Functionalized nanoparticles for plaque imaging (NanoForLife)

Funded by the German Federal Ministry for Education and Research

Vulnerable plaques are one of the main reasons for vascular obliteration leading to myocardial infarction or stroke. However, with state of the art diagnosis it is not possible to differentiate between vulnerable and stable plaques.

The aim of this project is to develop a specific MR contrast agent based on very small (on nano-scale) superparamagnetic iron oxide particle (VSOP) for non-invasive imaging and therapy. Due to previously found indicators there is an increased update of VSOP in macrophages and therefore accumulation in plaque. Using some specific ligands the uptake can even be increased.

The project “NanoForLife” is funded by the BMBF (German Federal Ministry of Education and Research) and in cooperation with partners in industry and university including Siemens Medical, Scheering, Mevis, Ferropharm, Charite and DKFZ.

Research Activities

- Physical characterisation of VSOP concerning MR imaging at different field strength
- Development of MR imaging methods for visualization of VSOP uptake and accumulation
- Development of in-vitro models to evaluate VSOP in MR imaging
- In-vivo animal imaging using VSOP in comparison to other contrast agents
- Theoretical model of MR signal and contrast behaviour in the presence of (un-)specific VSOP

Back to top

Partner

- Siemens Medical Dr. Arne Hengerer, Dr. Ralph Strecker, Stefan Zwick, Carsten Warmuth
- Schering Dr. Schütz
- MeVis Research Dr. Markus Lang, Stefan Wirtz
- Ferropharm Dr. Schnorr
- Charite Dr. Taupitz
- DKFZ Dr. Manfred Jugold, Dr. Fabian Kießling

Back to top