

Körber Foundation awards BfR scientist the Deutscher Studienpreis

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How do tattoo colour pigments behave in the body? This question, which is very important for the many millions of tattooed people around the globe, is one that BfR scientist Dr. Ines Schreiber asked herself in her dissertation “Tattoo Pigments: Biodistribution and Toxicity of Corresponding Laser Induced Decomposition Products”, with which she received her doctorate from the Department of Biology, Chemistry and Pharmacy at the Freie Universität Berlin. Her answer was so good that the Körber Foundation awarded Ines Schreiber second prize in the Deutscher Studienpreis (German Studies Award) for young scientists in the natural and technological sciences category.

The Deutscher Studienpreis is one of the highest endowed prizes for young scientists in the Federal Republic of Germany. It is awarded annually by the Körber Foundation for outstanding dissertations that are of particular societal importance. The aim is to encourage young scientists to emphasise the social value of their own research achievements, to engage in a public debate about them and to make the research results known to a broad public beyond the boundaries of scientific circles. Schreiber’s scientific publications aroused great interest in the international press and initiated a wide public discussion on the possible long-term health risk of tattoos. She gave numerous interviews in the press, on the radio and on television about the subject and therefore actively promoted the social discussion about tattoos.

Ines Schreiber developed her research results on the behaviour of tattoo pigments in the human body at the German Federal Institute for Risk Assessment (BfR). The two central questions were: which substances do the pigments breakdown into when removed by laser and where do dyes and other components of tattoo inks migrate to in the body? In her laboratory experiments, Schreiber showed, that certain pigments partially split into allergenic or carcinogenic substances during laser bombardment. Moreover, in further experiments, the BfR scientist used modern analytical methods to prove that pigment particles and tattoo ink impurities that are harmful to health are transported into the lymph nodes and remain there.

Schreiber’s work and the data obtained on possible health risks posed by pigments provide a scientific basis on which future legal regulations on tattoo inks for the protection of health can be built.

Further information on the subject from the BfR website

https://www.bfr.bund.de/en/a-z_index/tattoo-130164.html

https://www.bfr.bund.de/en/questions_and_answers_on_the_study_lead_of_bfr_investigating_the_distribution_of_tattoo_ink_as_nano_sized_particles_in_lymph_nodes-202078.html

<https://www.bfr.bund.de/cm/350/bfr-verbrauchermonitor-2018-spezial-tattoos.pdf>

Links to scientific publications on the topic:

I. Schreiver, C. Hutzler, S. Andree, P. Laux, A. Luch; Identification and hazard prediction of tattoo pigments by means of pyrolysis—gas chromatography/mass spectrometry, Archives of Toxicology, July 2016, Volume 90, Issue 7, pp 1639–1650

<https://link.springer.com/article/10.1007%2Fs00204-016-1739-2>

I. Schreiver, A. Luch; At the dark end of the rainbow: data gaps in tattoo toxicology, Archives of Toxicology, July 2016, Volume 90, Issue 7, pp 1763–1765

<https://link.springer.com/article/10.1007%2Fs00204-016-1740-9>

I. Schreiver, B. Hesse, C. Seim, H. Castillo-Michel, J. Villanova, P. Laux, N. Dreiack, R. Penning, R. Tucoulou, M. Cotte & A. Luch; Synchrotron-based v-XRF mapping and μ -FTIR microscopy enable to look into the fate and effects of tattoo pigments in human skin, Nature Scientific Reports volume 7, Article number: 11395 (2017)

<https://www.nature.com/articles/s41598-017-11721-z>

H. Hering, A. Yu Sung, N. Röder, C. Hutzler, H.-P. Berlien, P. Laux; A. Luch, I. Schreiver; Laser Irradiation of Organic Tattoo Pigments Releases Carcinogens with 3,3'-Dichlorobenzidine Inducing DNA Strand Breaks in Human Skin Cells, Journal of Investigative Dermatology, Volume 138, Issue 12, December 2018, Pages 2687-2690

<https://www.sciencedirect.com/science/article/pii/S0022202X1832222X?via%3Dihub>

About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. It advises the German federal government and federal states on questions of food, chemical and product safety. The BfR conducts its own research on topics that are closely linked to its assessment tasks.

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