

How, when and why does science fail to correct itself?

To advance, science relies on the correction of errors. Yet in practice it can be difficult to erase incorrect and exaggerated claims from the scientific record. To understand how error correction works and what obstacles it faces, the NanoBubbles project will combine approaches from the natural, engineering, and social sciences as well as humanities fields.

The project's focus is nanobiology, a highly interdisciplinary field founded around the year 2000 that has already seen multiple episodes of overpromising and erroneous claims. It will examine three "bubbles": the claim that nanoparticles can cross the blood-brain barrier, the promotion of the "protein corona" concept to describe ordinary absorption of proteins on nanoparticles, and a third claim that nanoparticles can penetrate the cell membrane.

Four researchers based in France and the Netherlands will use their expertise and innovative digital methods to trace claims and corrections made in various scientific communication channels. The team will study the circulation of claims and counter-claims as they move through laboratories, conferences, journals, preprints, online journal clubs and social media platforms, and other sites from the 1970s to the present. The study aims to spark a dialogue within the nanobiology community. Its researchers foresee that their findings could also apply to other new interdisciplinary fields such as synthetic biology and artificial intelligence.

The project's lead researchers include [Raphaël Lévy](#), a physicist and leading expert in nanobiology. [Cyrus Mody](#) is an expert in the history and sociology of science and technology. [Cyril Labbé](#) is a specialist in computer science and information systems. [Willem Halffman](#) has been recognised for his work on the functioning of scientific expertise and policy. The team also includes a sociologist, Marianne Noël, a librarian and linguist, Frédérique Bordignon, a philosopher, Yasemin J Erden, and an expert on information retrieval and scientometrics, Guillaume Cabanac.

Project: NanoBubbles

Researchers:

Raphaël Lévy (cPI), Université Paris Sorbonne Nord (cHI), France (FR)

Cyrus Mody (PI), Maastricht University, Netherlands (NL)

Cyril Labbé (PI), Université Grenoble Alpes, France (FR)

Willem Halffman (PI), Radboud Universiteit, Netherlands (NL)