

Facts and figures

NanoNature:

- › 12 research projects
- › more than 125 partners
- › approx. € 20 million funding volume

NanoCare:

- › 8 research projects
- › more than 40 partners
- › approx. € 16 million funding volume

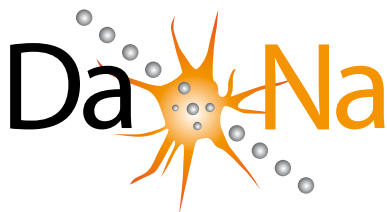
In addition to funds from the BMBF, industry is investing approx. € 11 million in nano risk research within the framework of the NanoNature and NanoCare programmes.



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The current state of knowledge on nanomaterials –
on a scientifically sound basis and easy to understand:



Further information: www.nanoobjects.info

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IDEAS
INNOVATION
PROSPERITY
The High-Tech Strategy for Germany

Nano Risk Research

Opportunities and Risks of Nanomaterials



HIGH-TECH-STRATEGY

Igniting ideas!

Safety and Progress through Nanomaterials

Climbing ropes and nanomaterials must be reliable and safe. Nanotechnology can make materials safer and enhance their performance. Moreover, it can open up completely new properties and areas of application, for example, in energy production, in medicine and the automotive industry.

The Federal Government's High-Tech Strategy 2020 and its Action Plan Nanotechnology 2015 aim to optimally exploit the potential of nanotechnology and at the same time to ensure that synthetic nanomaterials are used responsibly. An integral part of the High-Tech Strategy is the WING Programme (Werkstoffinnovationen für Industrie und Gesellschaft - Material Innovations for Industry and Society), for which the Federal Ministry of Education and Research (BMBF) is providing funding of more than € 100 million per year. A funding priority in this framework programme is the systematic investigation of the impact of nanomaterials on humans (NanoCare) and on the environment (NanoNature). Collaborations between research institutions, universities and industry are benefiting from the funding of the nano projects.

The objectives of the funding priorities are:

- › Research for the responsible use of nanotechnology
- › Extensive studies on the effects of synthetic nanomaterials on humans and the environment
- › Strengthening potential market segments for nanomaterials



NanoNature

What are the benefits of nanotechnology and what impact does it have on the environment?

The use of synthetic nanomaterials opens up new opportunities. However, their growing industrial use in applications means that they may be increasingly released into the environment. This is why possible interactions with the environment are being investigated in order to identify and eliminate any possible risks at an early stage.

Funding priorities:

- › **Nanotechnology for environmental protection**
The opportunities which nanotechnology offers for environmental protection are being investigated. Examples include methods to clean air and water, soil remediation and drinking-water treatment.
- › **Impacts of synthetic nanomaterials on the environment**
The behaviour and impact of synthetic nanomaterials in the air, in water and in soil is being investigated. To this end, the entire life cycle of nanomaterials is taken into consideration with respect to possible environmental damage.
- › **Development of measuring methods**
Appropriate measuring techniques are also being developed to detect nanoparticles in the environment.



NanoCare

What effects do synthetic nanomaterials have on humans?

The more precise our knowledge of the impact of synthetic nanomaterials on humans is, the more easily we can exclude any potential risks. This funding measure is therefore concerned with systematically investigating effects on humans during the fabrication, processing and use of these materials. Any toxic effects on humans will be detected and predicted.

Funding priorities:

- › **Relationships between material properties and toxicological effects on humans**
Key parameters and relationships will be systematically investigated, for instance, between dose and effect. Furthermore, the behaviour of nanomaterials will be studied during their entire life cycle.
- › **Identification of toxicological mechanisms**
The relationships between material properties and toxicological mechanisms will be identified.
- › **Development of measuring methods**
Suitable measuring methods will be investigated and tested in order to determine the effect of nanomaterials on humans, for example, at the workplace.