

# New method for detecting nanoplastics in the human body

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How do you count the nanoplastics in your body? Leiden researchers published a method in *Nature Protocols* today that should make this easier, and important development for both environmental and medicine

research.

From a molecular point of view, plastic is quite similar to [organic material](#). That makes it a difficult substance to detect in living beings. "Everything with [carbon atoms](#) is difficult to measure in organisms, so plastic too," explains Martina Vijver, Professor of Ecotoxicology. "Animals and plants themselves consist largely of carbon. So, what are you measuring: the plastic or the organism itself?"

## Detecting it in the right way

The new method developed by Professors Martina Vijver and Willie Peijnenburg in cooperation with a consortium led by Dr. Fazel Monikh lifts a corner of this veil. By allowing nanoplastics to first absorb metal, you can then follow them much more easily. As long as you track them down again in the right way.

The article that was published today in *Nature Protocols* describes the different ways in which you can find the metal nanoplastics again. "This allows you to see what happens to the nanoplastics after they have been absorbed," says Vijver. "For example, which [animals](#) pick them up, or, which organs pick them up? And also, how many plastic particles do they pick up? You can then measure all that."

The paper thus mainly describes the way in which this research can be done. "It is actually a very dry paper to read," Vijver laughs. "But it is important for scientists that we can use the same [protocol](#). This way the different results are comparable."

"We find it very logical to know where substances are in the environment," says Vijver. "But we also need to know where they are in cells or organisms. Are they stored in the fatty parts, for example, or in the [body fluids](#)? With this method we can discover just that."

And it is not only ecologists who are happy about this. Vijver: "This protocol is also very important for [drug development](#). You can very easily use it to find out how well medicines arrive at the right place in the body."

**More information:** Fazel Abdolapur Monikh et al, An analytical workflow for dynamic characterization and quantification of metal-bearing nanomaterials in biological matrices, *Nature Protocols* (2022). [DOI: 10.1038/s41596-022-00701-x](https://doi.org/10.1038/s41596-022-00701-x)

Provided by Leiden University

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