

Cell-based alternative to animal testing

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European legislation restricts animal testing within the pharmaceutical and cosmetic industries and companies are increasingly looking at alternative systems to ensure that their products are safe to use. Research published in BioMed Central's open access journal *BMC Genomics* demonstrates that the response of laboratory grown human cells can now be used to classify chemicals as sensitizing, or non-sensitizing, and can even predict the strength of allergic response, so providing an alternative to animal testing.

Allergic contact dermatitis can result in itching and eczema and is often due to repeated exposure to chemicals at work or in everyday life such as machine oil, detergents, soaps, and cosmetics. Unless the source of the sensitizing chemical is found the resulting rashes can be an ongoing source of misery for the sufferer. The 2009, 7th Amendment to the Cosmetic Directive bans testing of cosmetic products and ingredients on animals meaning that there is currently no way of ensuring new products are hypoallergenic.

Researchers from Lund University in Sweden used genome-wide profiling to measure the response of a human [myeloid leukemia](#) cell line to known chemicals. From this they defined a 'biomarker signature' of 200 genes, which could accurately discriminate between sensitizing and non-sensitizing chemicals. By comparing this signature with the known action of these chemicals they were also able to use this system to predict sensitizing potency.

Prof Borrebaeck said, "REACH (Registration, Evaluation, and

Authorization of Chemicals) regulation requires that all new and existing chemicals within the European Union are tested for safety. The number of chemicals this includes is over 30,000 and is increasing all the time. Our lab-based alternative to animal testing, although in an early stage of production, is faster, out-performs present alternatives, and, because the cells are human in origin, is more relevant. It provides a way of ensuring the continued safety of consumers and users and, by identifying chemicals and products with low immunogenicity, reducing the suffering due to eczema."

Provided by BioMed Central

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