

Uric acid is the end product of purine metabolism of humans and some higher primates. In other mammals enzyme urate oxidase is capable to further convert uric acid to allantoin. During evolution of primates several mutations in urate oxidase gene had occurred, led the enzyme to decrease its activity or to complete loss of function.

What was the initial impetus for the utilization of uric acid and what biochemical traits of uric acid led to a tendency to retain a major of this metabolite production in the bloodstream?

Uric acid has antioxidant capabilities and it is scavenger of free radicals.

Increased levels of uric acid in blood has an effect on acute and chronic elevations of blood pressure. It is possible that hyperuricemia helped to maintain blood pressure under low-salt dietary conditions of primates during the Miocene. This mechanism probably have allowed to stabilize bipedalism our ancestors.

Uric acid has an important role as a neuroprotector. As inhibitor the permeability blood-brain barrier, uric acid limits the infiltration of undesirable substances to the neurons and prevents central nervous system against the formation of inflammatory diseases. Such as neurodegenerative diseases may be caused by reduced serum uric acid levels.

Uric acid protects against peroxynitrite damage tissues in the inflammatory response.