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**Title: Nanobody-based molecular tracers**

Nanobodies, antibody-binding fragments derived from camelid heavy-chain antibodies, show great promise as targeting moieties in molecular imaging applications because of unique properties. Their fast blood clearance, rapid and homogenous tissue penetration and low background retention allow highly specific imaging at early timepoints after administration. Nanobody-based radiopharmaceuticals are of great interest in nuclear medicine, as a way to diagnose and stage diseases, as well as to provide predictive and responsive information on treatments, especially for personalized therapies. Alternatively, fluorescent nanobody tracers are promising tools to assist and guide surgeons during complex interventions. The utility of nanobody tracers is now internationally recognized thanks to the convincing preclinical and clinical data obtained so far. The project proposes to develop new strategies to label nanobodies and investigate the effect on their pharmacokinetic, and to investigate the use of novel nanobody-based tracers in medical applications that will create clinical impact and change clinical practice.

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