ERA Operative Headquarters
Strada dei Mercati 16/A
43126 Parma, Italy
Tel: +39 0521 989078
fellowships@era-online.org
www.era-online.org

ERA Long-Term Research Fellowship Project

ERAKI

Project's key info

Title of the project	Improving Acute Kidney Injury (AKI) follow-up to limit Chronic Kidney Disease (CKD) progression
Working Group involved in the project	European Renal Acute Kidney Injury Working Group (ERAKI)
Principal Investigator(s) of the project	Nicholas Selby (United Kingdom), Vincenzo Cantaluppi (Italy)
Duration	12 months, split between United Kingdom (6 months) and Italy (6 months)
Fellowship Grant	35.280,00 €
Start of the fellowship	Within 6 months after notification of the grant award to the fellow.

Receiving Institute

Name of receiving institute	1. University of Nottingham, Centre for Kidney Research and Innovation, Royal Derby Hospital Medical School, Derby, United Kingdom (months 1-6) 2. Nephrology and Kidney Transplantation Unit, Department of Translational Medicine (DIMET), University of Piemonte Orientale (UPO), AOU Maggiore della Carità, Novara, Italy (months 7-12)
Supervisor's name	Nicholas Selby (UK), Vincenzo Cantaluppi (Italy)
Supervisor's e-mail address	nicholas.selby@nottingham.ac.uk vincenzo.cantaluppi@med.uniupo.it

Project's detailed description

Project description
This fellowship will provide training in several relevant clinical and laboratory skills that can be combined to improve the assessment of patients following an episode of AKI. The research will address the following questions: 1) Is eGFR derived from serum creatinine or cystatin C a better estimate of renal function when measured after hospital discharge following AKI?   2) Is RFR calculated on serum creatinine or cystatin C a good biomarker for AKI to CKD transition?   3) Can a new generation of urinary biomarkers help to identify "AKI to CKD progressors"?   Plan of investigation   *Study design:* Two-centre cross-sectional observational feasibility study   *Recruitment and consent:* Two cohorts each comprising 40 patients will be recruited at participating sites in the UK and Italy.

Sample size: A sample size of 80 participants would give a power of >90% to detect an absolute difference of 24% in the proportion of individuals who would be classified as having CKD.
Outcomes

Primary outcomes:
- The proportion of patients with eGFR <60ml/min/1.73m$_2$ from eGFR-cystatin compared with eGFR-creatinine
- Correlation of low RFR levels with progression from AKI to CKD

Secondary outcomes
- The mean difference, correlation and bias between eGFR-cystatin and eGFR-creatinine
- The mean difference, correlation, bias and accuracy (P30, percentage of estimated values within 30% of measured GFR) between iohexol GFR and each eGFR method (creatinine and cystatin C).
- Muscle mass (derived from bioimpedance) in those with a large (≥30%) and small (<30% discrepancy between estimated GFR measurements.
- Correlation of urinary biomarkers (uEV CD133 expression, Q/T ratio) with GFR/RFR in AKI to CKD progressors

Study procedures: Participants will be asked questions about their medical history and current medications and data recorded. Observations will be taken including heart rate, blood pressure, height and weight, and participants will be asked to provide a urine sample for urinary albumin measurement.

Justification for two-centre fellowship
This fellowship has been designed by members of the ERA AKI Working Group, and brings together specific expertise. Professor Selby is a clinical academic with a strong track record of clinical research, in particular with expertise in recruiting clinical cohorts to study the AKI to CKD transition. Professor Cantaluppi has clinical and basic science expertise in AKI, and leads a basic science programme that focuses on the development of acute kidney injury biomarkers and new potential therapeutic strategies based on transplantation of stem cells and derived extracellular vesicles. The fellow will benefit from joint supervision from both Professors Selby and Cantaluppi, with specific research training provided during each six-month block, including clinical research, measurement of kidney function and renal reserve, and laboratory experience relating to urinary measurement of EVs. These skills will equip the fellow to independently research the AKI to CKD transition in their centre.

Goals of the project
The project aims to:
- Generate data that supports optimal choice for assessing static and dynamic renal function and urinary biomarkers in the recovery period from AKI;
- Produce initial data that informs future larger studies.

Qualifications and/or expertise required to the fellow

The fellow must be medically qualified and have:
- Previous clinical and (possibly) translational experience of AKI;
- High level of motivation and communication skills;
- Attitude to interaction and collaboration with other fellows working on similar clinical and translational research projects;
- English language knowledge is required; for UK, English at IELTs 7.5 overall.