

## SONOTHERAG: Sonoactivable Nanotheragnostics for Cancer Treatment

**Project coordinator:** Contino-Pepin Christiane, University of Avignon, Avignon, France

**Partner countries:** France, Switzerland, Norway

### Project description:

SONOTHERAG focuses on the design and development of sophisticated nanotools designed to facilitate the diagnosis (through  $^{19}\text{F}$  MRI or ultrasound technologies) and controlled therapeutic treatment of tumor growth. These theragnostic devices comprise nanodroplets of liquid perfluorocarbon dispersed in water through the self-assembling properties of amphiphilic fluorinated compounds. If a hydrophobic sonosensitizer is trapped into the core of the nanodroplets we can expect to trigger its delivery, as well as the production of reactive oxygen species (ROS) in a controlled and focused way through ultrasound-mediated induction. More than 100 years following the Paul Ehrlich's dream of "magic bullets", our consortium aims at developing "magic droplets", initially innocuous, that will acquire a "drug profile" only when locally stimulated by the appropriate ultrasound waves.



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