

**CMD InnoCARE (Innovation pour les maladies
Cardiovasculaires, métaboliques et REspiratoires)**
Master 2 Internship proposal (2024-2025)
1 page maximum



Profile(s) linked to the project:

- Experimental Biology (*Recherche expérimentale*)
- Research and Biological Data Analysis (*Recherche et analyse de données biologiques*)
- Clinical Research (*Recherche clinique*)

Lab: CIC interdisciplinaire CHU Nantes

Team: Unité Investigation Clinique 9 (UIC 9), Anesthésie-Réanimation HGRL

Name and position of the supervisor: Pr Bertrand Rozec MD, PhD, head of UIC 9

Email of the supervisor: bertrand.rozec@chu-nantes.fr

Candidate (if known):

Title of the internship: Detect-AKI Cohort and Biobank

Summary of the internship proposal:

Early detection or even prediction of cardiac surgery-associated acute kidney injury (CS-AKI) is a major challenge. Its incidence is high (29 to 36%, reaching up to 81%), with the effectiveness of nephroprotection measures being very modest due to delayed diagnosis. CS-AKI is associated with high morbidity and mortality. Multiple perioperative clinical-biological scores and blood and urine biomarkers have been evaluated over the last decade with the aim of early detection/prediction of CS-AKI. However, their performance and/or levels of evidence are still too limited, and according to the latest recommendations, serum creatinine and urine output remain key elements even though the timing of their measurement is incompatible with the early implementation of nephroprotection measures. The major innovation of DETECT-AKI (NCT05283213) study lies in the search for enhanced diagnostic performance of clinical scores and around 10 of the most promising biomarkers, explored at multiple perioperative time points, and ultimately aggregated into a composite clinical-biological tool to discriminate, by no later than H6 after surgery, patients developing CS-AKI. Furthermore, two ancillary studies must be conducted based on the cohort/biobank: (i) the BIOLAKI study, using an innovative biomathematical algorithm BIOLOG (derived from the aerospace industry), presented as a revolutionary tool to detect subtle but informative biological drifts regarding individual susceptibility to CS-AKI, and (ii) the OGLAKI secondary cohort (translational study in collaboration with INSERM UMR 1087 unit of the Thorax Institute), aiming to evaluate the interest of measuring early levels of protein O-GlcNAcylation in blood and urinary calprotectin in our predictive model of CS-AKI. Depending on the progress of these studies, the intern will be involved in completing and exploiting the clinical-biological database elements of DETECT-AKI.