

# METABOLISM AND TOXICITY OF CADMIUM IN HUMANS AND ANIMALS

## Summary

Cadmium (Cd(II)) is one of the most important toxic chemicals due to its increasing level in the environment as a result of industrial and agricultural practices. Cd(II) has a very long biological half-life (10–30 years) in humans and its toxicity is dependent on the dose, route and duration of exposure. Cd(II) is absorbed from the gastro-intestinal tract primarily by utilizing transporters for essential elements such as iron and zinc, as well as calcium

channels. In this review multiple mechanisms of Cd(II) toxicity are discussed, such as interference with enzymes of the cellular antioxidant system and generation of reactive oxygen species, modulation of signal transduction and gene expression, inhibition of DNA repair and DNA methylation, and disruption of E-cadherin-mediated cell-cell adhesion. The role of Cd(II) in apoptosis is also discussed.