

## Toxicology at the interface of basic, applied, and clinical sciences

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Toxicology, the study of the adverse effects of chemicals on living organisms, represents an interdisciplinary science that requires both expertise on the chemical nature of the studied compounds and precise knowledge of the normal cellular mechanisms that can be compromised by toxic substances. In the clinical context, the contribution of toxicology is primarily the identification of adverse effects, ideally at an early stage of pharmaceutical drug development. In this context, it can be helpful if toxicologists also identify the mechanisms responsible for such adverse effects. This knowledge can be particularly relevant when therapeutic and adverse effects are due to different mechanisms and can therefore contribute to a rational design of safer drugs.

Editors of a toxicological journal, such as the Archives of Toxicology, sometimes find themselves in the difficult situation of deciding whether articles on basic cellular or physiological mechanisms remain within the focus of the journal. This is not a trivial matter as a clear demarcation line does not exist. Almost all critical control mechanisms of cells may become targets of toxic substances. For this reason, in previous years the editors have invited several articles focussing primarily on mechanisms. Examples are the recent reviews on mechanisms of telomere maintenance (Liew and Norbury 2009) and genomic instability (Florl and Schulz 2008). On the other hand, it is clear that articles concentrating on chemicals and their interactions with

cellular mechanisms will stay a focus of the Archives of Toxicology. In order to address the field of tension between Toxicology, basic and clinical sciences, the editors are happy to announce a new cooperation with an interdisciplinary online journal named Experimental and Clinical Sciences (EXCLI Journal). EXCLI Journal includes mechanisms and clinical research relevant for Toxicology, but with a primary focus toward basic mechanisms and clinical aspects. EXCLI J is a relatively new journal and ongoing development is required to continuously improve its quality. However, EXCLI J is already evaluated by ISI Web of Knowledge and has been added to both the Directory of Open Access Journals (DOAJ) and the Electronic Journals Library (EZB), and will hopefully soon be included into PubMed. In order to give our readers an impression, we summarize below the take-home messages of selected articles of EXCLI J (Table 1).

**Table 1** Central messages of several recent publications of EXCLI J

Key message	References
A new assay based on LDH oxidation represents a rapid and easy to handle screening technique for antioxidative compounds	Tangkosakul et al. (2009)
The ATP-binding cassette transporters BCRP and MRP2 show organ specific expression patterns in rat liver and intestine	Horibe et al. (2009)
The polyphenolic compound curcumin induces apoptosis and inhibits telomerase activity	Mishra and Kumar (2009)
Some new $\beta$ -(1-adamtylthio)pyridine analogs show antimicrobial and antimalarial activity	Prachayasittikul et al. (2009a, b, c)
Early intervention with quinolone may improve outcome for exacerbated COPD patients	Inoue et al. (2009)
Citric acid and aspartame show hepato-protective effects	Abdel Salam et al. (2009)

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**Table 1** continued

Key message	References
Polyurethanes containing up to 24 ppm extractable diphenylmethane-4, 4'-diisocyanate do not pose a toxicological risk to consumers	Hoffmann and Schupp (2009)
An improved technique to predict secondary structure of proteins by neuronal network based techniques	Lakizadeh and Marashi (2009)
Hydroxyl-mediated protein alterations can sensitively be monitored by green fluorescent protein	Isarankura-Na-Ayudhya et al. (2009)
Extracts of <i>Oreocnide integrifolia</i> laves show favorable effects in streptozotocin induced diabetic rats	Ansarullah et al. (2009)
Some new Thiotetrahydropyridines derivates show antioxidant and antimicrobial activities	Prachayasittikul et al. (2009a, b, c)
Extracts of <i>Ulmus davidiana</i> induce apoptosis in human hepatoma cells	Guo and Wang (2009)
Even very high doses of zinc and copper did not alter cerebral activities of acetylcholinesterase in rats	Franciscato et al. (2009)
Extracts of <i>Psidium guajava</i> reduce lipid peroxidation in rats with trypanosomiasis	Akanji et al. (2009)
Extracts of <i>G. braunii</i> influence hematologic functions in rats	Okpuzor et al. (2009)
A new member of Tau-class glutathione S-transferase was identified	Mohsenzadeh et al. (2009)
A new technique for identification of splice sites based on neuronal networks	Al-Daoud (2009)
Specific T cell clones expand during vaginal candidiasis in mice.	Hamad et al. (2009)
A technique for prediction of protein solvent accessibility is presented	Meshkin et al. (2009)
A review about quantitative structure-activity relationship (QSAR) modeling	Nantasenamat et al. (2009)
A review about molecular mechanisms of apoptosis	Rastogi et al. (2009)
Vinyl chloride caused hepatic angiosarcoma in a autoclave worker after an extremely long latency period of 51 years	Bolt (2009)
A herbal preparation of <i>Xanthium Strumarium</i> caused liver damage in a young patient	Saidi and Mofidi (2009)
An association between cyptogenic stroke and pancreatic cancer was observed in two patients	Arabi et al. (2009)
Adrenaline inhibits cell proliferation in cultured human scar fibroblasts	Song et al. (2008)
4-Hydroxy-2-nonenal induces endothelial cell injury via PKCdelta and JNK activation	Takimoto et al. (2008)
Erythropoietin stimulates regeneration after liver resection	Schön et al. (2008)
Citric acid strongly inhibits visceral pain in mice	Abdel Salam and Baiuomy (2008)
Vitamin E and selenium protect against aflatoxin B <sub>1</sub> induced liver toxicity in rats	Kheir Eldin et al. (2008)

**Table 1** continued

Key message	References
L-ornithine-L-aspartate and silymarin protect against chemically induced kidney toxicity in mice	Jatwa and Kar (2008)
Erythromycin and clorithromycin enhance interleucin-10 signaling in lipopolysaccharide-stimulated macrophages	Yamauchi et al. (2008)
A review about DNA damage detection techniques	Kumari et al. (2008)
A review about molecular mechanisms and patophysiology of rotavirus infection	Surendran (2008)
A review about anticarcinogenic mechanisms of yoghurt probiotics	Mishra et al. (2008)
Bone marrow derived stem cell infusion improved serum albumin and cholesterol levels and decreased prothrombin time in a patient with decompensated liver cirrhosis	Yan et al. (2008)

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