Current trend on in vitro immunotoxicology in EU

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Historically, the toxicological evaluation is conducted on animals, however, worldwide there is a continuous effort to find alternative approaches, to avoid testing on animals wherever possible. Whenever replacement is not possible, the development of methods, which use fewer animals or cause least suffering to the animals, is supported. Particularly in the EU, political pressures, such as the REACH legislation and the 7th Amendment to the cosmetic legislation, have prompted the need of new approaches.

The immune system can be the target of many chemicals, including drugs, with potentially severe adverse effects on the host's health. At present, assessment of immunotoxic effects relies on different animal models and several assays have been proposed to characterize immunosuppression and sensitization. The use of whole animals, however, presents many secondary issues, such as expense, ethical concerns, political and practical resistance and eventual relevance to risk assessment for humans. Although formally validated alternative *in vitro* tests to assess immunotoxicity do not exist, significant progress has been made toward in vitro assays in the last decades. Alternative in vitro assays to detect immunosuppression and allergic hypersensitivity have the potential to reduce animal use, testing cost, and to increase throughput of immunotoxicity screening and prioritization efforts. Therefore, such models can be used for the pre-screening and hazard identification of unintended immunosuppression and contact hypersensitivity of direct immunotoxicants. This presentation intends to review the past, present and future in the field of *in vitro* immunotoxicity in Europe.