Locate

Integrated platform to design novel cancer localization strategies by ultrasound microvasculature imaging

About one in two men and one in three women will develop cancer in their lifetime. Successfully combating cancer requires imaging, treatment and monitoring of the tumor. Recently, a promising approach has been introduced that images the micro blood vessels that exist in and near tumors by contrast-enhanced ultrasound, based on injecting microbubbles into the blood stream of a patient providing the ultrasonic contrast. However, the advancement of this approach is hampered by insufficient knowledge of the relationship between the dynamics of the microbubbles and the ultrasound signals, due to the lack of good experimental models. In **Locate**, three TU/e groups will join to develop and apply a new integrated platform, combining a unique novel artificial microvascular network model in a microfluidic chip (prof. Jaap den Toonder), dedicated ultrasound hardware (dr. Pieter Harpe), and new ultrasound image analysis approaches (dr. Massimo Mischi) to tackle the problem. Partners Philips Research, Bracco, Micronit, Academisch Medisch Centrum and Tide Microfluidics, will be strongly involved. This new development and validation tool will lead to a better understanding, and eventually to the development of precise cancer treatments with a substantial higher tumor reduction and less side effects.