

# Origin of Renal Proximal Tubular Injuries by Fe(III)-nta Chelate

Yuzo Nishida\*, Yuuta Ito, and Takahiro Satoh

Department of Chemistry, Faculty of Science, Yamagata University, Yamagata, 990-8560, Japan. Fax: +81 023 6284603. E-mail: yuzo@sci.kj.yamagata-u.ac.jp

\* Author for correspondence and reprint requests

Z. Naturforsch. **62c**, 608–612 (2007); received December 18, 2006/January 22, 2007

Interaction between apo-transferrin and several iron(III) chelates has been investigated in terms of the capillary electrophoresis method. Based on the results, it has been clarified that (i) a binuclear iron(III) unit with an oxo-bridge is necessary for the facile transfer of an iron atom from the iron(III) chelate to apo-transferrin, and (ii) the renal proximal tubular injuries by Fe(III)-nitrilotriacetate (Fe-nta) should be due to the unique binuclear structure of this complex, which gives a peroxide adduct of the binuclear Fe-nta in the presence of glutathione cycle and oxygen.

*Key words:* Ferric-nitrilotriacetate (Fe-nta), Renal Carcinogen, Renal Proximal Tubular Injury, Capillary Electrophoresis