université de BORDEAUX

Campagne doctorat international 2013

Résumé du projet

Imagerie moléculaire des plaques d'athérome vulnérables avec des fragments d'anticorps humains

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Imagerie moléculaire des plaques d'athérome vulnérables avec des fragments d'anticorps humains

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- Partenaire étranger : Université Melbourne
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This project aims at developing targeted-imaging agents for MRI (Magnetic Resonance Imaging) or PET (positron emission tomography) that selectively identify molecular markers over-expressed in vulnerable atheroma plaques. Making these agents also able to deliver an anti-aggregant drug *in situ* allows us to propose a theranostic approach for atherosclerosis.
Atherosclerosis is a disease involving several molecular mechanisms. It begins with inflammatory lesions that evolve to vulnerable plaques at high risk of rupture and thrombi formation, responsible for the clinical conditions of stroke and myocardial infarction, the main causes of death in the Western world. To assess the cellular components that underlie the risk of rupture, human antibodies have been selected *in vivo*, in animal models of atherosclerosis, using the phage display method. Using site-specific bioconjugation processes, recombinant human single chain Fv (scFv) antibody fragments will be grafted on superparamagnetic nanoparticles for MRI (in Bordeaux, France) or 18F for PET (in Melbourne, Australia). The compounds will be tested on mice to determine the analysis conditions and efficiency of these imaging methods.