

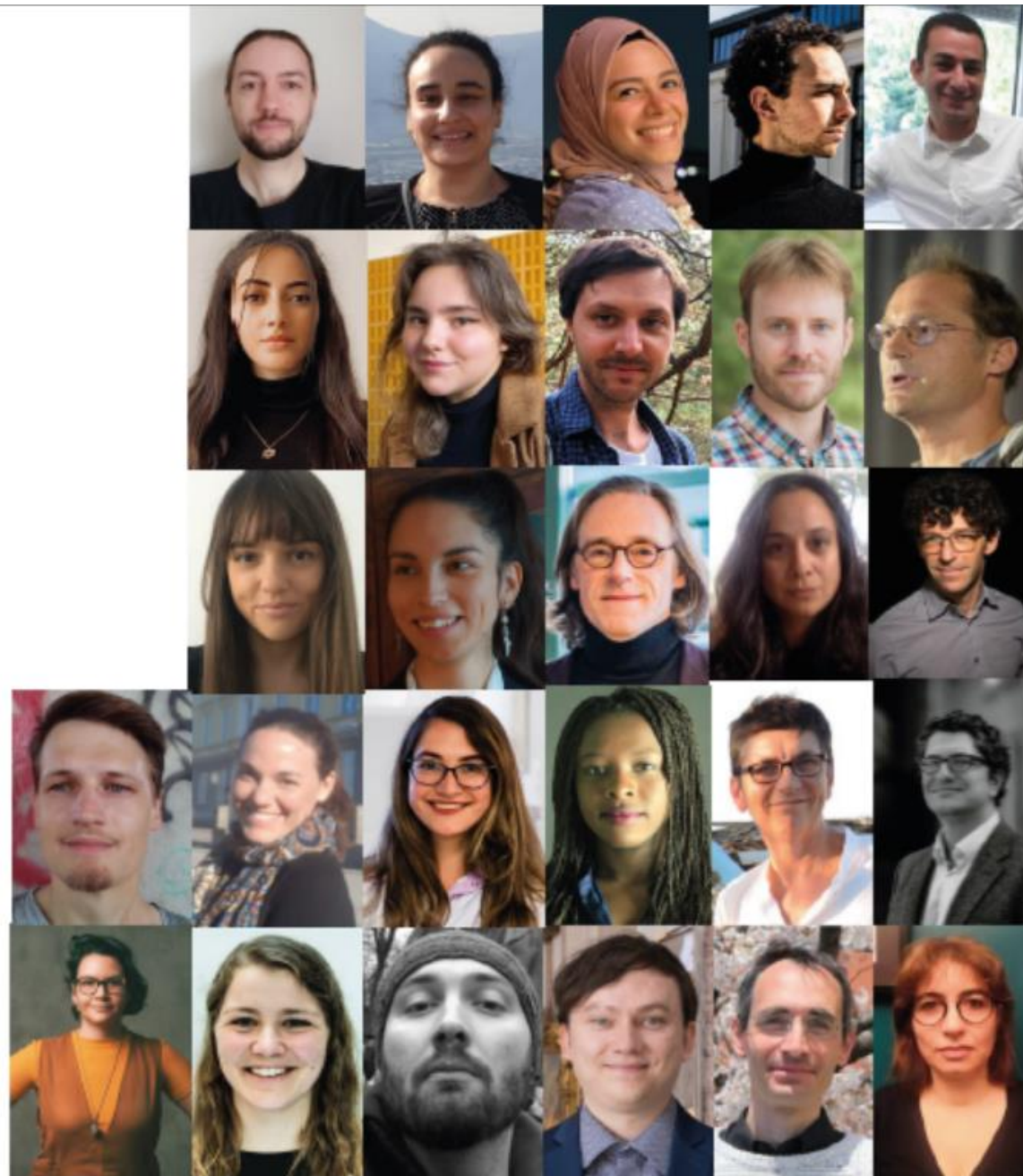
A very warm
welcome to
NANO BUBBLES



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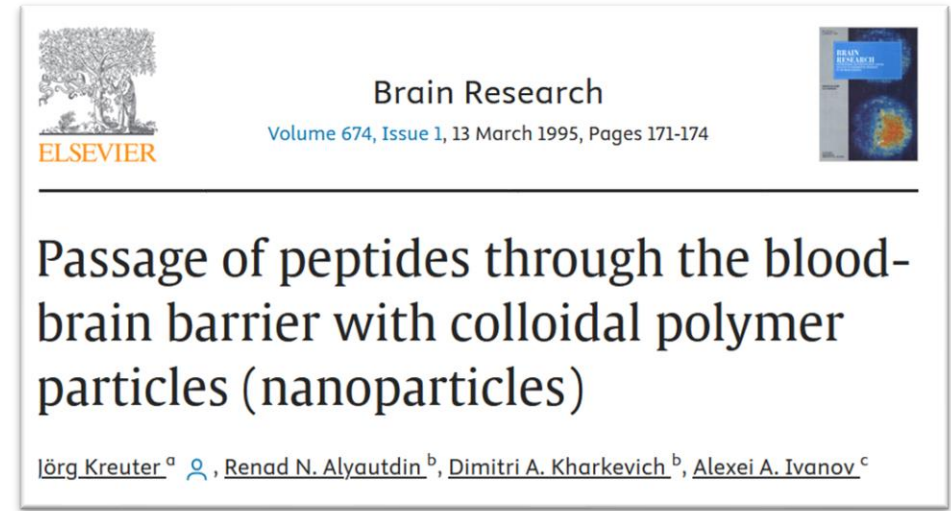
ABOUT THE PROJECT

- The project focuses on **how, when and why science (fails to) correct itself.**
- NanoBubbles investigates how occurrences of error and overstretched claims in research **persist despite substantial contrary evidence.**
- Three issues from nanobiology are being scrutinized to deepen our understanding.

FIRST BUBBLE

nanoparticles can
uniquely cross
the blood-brain
barrier

- 1995 article:



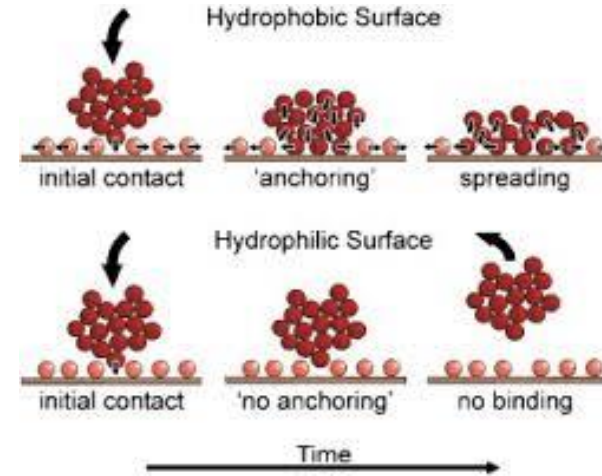
- Thousands of articles and reviews over 25 years followed, frequently linking this claim to the **promise of new drug delivery strategies**;

assetization ?

- Yet translation remains distant and the proportion of particles reaching the brain (often not measured) is at best **very small**.

SECOND BUBBLE

‘protein corona’,
constitutes a
paradigm change



-the discovery of protein adsorption on nanoparticles, successfully dubbed the ‘protein corona’, constitutes a paradigm change, when in fact research into protein adsorption on colloids predates the field of nanobiology by several decades.

THIRD BUBBLE

nanoparticles
harbour both
great potential
and risk



- Highly-cited claim (2006)
- Because they can penetrate the cell membrane;
- It was refuted in 2007

> [Langmuir](#). 2007 Mar 13;23(6):3305-13. doi: 10.1021/la0622875. Epub 2007 Jan 30.

Examination of nonendocytotic bulk transport of nanoparticles across phospholipid membranes

Shayla K Banerji ¹, Mark A Hayes

ABOUT THE PROJECT

- All three claims **persist widely and durably**, even though some researchers have laboriously drawn attention to the refutations.
- These ‘bubbles’ raise uncomfortable questions about the behavior of nanoparticles, but also about **the conduct and organization of scientists**.
- NanoBubbles combines approaches from the natural sciences, engineering (natural language processing) and humanities and social sciences (linguistics, sociology, philosophy and history of science) for a deeper reflecting **on error (non)correction and error propagation**.

ABOUT MY PROJECT

- From watchdogs to Epistemic activists – a pass-through towards institutional change?
 - **Sociological and anthropological approach:** “scientific or intellectual movements are central mechanisms for change in the world of scientific knowledge and ideas” (Scott Frickel & Neil Gross, 2005).
 - “small groups and their interactions are the driving force behind civic transformation and institutional reform” (Fine, 2021)

WHO ARE THEY?

- « Institutional or non-institutional individuals who are willing to read texts, evaluate images, design screening tools, run through statistical analyses of a publication's data, and share their findings and views on websites, blogs, wikis and social media. » (Biagioli and Lippman, 2020)
- Main goal: correction of the scientific record?
 - « Bad apples », retractions, paper mills, predatory journals and sometimes individuals

RESEARCH QUESTIONS

- How sleuths may alter the publication system?
- The controversies that rise up to challenge the established publication system
- How sleuths are being able to shape research policy agendas and methods of science.
- What are the main obstacles and forms of resistance that they are facing?
- Which motivations, values, conceptions of science underpin each sleuth action or profile?