

Nanoparticles may pose threat to liver cells, say scientists

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Researchers at the University of Edinburgh are to study the effects of nanoparticles on the liver. In a UK first, the scientists will assess whether nanoparticles –already found in pollution from traffic exhaust, but also used in making household goods such as paint, sunblock, food, cosmetics and clothes– can cause damage to the cells of the liver.

Nanoparticles are atoms and molecules 80,000 times smaller than the width of a human hair, with various properties according to their composition, which explains their widespread usage. Airborne nanoparticles present in traffic exhaust are already known to enter the lungs and affect human health.

Scientist Dr Celine Filippi explains: "In experiments carried out elsewhere to mimic environmental exposure, nanoparticles delivered into the lungs crossed the lung barrier and entered the blood. Particles in the blood can reach the liver, amongst other organs. We also know that nanoparticles directly injected into the blood for medical purposes are also likely to end up in the liver.

"We don't yet know if the nanoparticles are safely eliminated from the liver by specialised cells or whether these extremely small particles can enter the liver cells and disrupt their normal functioning. Our research will try to establish whether nanoparticles, which are set to be used increasingly in industry and the manufacture of household goods, can damage the cells of the liver."

Professor Ken Donaldson, Professor of Respiratory Toxicology at the University of Edinburgh said: "We are looking at the new idea that the liver is a target for nanoparticles, and a lot more work needs to be done to assess the levels and impact of nanoparticles reaching the liver."

Source: University of Edinburgh

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