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Volume 64 of *Reviews in Mineralogy and Geochemistry* presents examples that include the effects of inhaled dust particles in the lung (Huang et al. 2006; Schoonen et al. 2006), biominerization of bones and teeth (Glimcher et al. 2006), the formation of kidney-stones, the calcification of arteries, the speciation exposure pathways and pathological effects of heavy metal contaminants (Reeder et al. 2006; Plumlee et al. 2006), the transport and fate of prions and pathological viruses in the environment (Schramm et al. 2006), the possible environmental-genetic link in the occurrence of neurodegenerative diseases (Perl and Moalem 2006), the design of biocompatible, bioactive ceramics for use as orthopaedic and dental implants and related tissue engineering applications (Cerruti and Sahai 2006) and the use of oxide-encapsulated living cells for the development of biosensors (Livage and Coradin 2006).