REFERENCES

REFERENCES

Abdolmaleki, A., & Zahri, S. (2016). Comparison of toxicity and teratogenic effects of salen and vo-salen on chicken embryo. *Drug and chemical toxicology, 39*(3), 344-349.

Adams, L. K., Lyon, D. Y., & Alvarez, P. J. (2006). Comparative eco-toxicity of nanoscale TiO 2, SiO 2, and ZnO water suspensions. *Water research, 40*(19), 3527-3532.

Adams, L. K., Lyon, D. Y., & Alvarez, P. J. (2006). Comparative eco-toxicity of nanoscale TiO 2, SiO 2, and ZnO water suspensions. *Water research, 40*(19), 3527-3532.

Aggarwal, P., Hall, J. B., McLeland, C. B., Dobrovolskaia, M. A., & McNeil, S. E. (2009). Nanoparticle interaction with plasma proteins as it relates to particle biodistribution, biocompatibility and therapeutic efficacy. *Advanced drug delivery reviews, 61*(6), 428-437.

Ahamed, M., A Alhadlaq, H., Alam, J., Khan, M., Ali, D., & Alarafi, S. (2013). Iron oxide nanoparticle-induced oxidative stress and genotoxicity in human skin epithelial and lung epithelial cell lines. *Current pharmaceutical design, 19*(37), 6681-6690.

Ahmed, B., Dwivedi, S., Abdin, M. Z., Azam, A., Al-Shaeri, M., Khan, M. S., . . . Musarrat, J. (2017). Mitochondrial and Chromosomal Damage Induced by Oxidative Stress in Zn2+ Ions, ZnO-Bulk and ZnO-NPs treated Allium cepa roots. *Scientific reports, 7*, 40685.

Alaraby, M., Annangi, B., Hernández, A., Creus, A., & Marcos, R. (2015). A comprehensive study of the harmful effects of ZnO nanoparticles using Drosophila melanogaster as an in vivo model. *Journal of hazardous materials, 296*, 166-174.

Alarifi, S., Ali, D., Alkahtani, S., Verma, A., Ahamed, M., Ahmed, M., & Alhadlaq, H. A. (2013). Induction of oxidative stress, DNA damage, and apoptosis in a malignant human skin melanoma cell line after exposure to zinc oxide nanoparticles. *International journal of nanomedicine, 8*, 983.

Alivisatos, P. (2004). The use of nanocrystals in biological detection. *Nature biotechnology, 22*(1), 47-52.

Alshatwi, A. A., Subbarayan, P. V., Ramesh, E., Al-Hazzani, A. A., Alsaif, M. A., & Alwarthan, A. A. (2013). Aluminium oxide nanoparticles induce mitochondrial-mediated oxidative stress and alter the expression of antioxidant enzymes in human mesenchymal stem cells. *Food Additives & Contaminants: Part A, 30*(1), 1-10.

Alves, P., Cardoso, R., Correia, T., Antunes, B., Correia, I., & Ferreira, P. (2014). Surface modification of polyurethane films by plasma and ultraviolet light to improve haemocompatibility for artificial heart valves. *Colloids and Surfaces B: Biointerfaces, 113*, 25-32.

Balasubramanyam, A., Sailaja, N., Mahboob, M., Rahman, M., Hussain, S. M., & Grover, P. (2010). In vitro mutagenicity assessment of aluminium oxide nanomaterials using the Salmonella/microsome assay. *Toxicology in vitro, 24*(6), 1871-1876.

Balasubramanyam, A., Sailaja, N., Mahboob, M., Rahman, M., Hussain, S. M., & Grover, P. (2010). In vitro mutagenicity assessment of aluminium oxide nanomaterials using the Salmonella/microsome assay. *Toxicology in Vitro, 24*(6), 1871-1876.

Balogh, L. P. (2010). Why do we have so many definitions for nanoscience and nanotechnology? : Elsevier.

Ban, M., Langonné, I., Huguet, N., Guichard, Y., & Goutet, M. (2013). Iron oxide particles modulate the ovalbumin-induced Th2 immune response in mice. *Toxicology letters, 216*(1), 31-39.

Baun, A., Hartmann, N. B., Grieger, K., & Kusk, K. O. (2008). Ecotoxicity of engineered nanoparticles to aquatic invertebrates: a brief review and recommendations for future toxicity testing. *Ecotoxicology, 17*(5), 387-395.

Besov, A., Krivova, N., Vorontsov, A., Zaeva, O., Kozlov, D., Vorozhtsov, A., . . . Smirniotis, P. (2010). Air detoxification with nanosize TiO 2 aerosol tested on mice. *Journal of hazardous materials, 173*(1), 40-46.

Bhattacharya, K., Davoren, M., Boertz, J., Schins, R. P., Hoffmann, E., & Dopp, E. (2009). Titanium dioxide nanoparticles induce oxidative stress and DNA-adduct formation but not DNA-breakage in human lung cells. *Particle and Fibre Toxicology, 6*(1), 17.

Blinova, I., Ivask, A., Heinlaan, M., Mortimer, M., & Kahru, A. (2010). Ecotoxicity of nanoparticles of CuO and ZnO in natural water. *Environmental Pollution, 158*(1), 41-47.

Bourrinet, P., Bengele, H. H., Bonnemain, B., Dencausse, A., Idee, J.-M., Jacobs, P. M., & Lewis, J. M. (2006). Preclinical safety and pharmacokinetic profile of ferumoxtran-10, an ultrasmall superparamagnetic iron oxide magnetic resonance contrast agent. *Investigative radiology, 41*(3), 313-324.

Bourrinet, P., Bengele, H. H., Bonnemain, B., Dencausse, A., Idee, J.-M., Jacobs, P. M., & Lewis, J. M. (2006). Preclinical safety and pharmacokinetic profile of ferumoxtran-10, an ultrasmall superparamagnetic iron oxide magnetic resonance contrast agent. *Investigative radiology, 41*(3), 313-324.

Brody, A. L. (2006). Nano and food packaging technologies converge. *Food technology*.

Brosnan, J. T., & Brosnan, M. E. (2013). Glutamate: a truly functional amino acid. *Amino acids, 45*(3), 413-418.

Bryszewska, M. A., Hannam, S. E., Olivas, R. M., & Camara, C. (2009). Direct arsenic determination in exposed embryos of zebrafish (Danio rerio) with Zeeman electrothermal atomic absorption spectrophotometry. *Spectroscopy Letters, 42*(6-7), 363-369.

Bulte, J. W., & Kraitchman, D. L. (2004). Iron oxide MR contrast agents for molecular and cellular imaging. *NMR in Biomedicine, 17*(7), 484-499.

Burke, A. C., & Nowicki, J. (2003). A new view of patterning domains in the vertebrate mesoderm. *Developmental cell, 4*(2), 159-165.

Buzea, C., Pacheco, I. I., & Robbie, K. (2007). Nanomaterials and nanoparticles: Sources and toxicity. *Biointerphases, 2*(4), MR17-MR71.

Caballero-Díaz, E., & Cases, M. V. (2016). Analytical methodologies for nanotoxicity assessment. *TrAC Trends in Analytical Chemistry, 84*, 160-171.

Caminati, M., Durić-Filipović, I., Arasi, S., Peroni, D. G., Živković, Z., & Senna, G. (2015). Respiratory allergies in childhood: Recent advances and future challenges. *Pediatric Allergy and Immunology, 26*(8), 702-710.

Card, J. W., Zeldin, D. C., Bonner, J. C., & Nestmann, E. R. (2008). Pulmonary applications and toxicity of engineered nanoparticles. *American Journal of Physiology-Lung Cellular and Molecular Physiology, 295*(3), L400-L411.

Chan, W. C., Maxwell, D. J., Gao, X., Bailey, R. E., Han, M., & Nie, S. (2002). Luminescent quantum dots for multiplexed biological detection and imaging. *Current opinion in biotechnology, 13*(1), 40-46.

Chandra, A., Patidar, V., Singh, M., & Kale, R. (2013). Physicochemical and friccohesity study of glycine, L-alanine and L-phenylalanine with aqueous methyltrioctylammonium and cetylpyridinium chloride from T=(293.15 to 308.15) K. *The Journal of Chemical Thermodynamics, 65*, 18-28.

Chen, H. H., Yu, C., Ueng, T. H., Chen, S., Chen, B. J., Huang, K. J., & Chiang, L. Y. (1998). Acute and subacute toxicity study of water-soluble polyalkylsulfonated C60 in rats. *Toxicologic pathology, 26*(1), 143-151.

Chen, J. L., & Fayerweather, W. E. (1988). Epidemiologic study of workers exposed to titanium dioxide. *Journal of Occupational and Environmental Medicine, 30*(12), 937-942.

Chen, L., Yokel, R. A., Hennig, B., & Toborek, M. (2008). Manufactured aluminum oxide nanoparticles decrease expression of tight junction proteins in brain vasculature. *Journal of Neuroimmune Pharmacology, 3*(4), 286-295.

Chertok, B., David, A. E., & Yang, V. C. (2010). Polyethyleneimine-modified iron oxide nanoparticles for brain tumor drug delivery using magnetic targeting and intra-carotid administration. *Biomaterials, 31*(24), 6317-6324.

Choi, H., Stathatos, E., & Dionysiou, D. D. (2006). Sol–gel preparation of mesoporous photocatalytic TiO 2 films and TiO 2/Al 2 O 3 composite membranes for environmental applications. *Applied Catalysis B: Environmental, 63*(1), 60-67.

Chopra, I. (2007). The increasing use of silver-based products as antimicrobial agents: a useful development or a cause for concern? *Journal of antimicrobial Chemotherapy, 59*(4), 587-590.

Christie, H., MacKay, R., & Fisher, A. (1963). Pulmonary effects of inhalation of titanium dioxide by rats. *American Industrial Hygiene Association Journal, 24*(1), 42-46.

Clemente, Z., Castro, V., Moura, M., Jonsson, C., & Fraceto, L. (2014). Toxicity assessment of TiO 2 nanoparticles in zebrafish embryos under different exposure conditions. *Aquatic toxicology, 147*, 129-139.

Coleman, C. M. (2008). Chicken embryo as a model for regenerative medicine. *Birth Defects Research Part C: Embryo Today: Reviews, 84*(3), 245-256.

Colton, H., Falls, J., Ni, H., Kwanyuen, P., Creech, D., McNeil, E., . . . Cariello, N. (2004). Visualization and quantitation of peroxisomes using fluorescent nanocrystals: treatment of rats and monkeys with fibrates and detection in the liver. *Toxicological Sciences, 80*(1), 183-192.

Commission, E. (2011). Commission Recommendation of 18 October 2011 on the definition of nanomaterial (2011/696/EU). *Official Journal of the European Communities: Legis*.

Conner, M. W., Flood, W. H., Rogers, A. E., & Amdur, M. O. (1988). Lung injury in guinea pigs caused by multiple exposures to ultrafine zinc oxide: changes in pulmonary lavage fluid. *Journal of Toxicology and Environmental Health, Part A Current Issues, 25*(1), 57-69.

Contado, C., & Pagnoni, A. (2010). TiO 2 nano-and micro-particles in commercial foundation creams: Field Flow-Fractionation techniques together with ICP-AES and SQW Voltammetry for their characterization. *Analytical Methods, 2*(8), 1112-1124.

Couto, D., Freitas, M., Vilas-Boas, V., Dias, I., Porto, G., Lopez-Quintela, M. A., . . . Fernandes, E. (2014). Interaction of polyacrylic acid coated and non-coated iron oxide nanoparticles with human neutrophils. *Toxicology letters, 225*(1), 57-65.

David, D. (1979). Gas chromatographic study of the rate of penetration of DDT into quail eggs at different stages of their development. *Bulletin of environmental contamination and toxicology, 21*(1), 289-295.

Davis, J., Wang, A., & Shtakin, J. (2010). Nanomaterial case studies: nanoscale titanium dioxide in water treatment and in topical sunscreen. *US EPA, Research Triangle Park, NC*.

Dhawan, A., Sharma, V., & Parmar, D. (2009). Nanomaterials: a challenge for toxicologists. *Nanotoxicology, 3*(1), 1-9.

Di Virgilio, A., Reigosa, M., Arnal, P., & De Mele, M. F. L. (2010). Comparative study of the cytotoxic and genotoxic effects of titanium oxide and aluminium oxide nanoparticles in Chinese hamster ovary (CHO-K1) cells. *Journal of Hazardous Materials, 177*(1), 711-718.

Dobrzyńska, M. M., Gajowik, A., Radzikowska, J., Lankoff, A., Dušinská, M., & Kruszewski, M. (2014). Genotoxicity of silver and titanium dioxide nanoparticles in bone marrow cells of rats in vivo. *Toxicology, 315*, 86-91.

Doi, T., Puri, P., Bannigan, J., & Thompson, J. (2010). Disruption of noncanonical Wnt/CA 2+ pathway in the cadmium-induced omphalocele in the chick model. *Journal of pediatric surgery, 45*(8), 1645-1649.

Doi, T., Puri, P., Bannigan, J., & Thompson, J. (2011). Altered PITX2 and LEF1 gene expression in the cadmium-induced omphalocele in the chick model. *Pediatric Surgery International, 27*(5), 495-499.

Donaldson, K., & Poland, C. A. (2013). Nanotoxicity: challenging the myth of nano-specific toxicity. *Current opinion in biotechnology, 24*(4), 724-734.

Donaldson, K., & Tran, C. L. (2002). Inflammation caused by particles and fibers. *Inhalation toxicology, 14*(1), 5-27.

Donaldson, K., Stone, V., Tran, C., Kreyling, W., & Borm, P. J. (2004). Nanotoxicology: BMJ Publishing Group Ltd.

Drexler, K. (1990). Engines of destruction, in engines of creation: The Coming Era of Nanotechnology. 1986. *Anchor Books: New York, NY. Elimelech, M., and CR*

O'Melia, Effect of particle size on collision efficiency in the deposition of brownian particles with electrostatic energy barriers. Langmuir, 6, 1153-1163.

Dubertret, B., Skourides, P., Norris, D. J., Noireaux, V., Brivanlou, A. H., & Libchaber, A. (2002). In vivo imaging of quantum dots encapsulated in phospholipid micelles. *Science, 298*(5599), 1759-1762.

Dugan, J. D., Lawton, M. T., Glaser, B., & Brem, H. (1991). A new technique for explantation and in vitro cultivation of chicken embryos. *The Anatomical Record, 229*(1), 125-128.

Elsaesser, A., & Howard, C. V. (2012). Toxicology of nanoparticles. *Advanced drug delivery reviews, 64*(2), 129-137.

Engel, M. F., Visser, A. J., & van Mierlo, C. P. (2004). Conformation and orientation of a protein folding intermediate trapped by adsorption. *Proceedings of the National Academy of Sciences of the United States of America, 101*(31), 11316-11321.

Estevanato, L., Cintra, D., Baldini, N., Portilho, F., Barbosa, L., Martins, O., . . . Báo, S. (2011). Preliminary biocompatibility investigation of magnetic albumin nanosphere designed as a potential versatile drug delivery system. *International journal of nanomedicine, 6*, 1709.

Europea, C. (2004). Communication from the Commission-Towards a European strategy for nanotechnology. *Brussels, Commission of the European Communities*.

Europea, C. (2004). Communication from the Commission-Towards a European strategy for nanotechnology. *Brussels, Commission of the European Communities*.

Fahmy, B., & Cormier, S. A. (2009). Copper oxide nanoparticles induce oxidative stress and cytotoxicity in airway epithelial cells. *Toxicology In Vitro, 23*(7), 1365-1371.

Faraji, A. H., & Wipf, P. (2009). Nanoparticles in cellular drug delivery. *Bioorganic & medicinal chemistry, 17*(8), 2950-2962.

Farnebo, M., Bykov, V. J., & Wiman, K. G. (2010). The p53 tumor suppressor: a master regulator of diverse cellular processes and therapeutic target in cancer. *Biochemical and biophysical research communications, 396*(1), 85-89.

Federici, G., Shaw, B. J., & Handy, R. D. (2007). Toxicity of titanium dioxide nanoparticles to rainbow trout (Oncorhynchus mykiss): gill injury, oxidative stress, and other physiological effects. *Aquatic toxicology, 84*(4), 415-430.

Ferin, J., & Oberdörster, G. (1985). Biological effects and toxicity assessment of titanium dioxides: anatase and rutile. *The American Industrial Hygiene Association Journal, 46*(2), 69-72.

Feynman, R. P. (1960). There's plenty of room at the bottom. *Engineering and science, 23*(5), 22-36.

Fischer, D., Li, Y., Ahlemeyer, B., Krieglstein, J., & Kissel, T. (2003). In vitro cytotoxicity testing of polycations: influence of polymer structure on cell viability and hemolysis. *Biomaterials, 24*(7), 1121-1131.

Fisichella, M., Dabboue, H., Bhattacharyya, S., Saboungi, M.-L., Salvetat, J.-P., Hevor, T., & Guerin, M. (2009). Mesoporous silica nanoparticles enhance MTT formazan exocytosis in HeLa cells and astrocytes. *Toxicology in vitro, 23*(4), 697-703.

Gao, G., Chen, M., Li, M., Yang, Z., Li, Z., & Mei, X. (2015). Current status and prospect of translational medicine in nanotechnology. *Yao xue xue bao= Acta pharmaceutica Sinica, 50*(8), 919-924.

Gatoo, M. A., Naseem, S., Arfat, M. Y., Mahmood Dar, A., Qasim, K., & Zubair, S. (2014). Physicochemical properties of nanomaterials: implication in associated toxic manifestations. *BioMed research international, 2014*.

Geetha-Loganathan, P., Nimmagadda, S., Huang, R., Christ, B., & Scaal, M. (2006). Regulation of ectodermal Wnt6 expression by the neural tube is transduced by dermomyotomal Wnt11: a mechanism of dermomyotomal lip sustainment. *Development, 133*(15), 2897-2904.

George, S., Gunn, A. J., Westgate, J. A., Brabyn, C., Guan, J., & Bennet, L. (2004). Fetal heart rate variability and brain stem injury after asphyxia in preterm fetal sheep. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology, 287*(4), R925-R933.

Gerloff, K., Albrecht, C., Boots, A. W., Förster, I., & Schins, R. P. (2009). Cytotoxicity and oxidative DNA damage by nanoparticles in human intestinal Caco-2 cells. *Nanotoxicology, 3*(4), 355-364.

Ghobadian, M., Nabiuni, M., Parivar, K., Fathi, M., & Pazooki, J. (2015). Toxic effects of magnesium oxide nanoparticles on early developmental and larval stages of zebrafish (Danio rerio). *Ecotoxicology and environmental safety, 122*, 260-267.

Ghobadian, M., Nabiuni, M., Parivar, K., Fathi, M., & Pazooki, J. (2015). Toxic effects of magnesium oxide nanoparticles on early developmental and larval stages of zebrafish (Danio rerio). *Ecotoxicology and environmental safety, 122*, 260-267.

Gibson, J. D., Khanal, B. P., & Zubarev, E. R. (2007). Paclitaxel-functionalized gold nanoparticles. *Journal of the American Chemical Society, 129*(37), 11653-11661.

Goff, D. J., & Tabin, C. J. (1997). Analysis of Hoxd-13 and Hoxd-11 misexpression in chick limb buds reveals that Hox genes affect both bone condensation and growth. *Development, 124*(3), 627-636.

Gopalan, R. C., Osman, I. F., Amani, A., De Matas, M., & Anderson, D. (2009). The effect of zinc oxide and titanium dioxide nanoparticles in the Comet assay with UVA photoactivation of human sperm and lymphocytes. *Nanotoxicology, 3*(1), 33-39.

Gould, P. (2006). Nanomagnetism shows in vivo potential. *Nano Today, 1*(4), 34-39.

Greish, K., Thiagarajan, G., Herd, H., Price, R., Bauer, H., Hubbard, D., . . . Anwar, A. (2012). Size and surface charge significantly influence the toxicity of silica and dendritic nanoparticles. *Nanotoxicology, 6*(7), 713-723.

Guichard, Y., Schmit, J., Darne, C., Gaté, L., Goutet, M., Rousset, D., . . . Martin, A. (2012). Cytotoxicity and genotoxicity of nanosized and microsized titanium dioxide and iron oxide particles in Syrian hamster embryo cells. *annals of occupational Hygiene, 56*(5), 631-644.

Gupta, A. K., & Gupta, M. (2005). Synthesis and surface engineering of iron oxide nanoparticles for biomedical applications. *Biomaterials, 26*(18), 3995-4021.

Gupta, G. S., Kumar, A., Shanker, R., & Dhawan, A. (2016). Assessment of agglomeration, co-sedimentation and trophic transfer of titanium dioxide

nanoparticles in a laboratory-scale predator-prey model system. *Scientific reports, 6*, 31422.

Gurr, J.-R., Wang, A. S., Chen, C.-H., & Jan, K.-Y. (2005). Ultrafine titanium dioxide particles in the absence of photoactivation can induce oxidative damage to human bronchial epithelial cells. *Toxicology, 213*(1), 66-73.

Hackenberg, S., Zimmermann, F. Z., Scherzed, A., Friehs, G., Froelich, K., Ginzkey, C., . . . Kleinsasser, N. (2011). Repetitive exposure to zinc oxide nanoparticles induces DNA damage in human nasal mucosa mini organ cultures. *Environmental and molecular mutagenesis, 52*(7), 582-589.

Halliwell, B., & Gutteridge, J. M. (2015). *Free radicals in biology and medicine*: Oxford University Press, USA.

Hamburger, V., & Hamilton, H. L. (1951). A series of normal stages in the development of the chick embryo. *Journal of morphology, 88*(1), 49-92.

Hamburger, V., & Hamilton, H. L. (1951). A series of normal stages in the development of the chick embryo. *Journal of morphology, 88*(1), 49-92.

Hamburger, V., & Hamilton, H. L. (1951). A series of normal stages in the development of the chick embryo. *Journal of morphology, 88*(1), 49-92.

Handy, R. D., & Shaw, B. J. (2007). Toxic effects of nanoparticles and nanomaterials: implications for public health, risk assessment and the public perception of nanotechnology. *Health, Risk & Society, 9*(2), 125-144.

Handy, R. D., Owen, R., & Valsami-Jones, E. (2008). The ecotoxicology of nanoparticles and nanomaterials: current status, knowledge gaps, challenges, and future needs. *Ecotoxicology, 17*(5), 315-325.

Haynes, C. L. (2010). The emerging field of nanotoxicology: Springer.

Heckmann, L.-H., Hovgaard, M. B., Sutherland, D. S., Autrup, H., Besenbacher, F., & Scott-Fordsmand, J. J. (2011). Limit-test toxicity screening of selected inorganic nanoparticles to the earthworm Eisenia fetida. *Ecotoxicology, 20*(1), 226-233.

Heng, B. C., Zhao, X., Xiong, S., Ng, K. W., Boey, F. Y.-C., & Loo, J. S.-C. (2010). Toxicity of zinc oxide (ZnO) nanoparticles on human bronchial epithelial cells (BEAS-2B) is accentuated by oxidative stress. *Food and Chemical Toxicology, 48*(6), 1762-1766.

Hernandez, R., & Brown, D. T. (2010). Growth and maintenance of chick embryo fibroblasts (CEF). *Current protocols in microbiology*, A. 4I. 1-A. 4I. 8.

Hillier, L. W., Miller, W., Birney, E., Warren, W., Hardison, R. C., Ponting, C. P., . . . Delany, M. E. (2004). Sequence and comparative analysis of the chicken genome provide unique perspectives on vertebrate evolution. *Nature, 432*(7018), 695-716.

Hoet, P., & Boczkowski, J. (2008). What's new in Nanotoxicology? Brief review of the 2007 literature. *Nanotoxicology, 2*(3), 171-182.

Hoffman, D. J. (1990). Embryotoxicity and teratogenicity of environmental contaminants to bird eggs *Reviews of Environmental Contamination and Toxicology* (pp. 39-89): Springer.

Holder, A. L., Goth-Goldstein, R., Lucas, D., & Koshland, C. P. (2012). Particle-induced artifacts in the MTT and LDH viability assays. *Chemical research in toxicology, 25*(9), 1885-1892.

Horisberger, M., & Rosset, J. (1977). Colloidal gold, a useful marker for transmission and scanning electron microscopy. *Journal of Histochemistry & Cytochemistry, 25*(4), 295-305.

Houdy, P., Lahmani, M., & Marano, F. (2011). *Nanoethics and nanotoxicology*: Springer Science & Business Media.

Hu, C., Li, M., Cui, Y., Li, D., Chen, J., & Yang, L. (2010). Toxicological effects of TiO 2 and ZnO nanoparticles in soil on earthworm Eisenia fetida. *Soil Biology and Biochemistry, 42*(4), 586-591.

Hu, C., Li, M., Cui, Y., Li, D., Chen, J., & Yang, L. (2010). Toxicological effects of TiO 2 and ZnO nanoparticles in soil on earthworm Eisenia fetida. *Soil Biology and Biochemistry, 42*(4), 586-591.

Hu, C., Li, M., Cui, Y., Li, D., Chen, J., & Yang, L. (2010). Toxicological effects of TiO 2 and ZnO nanoparticles in soil on earthworm Eisenia fetida. *Soil Biology and Biochemistry, 42*(4), 586-591.

Hu, Y.-L., Qi, W., Han, F., Shao, J.-Z., & Gao, J.-Q. (2011). Toxicity evaluation of biodegradable chitosan nanoparticles using a zebrafish embryo model. *International journal of nanomedicine, 6*, 3351.

Huang, C., Liu, W., Hu, Y., Zou, Z., Zhao, Z., Shen, L., . . . Sundell, J. (2015). Updated prevalences of asthma, allergy, and airway symptoms, and a systematic review of trends over time for childhood asthma in Shanghai, China. *PLoS One, 10*(4), e0121577.

Hurley, J., Cherrie, J., Donaldson, K., Seaton, A., & Tran, C. (2003). *Assessment of health effects of long-term occupational exposure to tunnel dust in the London underground*: Institute of Occupational Medicine Edinburgh,, Scotland.

Hussain, S., Hess, K., Gearhart, J., Geiss, K., & Schlager, J. (2005). In vitro toxicity of nanoparticles in BRL 3A rat liver cells. *Toxicology in vitro, 19*(7), 975-983.

Hussain, S., Hess, K., Gearhart, J., Geiss, K., & Schlager, J. (2005). In vitro toxicity of nanoparticles in BRL 3A rat liver cells. *Toxicology in vitro, 19*(7), 975-983.

Iavicoli, I., Leso, V., & Bergamaschi, A. (2012). Toxicological effects of titanium dioxide nanoparticles: a review of in vivo studies. *Journal of Nanomaterials, 2012*, 5.

ISO, C. (2008). TS 27687: 2008. *Nanotechnologies-Terminology and definitions for nano-objects-Nanoparticle, nanofibre and nanoplate*.

Ivask, A., Titma, T., Visnapuu, M., Vija, H., Kakinen, A., Sihtmae, M., . . . Kisand, V. (2015). Toxicity of 11 metal oxide nanoparticles to three mammalian cell types in vitro. *Current topics in medicinal chemistry, 15*(18), 1914-1929.

Jänicke, R. U., Sprengart, M. L., Wati, M. R., & Porter, A. G. (1998). Caspase-3 is required for DNA fragmentation and morphological changes associated with apoptosis. *Journal of Biological Chemistry, 273*(16), 9357-9360.

Jeng, H. A., & Swanson, J. (2006). Toxicity of metal oxide nanoparticles in mammalian cells. *Journal of Environmental Science and Health Part A, 41*(12), 2699-2711.

Ji, Z., Jin, X., George, S., Xia, T., Meng, H., Wang, X., . . . Godwin, H. (2010). Dispersion and stability optimization of TiO2 nanoparticles in cell culture media. *Environmental science & technology, 44*(19), 7309-7314.

Jiang, W., Mashayekhi, H., & Xing, B. (2009). Bacterial toxicity comparison between nano-and micro-scaled oxide particles. *Environmental pollution, 157*(5), 1619-1625.

Jiang, Y., Huo, S., Mizuhara, T., Das, R., Lee, Y.-W., Hou, S., . . . Rotello, V. M. (2015). The interplay of size and surface functionality on the cellular uptake of sub-10 nm gold nanoparticles. *ACS nano, 9*(10), 9986-9993.

Kägi, R., Ulrich, A., Sinnet, B., Vonbank, R., Wichser, A., Zuleeg, S., . . . Burkhardt, M. (2008). Synthetic TiO 2 nanoparticle emission from exterior facades into the aquatic environment. *Environmental pollution, 156*(2), 233-239.

Kang, S. J., Kim, B. M., Lee, Y. J., & Chung, H. W. (2008). Titanium dioxide nanoparticles trigger p53-mediated damage response in peripheral blood lymphocytes. *Environmental and molecular mutagenesis, 49*(5), 399-405.

Karlsson, H. L., Gustafsson, J., Cronholm, P., & Möller, L. (2009). Size-dependent toxicity of metal oxide particles—a comparison between nano-and micrometer size. *Toxicology letters, 188*(2), 112-118.

Karlsson, H. L., Holgersson, Å., & Möller, L. (2008). Mechanisms related to the genotoxicity of particles in the subway and from other sources. *Chemical research in toxicology, 21*(3), 726-731.

Karnik, B. S., Davies, S. H., Baumann, M. J., & Masten, S. J. (2005). Fabrication of catalytic membranes for the treatment of drinking water using combined ozonation and ultrafiltration. *Environmental science & technology, 39*(19), 7656-7661.

Kim, H. R., Gil, S., Andrieux, K., Nicolas, V., Appel, M., Chacun, H., . . . Couvreur, P. (2007). Low-density lipoprotein receptor-mediated endocytosis of PEGylated nanoparticles in rat brain endothelial cells. *Cellular and molecular life sciences, 64*(3), 356-364.

Kim, H. W., Ahn, E.-K., Jee, B. K., Yoon, H.-K., Lee, K. H., & Lim, Y. (2009). Nanoparticulate-induced toxicity and related mechanism in vitro and in vivo. *Journal of Nanoparticle Research, 11*(1), 55-65.

Kim, J., Takahashi, M., Shimizu, T., Shirasawa, T., Kajita, M., Kanayama, A., & Miyamoto, Y. (2008). Effects of a potent antioxidant, platinum nanoparticle, on the lifespan of Caenorhabditis elegans. *Mechanisms of ageing and development, 129*(6), 322-331.

Kim, Y., Kong, S. D., Chen, L.-H., Pisanic, T. R., Jin, S., & Shubayev, V. I. (2013). In vivo nanoneurotoxicity screening using oxidative stress and neuroinflammation paradigms. *Nanomedicine: Nanotechnology, Biology and Medicine, 9*(7), 1057-1066.

Kioussi, C., Briata, P., Baek, S. H., Rose, D. W., Hamblet, N. S., Herman, T., . . . Wang, J. (2002). Identification of a Wnt/Dvl/β-Catenin→ Pitx2 pathway mediating cell-type-specific proliferation during development. *Cell, 111*(5), 673-685.

Köhler, A. R., Som, C., Helland, A., & Gottschalk, F. (2008). Studying the potential release of carbon nanotubes throughout the application life cycle. *Journal of Cleaner Production, 16*(8), 927-937.

Kou, L., Sun, J., Zhai, Y., & He, Z. (2013). The endocytosis and intracellular fate of nanomedicines: Implication for rational design. *Asian Journal of Pharmaceutical Sciences, 8*(1), 1-10.

Krishnamoorthy, K., Moon, J. Y., Hyun, H. B., Cho, S. K., & Kim, S.-J. (2012). Mechanistic investigation on the toxicity of MgO nanoparticles toward cancer cells. *Journal of materials chemistry, 22*(47), 24610-24617.

Krishnan, K. M. (2010). Biomedical nanomagnetics: a spin through possibilities in imaging, diagnostics, and therapy. *IEEE transactions on magnetics, 46*(7), 2523-2558.

Krishnan, K. M. (2010). Biomedical nanomagnetics: a spin through possibilities in imaging, diagnostics, and therapy. *IEEE transactions on magnetics, 46*(7), 2523-2558.

Kumar, C. S., & Mohammad, F. (2011). Magnetic nanomaterials for hyperthermia-based therapy and controlled drug delivery. *Advanced drug delivery reviews, 63*(9), 789-808.

Kumar, M., Medarova, Z., Pantazopoulos, P., Dai, G., & Moore, A. (2010). Novel membrane-permeable contrast agent for brain tumor detection by MRI. *Magnetic resonance in medicine, 63*(3), 617-624.

Kumari, M., Rajak, S., Singh, S. P., Kumari, S. I., Kumar, P. U., Murty, U. S., . . . Rahman, M. F. (2012). Repeated oral dose toxicity of iron oxide nanoparticles: biochemical and histopathological alterations in different tissues of rats. *Journal of nanoscience and nanotechnology, 12*(3), 2149-2159.

Kwon, J. Y., Lee, S. Y., Koedrith, P., Lee, J. Y., Kim, K.-M., Oh, J.-M., . . . Jeong, J. (2014). Lack of genotoxic potential of ZnO nanoparticles in in vitro and in vivo tests. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis, 761*, 1-9.

Lai, J. C., Lai, M. B., Jandhyam, S., Dukhande, V. V., Bhushan, A., Daniels, C. K., & Leung, S. W. (2008). Exposure to titanium dioxide and other metallic oxide nanoparticles induces cytotoxicity on human neural cells and fibroblasts. *International journal of nanomedicine, 3*(4), 533.

Lai, J. C., Lai, M. B., Jandhyam, S., Dukhande, V. V., Bhushan, A., Daniels, C. K., & Leung, S. W. (2008). Exposure to titanium dioxide and other metallic oxide nanoparticles induces cytotoxicity on human neural cells and fibroblasts. *International journal of nanomedicine, 3*(4), 533.

Lamb, K. J., Lewthwaite, J. C., Lin, J. P., Simon, D., Kavanagh, E., Wheeler-Jones, C. P., & Pitsillides, A. A. (2003). Diverse range of fixed positional deformities and bone growth restraint provoked by flaccid paralysis in embryonic chicks. *International journal of experimental pathology, 84*(4), 191-199.

Landsiedel, R., Ma-Hock, L., Kroll, A., Hahn, D., Schnekenburger, J., Wiench, K., & Wohlleben, W. (2010). Testing metal-oxide nanomaterials for human safety. *Advanced Materials, 22*(24), 2601-2627.

Lead, J. R., & Smith, E. (2009). *Environmental and human health impacts of nanotechnology*: John Wiley & Sons.

Lee, K., Henry, N. W., Trochimowicz, H., & Reinhardt, C. (1986). Pulmonary response to impaired lung clearance in rats following excessive TiO2 dust deposition. *Environmental Research, 41*(1), 144-167.

Lee, S.-W., Kim, S.-M., & Choi, J. (2009). Genotoxicity and ecotoxicity assays using the freshwater crustacean Daphnia magna and the larva of the aquatic midge Chironomus riparius to screen the ecological risks of nanoparticle exposure. *Environmental Toxicology and Pharmacology, 28*(1), 86-91.

Li, C.-H., Shen, C.-C., Cheng, Y.-W., Huang, S.-H., Wu, C.-C., Kao, C.-C., . . . Kang, J.-J. (2012). Organ biodistribution, clearance, and genotoxicity of orally administered zinc oxide nanoparticles in mice. *Nanotoxicology, 6*(7), 746-756.

Li, L.-Z., Zhou, D.-M., Peijnenburg, W. J., van Gestel, C. A., Jin, S.-Y., Wang, Y.-J., & Wang, P. (2011). Toxicity of zinc oxide nanoparticles in the earthworm, Eisenia fetida and subcellular fractionation of Zn. *Environment International, 37*(6), 1098-1104.

LI, S.-t., QIAO, X.-l., CHEN, J.-g., WU, C.-l., & MEI, B. (2005). The investigation of antibacterial characteristics of magnesium oxide and it's nano-composite materials [J]. *Journal of Functional Materials, 11*, 001.

Li, W.-R., Xie, X.-B., Shi, Q.-S., Zeng, H.-Y., You-Sheng, O.-Y., & Chen, Y.-B. (2010). Antibacterial activity and mechanism of silver nanoparticles on Escherichia coli. *Applied microbiology and biotechnology, 85*(4), 1115-1122.

Li, Y., Wang, W., Wu, Q., Li, Y., Tang, M., Ye, B., & Wang, D. (2012). Molecular control of TiO2-NPs toxicity formation at predicted environmental relevant concentrations by Mn-SODs proteins. *PLoS One, 7*(9), e44688.

Liang, S.-S., Makamba, H., Huang, S.-Y., & Chen, S.-H. (2006). Nano-titanium dioxide composites for the enrichment of phosphopeptides. *Journal of Chromatography A, 1116*(1), 38-45.

Liao, K.-H., Lin, Y.-S., Macosko, C. W., & Haynes, C. L. (2011). Cytotoxicity of graphene oxide and graphene in human erythrocytes and skin fibroblasts. *ACS applied materials & interfaces, 3*(7), 2607-2615.

Lidke, D. S., Nagy, P., Heintzmann, R., Arndt-Jovin, D. J., Post, J. N., Grecco, H. E., . . . Jovin, T. M. (2004). Quantum dot ligands provide new insights into erbB/HER receptor–mediated signal transduction. *Nature biotechnology, 22*(2), 198-203.

Linhua, H., Zhenyu, W., & Baoshan, X. (2009). Effect of sub-acute exposure to TiO2 nanoparticles on oxidative stress and histopathological changes in Juvenile Carp (Cyprinus carpio). *Journal of Environmental Sciences, 21*(10), 1459-1466.

Liu, S., Xu, L., Zhang, T., Ren, G., & Yang, Z. (2010). Oxidative stress and apoptosis induced by nanosized titanium dioxide in PC12 cells. *Toxicology, 267*(1), 172-177.

Liu, W.-T. (2006). Nanoparticles and their biological and environmental applications. *Journal of Bioscience and bioengineering, 102*(1), 1-7.

Livak, K. J., & Schmittgen, T. D. (2001). Analysis of relative gene expression data using real-time quantitative PCR and the $2^{-\Delta\Delta CT}$ method. *methods, 25*(4), 402-408.

Lorenz, C., Tiede, K., Tear, S., Boxall, A., Von Goetz, N., & Hungerbühler, K. (2010). Imaging and characterization of engineered nanoparticles in sunscreens by electron microscopy, under wet and dry conditions. *International journal of occupational and environmental health, 16*(4), 406-428.

Lovern, S. B., & Klaper, R. (2006). Daphnia magna mortality when exposed to titanium dioxide and fullerene (C60) nanoparticles. *Environmental toxicology and chemistry, 25*(4), 1132-1137.

Luepke, N., & Kemper, F. (1986). The HET-CAM test: an alternative to the Draize eye test. *Food and Chemical Toxicology, 24*(6-7), 495-496.

Lynch, I., & Dawson, K. A. (2008). Protein-nanoparticle interactions. *Nano today, 3*(1), 40-47.

Lynch, I., & Dawson, K. A. (2008). Protein-nanoparticle interactions. *Nano today, 3*(1), 40-47.

MacCormack, T. J., & Goss, G. G. (2008). Identifying and predicting biological risks associated with manufactured nanoparticles in aquatic ecosystems. *Journal of Industrial Ecology, 12*(3), 286-296.

Macwan, D., Dave, P. N., & Chaturvedi, S. (2011). A review on nano-TiO2 sol–gel type syntheses and its applications. *Journal of Materials Science, 46*(11), 3669-3686.

Mahmoud, A., Ezgi, Ö., Merve, A., & Özhan, G. (2016). In vitro toxicological assessment of magnesium oxide nanoparticle exposure in several mammalian cell types. *International journal of toxicology, 35*(4), 429-437.

Mahmoudi, M., Sant, S., Wang, B., Laurent, S., & Sen, T. (2011). Superparamagnetic iron oxide nanoparticles (SPIONs): development, surface modification and applications in chemotherapy. *Advanced drug delivery reviews, 63*(1), 24-46.

Manke, A., Wang, L., & Rojanasakul, Y. (2013). Mechanisms of nanoparticle-induced oxidative stress and toxicity. *BioMed research international, 2013*.

Matsumaru, D., Haraguchi, R., Miyagawa, S., Motoyama, J., Nakagata, N., Meijlink, F., & Yamada, G. (2011). Genetic analysis of Hedgehog signaling in ventral body wall development and the onset of omphalocele formation. *PloS one, 6*(1), e16260.

Maynard, A. D., Aitken, R. J., Butz, T., Colvin, V., Donaldson, K., Oberdörster, G., . . . Stone, V. (2006). Safe handling of nanotechnology. *Nature, 444*(7117), 267-269.

Mc Carthy, D. J., Malhotra, M., O'Mahony, A. M., Cryan, J. F., & O'Driscoll, C. M. (2015). Nanoparticles and the blood-brain barrier: advancing from in-vitro models towards therapeutic significance. *Pharmaceutical research, 32*(4), 1161-1185.

Moghimi, S. M., Hunter, A. C., & Murray, J. C. (2005). Nanomedicine: current status and future prospects. *The FASEB journal, 19*(3), 311-330.

Mohammadipour, A., Fazel, A., Haghir, H., Motejaded, F., Rafatpanah, H., Zabihi, H., . . . Bideskan, A. E. (2014). Maternal exposure to titanium dioxide nanoparticles during pregnancy; impaired memory and decreased hippocampal cell proliferation in rat offspring. *Environmental toxicology and pharmacology, 37*(2), 617-625.

Monteiro-Riviere, N. A., & Inman, A. O. (2006). Challenges for assessing carbon nanomaterial toxicity to the skin. *Carbon, 44*(6), 1070-1078.

Murray, A. R., Kisin, E., Inman, A., Young, S.-H., Muhammed, M., Burks, T., . . . Castranova, V. (2013). Oxidative stress and dermal toxicity of iron oxide nanoparticles in vitro. *Cell biochemistry and biophysics, 67*(2), 461-476.

Nakada, T., Hirabayashi, Y., Tokado, T., Ohmori, D., & Mise, T. (2004). Novel device structure for Cu (In, Ga) Se 2 thin film solar cells using transparent conducting oxide back and front contacts. *Solar energy, 77*(6), 739-747.

Nations, S., Wages, M., Cañas, J. E., Maul, J., Theodorakis, C., & Cobb, G. P. (2011). Acute effects of Fe 2 O 3, TiO 2, ZnO and CuO nanomaterials on Xenopus laevis. *Chemosphere, 83*(8), 1053-1061.

Nations, S., Wages, M., Cañas, J. E., Maul, J., Theodorakis, C., & Cobb, G. P. (2011). Acute effects of Fe 2 O 3, TiO 2, ZnO and CuO nanomaterials on Xenopus laevis. *Chemosphere, 83*(8), 1053-1061.

Naya, M., Kobayashi, N., Ema, M., Kasamoto, S., Fukumuro, M., Takami, S., . . . Nakanishi, J. (2012). In vivo genotoxicity study of titanium dioxide nanoparticles using comet assay following intratracheal instillation in rats. *Regulatory Toxicology and Pharmacology, 62*(1), 1-6.

Nel, A., Xia, T., Mädler, L., & Li, N. (2006). Toxic potential of materials at the nanolevel. *science, 311*(5761), 622-627.

Nemmar, A., Holme, J. A., Rosas, I., Schwarze, P. E., & Alfaro-Moreno, E. (2013). Recent advances in particulate matter and nanoparticle toxicology: a review of the in vivo and in vitro studies. *BioMed research international, 2013*.

Nemmar, A., Melghit, K., & Ali, B. H. (2008). The acute proinflammatory and prothrombotic effects of pulmonary exposure to rutile TiO2 nanorods in rats. *Experimental Biology and Medicine, 233*(5), 610-619.

Nomura, K., Ohta, H., Ueda, K., Kamiya, T., Hirano, M., & Hosono, H. (2003). Thin-film transistor fabricated in single-crystalline transparent oxide semiconductor. *Science, 300*(5623), 1269-1272.

Noori, A., Parivar, K., Modaresi, M., Messripour, M., Yousefi, M. H., & Amiri, G. R. (2011). Effect of magnetic iron oxide nanoparticles on pregnancy and testicular development of mice. *African Journal of Biotechnology, 10*(7), 1221-1227.

Nora, N. A. M., Ridwana, R., & Che, N. (2016). In vivo assessment on acute toxicity of iron oxide nanoparticles with different coatings. *apoptosis, 11*, 13.

Norde, W., & Gage, D. (2004). Interaction of bovine serum albumin and human blood plasma with PEO-tethered surfaces: influence of PEO chain length, grafting density, and temperature. *Langmuir, 20*(10), 4162-4167.

Oberdörster, G. (2010). Safety assessment for nanotechnology and nanomedicine: concepts of nanotoxicology. *Journal of internal medicine, 267*(1), 89-105.

Oberdörster, G., Maynard, A., Donaldson, K., Castranova, V., Fitzpatrick, J., Ausman, K., . . . Lai, D. (2005). Principles for characterizing the potential human health effects from exposure to nanomaterials: elements of a screening strategy. *Particle and fibre toxicology, 2*(1), 8.

Oberdörster, G., Oberdörster, E., & Oberdörster, J. (2005). Nanotoxicology: an emerging discipline evolving from studies of ultrafine particles. *Environmental health perspectives, 113*(7), 823.

Oberdörster, G., Oberdörster, E., & Oberdörster, J. (2005). Nanotoxicology: an emerging discipline evolving from studies of ultrafine particles. *Environmental health perspectives, 113*(7), 823.

Oberdörster, G., Oberdörster, E., & Oberdörster, J. (2005). Nanotoxicology: an emerging discipline evolving from studies of ultrafine particles. *Environmental health perspectives, 113*(7), 823.

Oszlánczi, G., Horváth, E., Szabó, A., Horváth, E., Sápi, A., Kozma, G., . . . Papp, A. (2010). Subacute exposure of rats by metal oxide nanoparticles through the airways: general toxicity and neuro-functional effects. *Acta Biologica Szegediensis, 54*(2), 165-170.

Oszlánczi, G., Horváth, E., Szabó, A., Horváth, E., Sápi, A., Kozma, G., . . . Papp, A. (2010). Subacute exposure of rats by metal oxide nanoparticles through the airways: general toxicity and neuro-functional effects. *Acta Biologica Szegediensis, 54*(2), 165-170.

Ozaki, M., Ogita, H., & Takai, Y. (2007). Involvement of integrin-induced activation of protein kinase C in the formation of adherens junctions. *Genes to Cells, 12*(5), 651-662.

Pampfer, S., & Streffer, C. (1988). Prenatal death and malformations after irradiation of mouse zygotes with neutrons or X-rays. *Teratology, 37*(6), 599-607.

Pan, X., Redding, J. E., Wiley, P. A., Wen, L., McConnell, J. S., & Zhang, B. (2010). Mutagenicity evaluation of metal oxide nanoparticles by the bacterial reverse mutation assay. *Chemosphere, 79*(1), 113-116.

Pankhurst, Q. A., Connolly, J., Jones, S., & Dobson, J. (2003). Applications of magnetic nanoparticles in biomedicine. *Journal of physics D: Applied physics, 36*(13), R167.

Pankhurst, Q. A., Connolly, J., Jones, S., & Dobson, J. (2003). Applications of magnetic nanoparticles in biomedicine. *Journal of physics D: Applied physics, 36*(13), R167.

Park, E.-J., Kim, H., Kim, Y., Yi, J., Choi, K., & Park, K. (2010). Inflammatory responses may be induced by a single intratracheal instillation of iron nanoparticles in mice. *Toxicology, 275*(1), 65-71.

Park, E.-J., Oh, S. Y., Lee, S. J., Lee, K., Kim, Y., Lee, B.-S., & Kim, J. S. (2015). Chronic pulmonary accumulation of iron oxide nanoparticles induced Th1-type immune response stimulating the function of antigen-presenting cells. *Environmental research, 143*, 138-147.

Park, U. J., Lee, Y. A., Won, S. M., Lee, J. H., Kang, S.-H., Springer, J. E., . . . Gwag, B. J. (2011). Blood-derived iron mediates free radical production and neuronal death in the hippocampal CA1 area following transient forebrain ischemia in rat. *Acta neuropathologica, 121*(4), 459-473.

Patel, S., Patel, P., Undre, S. B., Pandya, S. R., Singh, M., & Bakshi, S. (2016). DNA binding and dispersion activities of titanium dioxide nanoparticles with UV/vis spectrophotometry, fluorescence spectroscopy and physicochemical analysis at physiological temperature. *Journal of Molecular Liquids, 213*, 304-311.

Paur, H.-R., Cassee, F. R., Teeguarden, J., Fissan, H., Diabate, S., Aufderheide, M., . . . Riediker, M. (2011). In-vitro cell exposure studies for the assessment of nanoparticle toxicity in the lung—A dialog between aerosol science and biology. *Journal of Aerosol Science, 42*(10), 668-692.

Perlstein, B., Ram, Z., Daniels, D., Ocherashvilli, A., Roth, Y., Margel, S., & Mardor, Y. (2008). Convection-enhanced delivery of maghemite nanoparticles: increased efficacy and MRI monitoring. *Neuro-oncology, 10*(2), 153-161.

Peters, R., Brandhoff, P., Weigel, S., Marvin, H., Bouwmeester, H., Aschberger, K., . . . Botelho Moniz, F. (2014). Inventory of Nanotechnology applications in the agricultural, feed and food sector. *EFSA Supporting Publications, 11*(7).

Pinnell, S. R., Fairhurst, D., Gillies, R., Mitchnick, M. A., & Kollias, N. (2000). Microfine zinc oxide is a superior sunscreen ingredient to microfine titanium dioxide. *Dermatologic surgery, 26*(4), 309-314.

Piriyawong, V., Thongpool, V., Asanithi, P., & Limsuwan, P. (2012). Preparation and characterization of alumina nanoparticles in deionized water using laser ablation technique. *Journal of Nanomaterials, 2012*, 2.

Plum, L., Schubert, M., & Brüning, J. C. (2005). The role of insulin receptor signaling in the brain. *Trends in Endocrinology & Metabolism, 16*(2), 59-65.

Qian, X., Peng, X.-H., Ansari, D. O., Yin-Goen, Q., Chen, G. Z., Shin, D. M., . . . Nie, S. (2008). In vivo tumor targeting and spectroscopic detection with surface-enhanced Raman nanoparticle tags. *Nature biotechnology, 26*(1), 83-90.

Qu, M., & Jiang, W. (2004). Investigation of the antibacterial mechanism of nanometer zinc oxide. *Textile Auxiliaries, 6*, 45-46.

Rajiv, S., Jerobin, J., Saranya, V., Nainawat, M., Sharma, A., Makwana, P., . . . Kumar, M. (2016). Comparative cytotoxicity and genotoxicity of cobalt (II, III) oxide, iron (III) oxide, silicon dioxide, and aluminum oxide nanoparticles on human lymphocytes in vitro. *Human & experimental toxicology, 35*(2), 170-183.

Rajiv, S., Jerobin, J., Saranya, V., Nainawat, M., Sharma, A., Makwana, P., . . . Kumar, M. (2016). Comparative cytotoxicity and genotoxicity of cobalt (II, III) oxide, iron (III)

oxide, silicon dioxide, and aluminum oxide nanoparticles on human lymphocytes in vitro. *Human & experimental toxicology, 35*(2), 170-183.

Rashidi, H., & Sottile, V. (2009). The chick embryo: hatching a model for contemporary biomedical research. *Bioessays, 31*(4), 459-465.

Ratner, M. A., & Ratner, D. (2003). *Nanotechnology: A gentle introduction to the next big idea*: Prentice Hall Professional.

Rincón, A.-G., & Pulgarin, C. (2004). Bactericidal action of illuminated TiO 2 on pure Escherichia coli and natural bacterial consortia: post-irradiation events in the dark and assessment of the effective disinfection time. *Applied Catalysis B: Environmental, 49*(2), 99-112.

Roco, M. C. (2005). The emergence and policy implications of converging new technologies integrated from the nanoscale. *Journal of Nanoparticle Research, 7*(2), 129-143.

Rollerova, E., Tulinska, J., Liskova, A., Kuricova, M., Kovriznych, J., Mlynarcikova, A., . . . Scsukova, S. (2015). Titanium dioxide nanoparticles: some aspects of toxicity/focus on the development. *Endocrine regulations, 49*(2), 97-112.

Rosi, N. L., & Mirkin, C. A. (2005). Nanostructures in biodiagnostics. *Chemical reviews, 105*(4), 1547-1562.

Sadiq, R., Bhalli, J. A., Yan, J., Woodruff, R. S., Pearce, M. G., Li, Y., . . . Biris, A. S. (2012). Genotoxicity of TiO 2 anatase nanoparticles in B6C3F1 male mice evaluated using Pig-a and flow cytometric micronucleus assays. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis, 745*(1), 65-72.

Salvador, G. A. (2010). Iron in neuronal function and dysfunction. *BioFactors, 36*(2), 103-110.

Sanderson, B. J., Wang, J. J., & Wang, H. (2007). Cyto-and genotoxicity of ultrafine TiO2 particles in cultured human lymphoblastoid cells.

Sárközi, L., Horváth, E., Kónya, Z., Kiricsi, I., Szalay, B., Vezér, T., & Papp, A. (2009). Subacute intratracheal exposure of rats to manganese nanoparticles: behavioral,

electrophysiological, and general toxicological effects. *Inhalation toxicology, 21*(sup1), 83-91.

Sárközi, L., Horváth, E., Kónya, Z., Kiricsi, I., Szalay, B., Vezér, T., & Papp, A. (2009). Subacute intratracheal exposure of rats to manganese nanoparticles: behavioral, electrophysiological, and general toxicological effects. *Inhalation toxicology, 21*(sup1), 83-91.

Sawosz, E., Grodzik, M., Zielińska, M., Niemiec, T., Olszańska, B., & Chwalibog, A. (2009). Nanoparticles of silver do not affect growth, development and DNA oxidative damage in chicken embryos. *Archiv für Geflügelkunde, 73*(3), 208-213.

Sawosz, E., Jaworski, S., Kutwin, M., Hotowy, A., Wierzbicki, M., Grodzik, M., . . . Chwalibog, A. (2014). Toxicity of pristine graphene in experiments in a chicken embryo model. *International Journal of Nanomedicine, 9*, 3913.

Sayes, C. M., Gobin, A. M., Ausman, K. D., Mendez, J., West, J. L., & Colvin, V. L. (2005). Nano-C 60 cytotoxicity is due to lipid peroxidation. *Biomaterials, 26*(36), 7587-7595.

Schlorf, T., Meincke, M., Kossel, E., Glüer, C.-C., Jansen, O., & Mentlein, R. (2010). Biological properties of iron oxide nanoparticles for cellular and molecular magnetic resonance imaging. *International journal of molecular sciences, 12*(1), 12-23.

Schneider, T., Westermann, M., & Glei, M. (2017). In vitro uptake and toxicity studies of metal nanoparticles and metal oxide nanoparticles in human HT29 cells. *Archives of Toxicology*, 1-11.

Shaikh, S. M., Shyama, S. K., & Desai, P. V. (2015). Absorption, LD50 and effects of CoO, MgO and PbO nanoparticles on mice “Mus musculus”. *analysis, 19*, 20.

Shaikh, S. M., Shyama, S. K., & Desai, P. V. (2015). Absorption, LD50 and effects of CoO, MgO and PbO nanoparticles on mice “Mus musculus”. *analysis, 19*, 20.

Sharma, V., Anderson, D., & Dhawan, A. (2011). Zinc oxide nanoparticles induce oxidative stress and genotoxicity in human liver cells (HepG2). *Journal of Biomedical Nanotechnology, 7*(1), 98-99.

Sharma, V., Anderson, D., & Dhawan, A. (2012). Zinc oxide nanoparticles induce oxidative DNA damage and ROS-triggered mitochondria mediated apoptosis in human liver cells (HepG2). *Apoptosis, 17*(8), 852-870.

Sharma, V., Shukla, R. K., Saxena, N., Parmar, D., Das, M., & Dhawan, A. (2009). DNA damaging potential of zinc oxide nanoparticles in human epidermal cells. *Toxicology letters, 185*(3), 211-218.

Sharma, V., Singh, P., Pandey, A. K., & Dhawan, A. (2012). Induction of oxidative stress, DNA damage and apoptosis in mouse liver after sub-acute oral exposure to zinc oxide nanoparticles. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis, 745*(1), 84-91.

Sharma, V., Singh, S. K., Anderson, D., Tobin, D. J., & Dhawan, A. (2011). Zinc oxide nanoparticle induced genotoxicity in primary human epidermal keratinocytes. *Journal of nanoscience and nanotechnology, 11*(5), 3782-3788.

Shi, H., Zhao, J., Magaye, R., & Castranova, V. (2013). Titanium dioxide nanoparticles: a review of current toxicological data. *Particle and fibre toxicology, 10*(1), 15.

Shi, J., & Wei, L. (2007). Rho kinase in the regulation of cell death and survival. *Archivum immunologiae et therapiae experimentalis, 55*(2), 61-75.

Shibutani, S., Takeshita, M., & Grollman, A. P. (1991). Insertion of specific bases during DNA synthesis past the oxidation-damaged base 8-oxodG. *nature, 349*(6308), 431-434.

Shih, H. P., Gross, M. K., & Kioussi, C. (2007). Cranial muscle defects of Pitx2 mutants result from specification defects in the first branchial arch. *Proceedings of the National Academy of Sciences, 104*(14), 5907-5912.

Shimizu, Y., Thumkeo, D., Keel, J., Ishizaki, T., Oshima, H., Oshima, M., . . . Narumiya, S. (2005). ROCK-I regulates closure of the eyelids and ventral body wall by inducing assembly of actomyosin bundles. *J Cell Biol, 168*(6), 941-953.

Shin, S. W., Song, I. H., & Um, S. H. (2015). Role of physicochemical properties in nanoparticle toxicity. *Nanomaterials, 5*(3), 1351-1365.

Shukla, R. K., Kumar, A., Gurbani, D., Pandey, A. K., Singh, S., & Dhawan, A. (2013). TiO2 nanoparticles induce oxidative DNA damage and apoptosis in human liver cells. *Nanotoxicology, 7*(1), 48-60.

Shukla, R. K., Kumar, A., Gurbani, D., Pandey, A. K., Singh, S., & Dhawan, A. (2013). TiO2 nanoparticles induce oxidative DNA damage and apoptosis in human liver cells. *Nanotoxicology, 7*(1), 48-60.

Shukla, R. K., Kumar, A., Gurbani, D., Pandey, A. K., Singh, S., & Dhawan, A. (2013). TiO2 nanoparticles induce oxidative DNA damage and apoptosis in human liver cells. *Nanotoxicology, 7*(1), 48-60.

Shukla, R. K., Sharma, V., Pandey, A. K., Singh, S., Sultana, S., & Dhawan, A. (2011). ROS-mediated genotoxicity induced by titanium dioxide nanoparticles in human epidermal cells. *Toxicology in vitro, 25*(1), 231-241.

Shukla, S., Jadaun, A., Arora, V., Sinha, R. K., Biyani, N., & Jain, V. (2015). In vitro toxicity assessment of chitosan oligosaccharide coated iron oxide nanoparticles. *Toxicology Reports, 2*, 27-39.

Shvedova, A., & Kagan, V. (2010). The role of nanotoxicology in realizing the 'helping without harm'paradigm of nanomedicine: lessons from studies of pulmonary effects of single-walled carbon nanotubes. *Journal of internal medicine, 267*(1), 106-118.

Singh, N., Jenkins, G. J., Asadi, R., & Doak, S. H. (2010). Potential toxicity of superparamagnetic iron oxide nanoparticles (SPION). *Nano reviews, 1*(1), 5358.

Singh, N., Jenkins, G. J., Nelson, B. C., Marquis, B. J., Maffeis, T. G., Brown, A. P., . . . Doak, S. H. (2012). The role of iron redox state in the genotoxicity of ultrafine superparamagnetic iron oxide nanoparticles. *Biomaterials, 33*(1), 163-170.

Singh, N., Manshian, B., Jenkins, G. J., Griffiths, S. M., Williams, P. M., Maffeis, T. G., . . . Doak, S. H. (2009). NanoGenotoxicology: the DNA damaging potential of engineered nanomaterials. *Biomaterials, 30*(23), 3891-3914.

Singh, S. P., Rahman, M., Murty, U., Mahboob, M., & Grover, P. (2013). Comparative study of genotoxicity and tissue distribution of nano and micron sized iron oxide

in rats after acute oral treatment. *Toxicology and applied pharmacology, 266*(1), 56-66.

Sioutas, C., Delfino, R. J., & Singh, M. (2005). Exposure assessment for atmospheric ultrafine particles (UFPs) and implications in epidemiologic research. *Environmental health perspectives, 113*(8), 947.

Skaper, S., Floreani, M., Ceccon, M., Facci, L., & Giusti, P. (1999). Excitotoxicity, oxidative stress, and the neuroprotective potential of melatonin. *Annals of the New York Academy of Sciences, 890*(1), 107-118.

Smolkova, B., El Yamani, N., Collins, A. R., Gutleb, A. C., & Dusinska, M. (2015). Nanoparticles in food. Epigenetic changes induced by nanomaterials and possible impact on health. *Food and Chemical Toxicology, 77*, 64-73.

Somers, J., Moran, E., Reinhart, B., & Stephenson, G. (1974). Effect of external application of pesticides to the fertile egg on hatching success and early chick performance 1. Pre-Incubation Spraying with DDT and Commercial Mixtures of 2, 4-D: Picloram and 2, 4-D: 2, 4, 5-T. *Bulletin of environmental contamination and toxicology, 11*(1), 33-38.

Soni, D., Naoghare, P. K., Saravanadevi, S., & Pandey, R. A. (2015). Release, transport and toxicity of engineered nanoparticles *Reviews of environmental contamination and toxicology* (pp. 1-47): Springer.

Stern, C. D. (2004). The chick embryo–past, present and future as a model system in developmental biology: Elsevier.

Stohs, S. J., & Bagchi, D. (1995). Oxidative mechanisms in the toxicity of metal ions. *Free radical biology and medicine, 18*(2), 321-336.

Strigul, N., Vaccari, L., Galdun, C., Wazne, M., Liu, X., Christodoulatos, C., & Jasinkiewicz, K. (2009). Acute toxicity of boron, titanium dioxide, and aluminum nanoparticles to Daphnia magna and Vibrio fischeri. *Desalination, 248*(1-3), 771-782.

Stroh, A., Zimmer, C., Gutzeit, C., Jakstadt, M., Marschinke, F., Jung, T., . . . Grune, T. (2004). Iron oxide particles for molecular magnetic resonance imaging cause

transient oxidative stress in rat macrophages. *Free Radical Biology and Medicine, 36*(8), 976-984.

Studnicka, A., Sawosz, E., Grodzik, M., Chwalibog, A., & Balcerak, M. (2009). Influence of nanoparticles of silver/palladium alloy on chicken embryos' development. *Ann Warsaw Agricult Univ–SGGW, Anim Sci, 46*, 237-242.

Sun, C., Veiseh, O., Gunn, J., Fang, C., Hansen, S., Lee, D., . . . Zhang, M. (2008). In vivo MRI detection of gliomas by chlorotoxin-conjugated superparamagnetic nanoprobes. *small, 4*(3), 372-379.

Szaciłowski, K., Macyk, W., Drzewiecka-Matuszek, A., Brindell, M., & Stochel, G. (2005). Bioinorganic photochemistry: frontiers and mechanisms. *Chemical reviews, 105*(6), 2647-2694.

Theogaraj, E., Riley, S., Hughes, L., Maier, M., & Kirkland, D. (2007). An investigation of the photo-clastogenic potential of ultrafine titanium dioxide particles. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis, 634*(1), 205-219.

Thomas, K., & Sayre, P. (2005). Research strategies for safety evaluation of nanomaterials, Part I: evaluating the human health implications of exposure to nanoscale materials. *Toxicological sciences, 87*(2), 316-321.

Thompson, J. M., & Bannigan, J. G. (2007). Omphalocele induction in the chick embryo by administration of cadmium. *Journal of pediatric surgery, 42*(10), 1703-1709.

Tran, N., & Webster, T. J. (2009). Nanotechnology for bone materials. *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology, 1*(3), 336-351.

Tsai, C. Y., Shiau, A. L., Chen, S. Y., Chen, Y. H., Cheng, P. C., Chang, M. Y., . . . Wu, C. L. (2007). Amelioration of collagen-induced arthritis in rats by nanogold. *Arthritis & Rheumatology, 56*(2), 544-554.

Vadlamudi, U., Espinoza, H. M., Ganga, M., Martin, D. M., Liu, X., Engelhardt, J. F., & Amendt, B. A. (2005). PITX2, β-catenin and LEF-1 interact to synergistically regulate the LEF-1 promoter. *Journal of cell science, 118*(6), 1129-1137.

Van Dorp, D. R., Malleis, J. M., Sullivan, B. P., & Klein, M. D. (2010). Teratogens inducing congenital abdominal wall defects in animal models. *Pediatric surgery international, 26*(2), 127-139.

Varga, T., Cravedi, J., Fuzesi, I., & Varnagy, L. (2002). Residues of fenitrothion in chick embryos following exposure of fertile eggs to this organophosphorus insecticide. *Revue De Medecine Veterinaire, 153*(4), 275-278.

Varga, T., Cravedi, J., Fuzesi, I., & Varnagy, L. (2002). Residues of fenitrothion in chick embryos following exposure of fertile eggs to this organophosphorus insecticide. *Revue De Medecine Veterinaire, 153*(4), 275-278.

Venyaminov, S. Y., & Kalnin, N. (1990). Quantitative IR spectrophotometry of peptide compounds in water (H2O) solutions. II. Amide absorption bands of polypeptides and fibrous proteins in α-, β-, and random coil conformations. *Biopolymers, 30*(13-14), 1259-1271.

Vijayakumar, S., & Ganesan, S. (2012). In vitro cytotoxicity assay on gold nanoparticles with different stabilizing agents. *Journal of Nanomaterials, 2012*, 14.

Viswanath, B., & Kim, S. (2016). Influence of nanotoxicity on human health and environment: the alternative strategies *Reviews of Environmental Contamination and Toxicology Volume 242* (pp. 61-104): Springer.

Walkey, C. D., & Chan, W. C. (2012). Understanding and controlling the interaction of nanomaterials with proteins in a physiological environment. *Chemical Society Reviews, 41*(7), 2780-2799.

Walkey, C. D., & Chan, W. C. (2012). Understanding and controlling the interaction of nanomaterials with proteins in a physiological environment. *Chemical Society Reviews, 41*(7), 2780-2799.

Walkey, C. D., & Chan, W. C. (2012). Understanding and controlling the interaction of nanomaterials with proteins in a physiological environment. *Chemical Society Reviews, 41*(7), 2780-2799.

Wang, B., Feng, W., Wang, M., Wang, T., Gu, Y., Zhu, M., . . . Zhao, Y. (2008). Acute toxicological impact of nano-and submicro-scaled zinc oxide powder on healthy adult mice. *Journal of Nanoparticle Research, 10*(2), 263-276.

Wang, D., Li, H., Liu, Z., Zhou, J., & Zhang, T. (2017). Acute toxicological effects of zinc oxide nanoparticles in mice after intratracheal instillation. *International Journal of Occupational and Environmental Health*, 1-9.

Wang, H., Wick, R. L., & Xing, B. (2009). Toxicity of nanoparticulate and bulk ZnO, Al 2 O 3 and TiO 2 to the nematode Caenorhabditis elegans. *Environmental Pollution, 157*(4), 1171-1177.

Wang, J., Chen, Y., Chen, B., Ding, J., Xia, G., Gao, C., . . . Li, X. (2010). Pharmacokinetic parameters and tissue distribution of magnetic Fe3O4 nanoparticles in mice. *International journal of nanomedicine, 5*, 861.

Wang, J., Deng, X., Zhang, F., Chen, D., & Ding, W. (2014). ZnO nanoparticle-induced oxidative stress triggers apoptosis by activating JNK signaling pathway in cultured primary astrocytes. *Nanoscale research letters, 9*(1), 117.

Wangikar, P., Dwivedi, P., & Sinha, N. (2004). Effect in rats of simultaneous prenatal exposure to ochratoxin A and aflatoxin B1. I. Maternal toxicity and fetal malformations. *Birth defects research Part B: Developmental and reproductive toxicology, 71*(6), 343-351.

Wei, C., Lin, W. Y., Zainal, Z., Williams, N. E., Zhu, K., Kruzic, A. P., . . . Rajeshwar, K. (1994). Bactericidal activity of TiO2 photocatalyst in aqueous media: toward a solar-assisted water disinfection system. *Environmental science & technology, 28*(5), 934-938.

Weir, A., Westerhoff, P., Fabricius, L., Hristovski, K., & Von Goetz, N. (2012). Titanium dioxide nanoparticles in food and personal care products. *Environmental science & technology, 46*(4), 2242-2250.

Wiesenthal, A., Hunter, L., Wang, S., Wickliffe, J., & Wilkerson, M. (2011). Nanoparticles: small and mighty. *International journal of dermatology, 50*(3), 247-254.

Willems, E., Decuypere, E., Buyse, J., & Everaert, N. (2014). Importance of albumen during embryonic development in avian species, with emphasis on domestic chicken. *World's poultry science journal, 70*(3), 503-518.

Wood, M. L., Esteve, A., Morningstar, M. L., Kuziemko, G. M., & Essigmann, J. M. (1992). Genetic effects of oxidative DNA damage: comparative mutagenesis of 7, 8-dihydro-8-oxoguanine and 7, 8-dihydro-8-oxoadenine in Escherichia coli. *Nucleic acids research, 20*(22), 6023-6032.

Wu, J., & Sun, J. (2011). Investigation on mechanism of growth arrest induced by iron oxide nanoparticles in PC12 cells. *Journal of nanoscience and nanotechnology, 11*(12), 11079-11083.

Wu, Y., Li, X., Steel, D., Gammon, D., & Sham, L. (2004). Coherent optical control of semiconductor quantum dots for quantum information processing. *Physica E: Low-dimensional Systems and Nanostructures, 25*(2), 242-248.

Xia, T., Kovochich, M., Brant, J., Hotze, M., Sempf, J., Oberley, T., . . . Nel, A. E. (2006). Comparison of the abilities of ambient and manufactured nanoparticles to induce cellular toxicity according to an oxidative stress paradigm. *Nano letters, 6*(8), 1794-1807.

Yadav, B., & Kumar, R. (2008). Structure, properties and applications of fullerenes. *International Journal of Nanotechnology and Applications, 2*(1), 15-24.

Yang, L., Kuang, H., Zhang, W., Aguilar, Z. P., Xiong, Y., Lai, W., . . . Wei, H. (2015). Size dependent biodistribution and toxicokinetics of iron oxide magnetic nanoparticles in mice. *Nanoscale, 7*(2), 625-636.

Yarjanli, Z., Ghaedi, K., Esmaeili, A., Rahgozar, S., & Zarrabi, A. (2017). Iron oxide nanoparticles may damage to the neural tissue through iron accumulation, oxidative stress, and protein aggregation. *BMC neuroscience, 18*(1), 51.

Yeheskel, O., Chaim, R., Shen, Z., & Nygren, M. (2005). Elastic moduli of grain boundaries in nanocrystalline MgO ceramics. *Journal of materials research, 20*(3), 719-725.

Yu, F., Zhang, L., Huang, Y., Sun, K., David, A. E., & Yang, V. C. (2010). The magnetophoretic mobility and superparamagnetism of core-shell iron oxide nanoparticles with dual targeting and imaging functionality. *Biomaterials, 31*(22), 5842-5848.

Zaleska-Medynska, A., Marchelek, M., Diak, M., & Grabowska, E. (2016). Noble metal-based bimetallic nanoparticles: the effect of the structure on the optical, catalytic and photocatalytic properties. *Advances in colloid and interface science, 229*, 80-107.

Zhang, Q., Li, M., Ji, J., Gao, F., Bai, R., Chen, C., . . . Niu, Q. (2011). In vivo toxicity of nano-alumina on mice neurobehavioral profiles and the potential mechanisms. *International journal of immunopathology and pharmacology, 24*(1 Suppl), 23S-29S.

Zhang, S., Gao, H., & Bao, G. (2015). Physical principles of nanoparticle cellular endocytosis.

Zhang, W.-x. (2003). Nanoscale iron particles for environmental remediation: an overview. *Journal of nanoparticle Research, 5*(3), 323-332.

Zhao, F., Zhao, Y., Liu, Y., Chang, X., Chen, C., & Zhao, Y. (2011). Cellular uptake, intracellular trafficking, and cytotoxicity of nanomaterials. *Small, 7*(10), 1322-1337.

Zhu, X., Tian, S., & Cai, Z. (2012). Toxicity assessment of iron oxide nanoparticles in zebrafish (Danio rerio) early life stages. *PLoS One, 7*(9), e46286.

Zhu, X., Zhou, J., & Cai, Z. (2011). TiO2 nanoparticles in the marine environment: Impact on the toxicity of tributyltin to abalone (Haliotis diversicolor supertexta) embryos. *Environmental science & technology, 45*(8), 3753-3758.

Zhu, X., Zhu, L., Duan, Z., Qi, R., Li, Y., & Lang, Y. (2008). Comparative toxicity of several metal oxide nanoparticle aqueous suspensions to Zebrafish (Danio rerio) early developmental stage. *Journal of Environmental Science and Health, Part A, 43*(3), 278-284.