

S18-4 Safety analysis of nanomaterials about mechanism of acute toxicity and liver

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With recent developments in nanotechnology, nanomaterials have been successfully employed in various industrial applications such as medicine and cosmetics. Nanomaterials demonstrate useful properties such as electronic reactivity and tissue permeability that are absent in micromaterials. Thus, it is anticipated that nanomaterials will be developed as innovative materials in medicine and the cosmetics industry. However, these innovative properties may be accompanied by unknown biological responses that could not have been detected by conventional toxicity assays. To promote industrial development and to establish an affluent society that enjoys only the benefits of nanomaterials, we urgently need to gather information on the properties and biological effects of nanomaterials, and to establish appropriate standard safety evaluation methods. We are therefore analyzing the association of nanomaterial interactions with macromolecules (proteins, DNA etc.) and biodistribution using nanosilicas (nSP) as a standard nanomaterial. The results of this study are useful for extrapolation to other nanomaterials and to establish practicable strategies for the development of prediction methods for nanomaterials.