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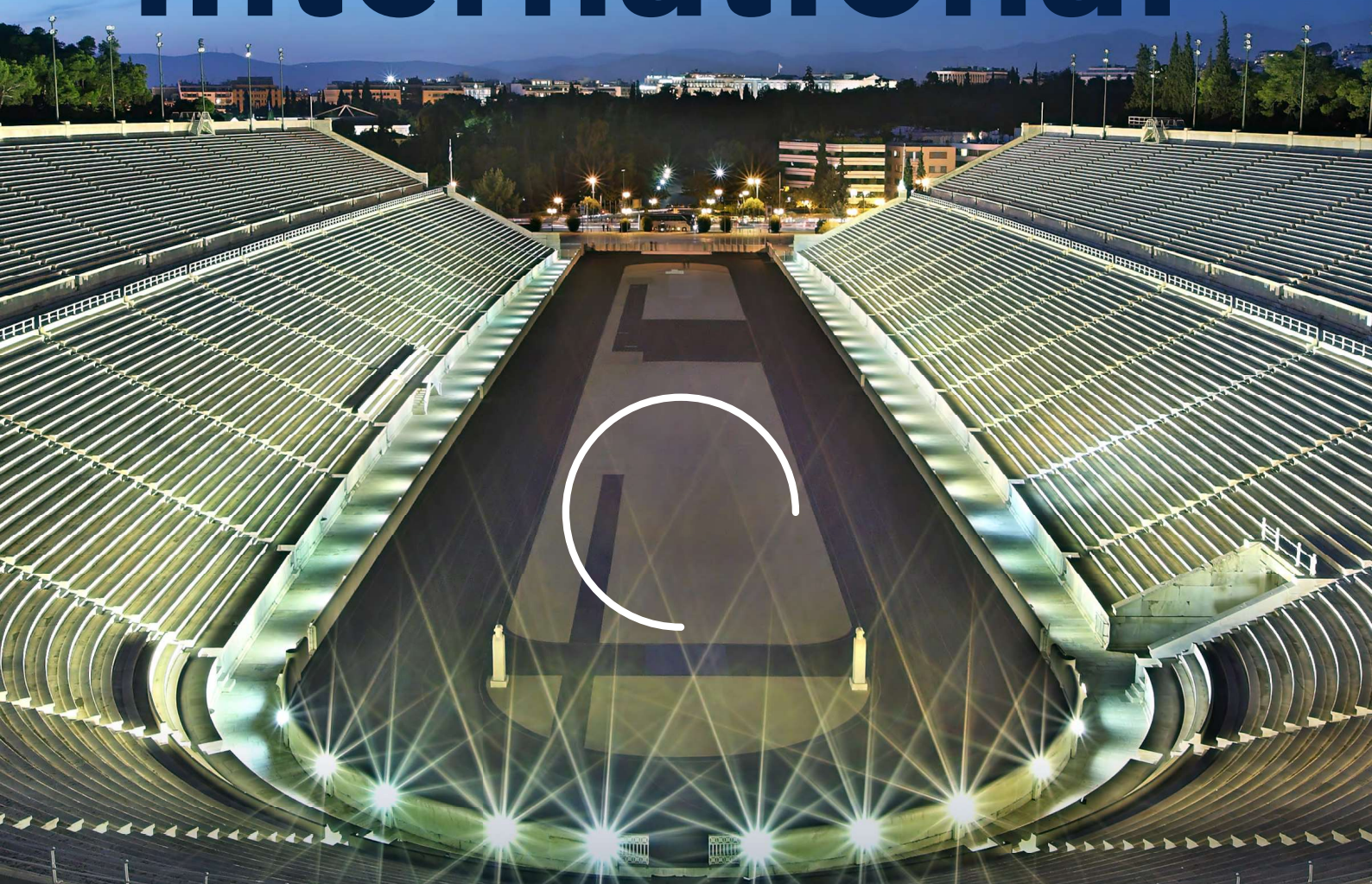

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LOS1_5 IDENTIFICATION OF PROTEIN SIGNATURES THAT PREDICT KIDNEY TRANSPLANT OUTCOME

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Background: Kidney transplantation is a life-saving treatment for end stage kidney disease, but every year hundreds of patients with kidney failure die while waiting for a transplant. Donor organ acceptance criteria have been expanded in an effort to decrease organ shortage; however, current acceptance criteria depend heavily on immune matching and donor age and lack granularity. This study aimed to identify donor circulating protein signatures to improve granularity of assessing donor kidneys, predicting kidney transplant outcomes.
Methods: We analysed deceased donor plasma samples that were linked to complete donor and recipient metadata obtained from the QUOD biobank. A selection of 49 analytes were measured at three timepoints in the plasma of 132 brain death donors (DBD) and at two timepoints in the plasma of 119 circulatory death (DCD) donors. These measurements, along with donor age, height, and sex, were used to construct separate DBD and DCD 10-fold cross-validated lasso regression models using 12-m recipient averaged eGFR as outcome end point. Models were compared using root mean squared error (RMSE) which is a measure of prediction accuracy.
Results: Lasso regression identified unique protein signatures in both DBD and DCD donors consisting of 20 and 22 proteins respectively with 8 proteins common to both models. The DBD model achieved a RMSE of 18.7 mL/min/1.73 m2 while the DCD model RMSE was 19.0 mL/min/1.73 m2. Both models performed considerably better than models containing clinical variables alone which had RMSEs of 21.7 mL/min/1.73 m2 and 22.7 mL/min/1.73 m2 for DBD and DCD respectively.
Conclusions: This study identified protein signatures in DBD and DCD kidney donor plasma that could improve prediction of posttransplant outcome compared to using clinical variables alone. Identified protein signatures will be validated in a follow-up study on 1000 donors to develop a predictive score which could be used to improve transplant outcome prediction.

LOS1_6 URINARY CELL-CYCLE ARREST BIOMARKERS FOR PREDICTION OF ACUTE KIDNEY INJURY FOLLOWING LUNG TRANSPLANT

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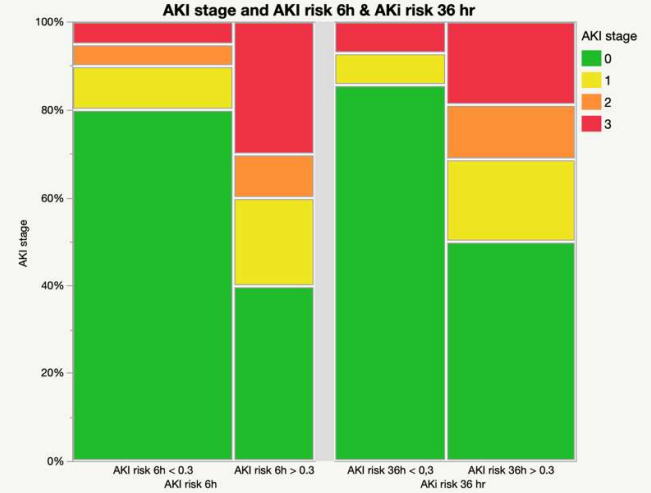
Background: Lung transplant (LUTX) is a feasible option for end-stage respiratory failure. Acute kidney injury (AKI) is a common and impactful complication of LUTX. Urinary cell cycle arrest proteins as early indicators of AKI have never been tested in LUTX recipients.
Methods: In a single-center prospective observational study, we assessed the capabilities of early urinary Tissue Inhibitor of Metalloproteinase-2 (TIMP-2) and Insulin-Like Growth Factor Binding Protein 7 (IGFBP7) (i.e., [IGFBP7]x[TIMP-2], Astute Medical, Paris, FRA) in predicting AKI and acute kidney disease (AKD) following KIDGO criteria, in adult patients undergone primary double LUTX. Exclusion criteria were preoperative chronic kidney disease (stage > 3) and emergent enlistment. AKI score was measured at 6 and 36 hours from graft reperfusion.
Results: Thirty consecutive adult LUTX patients were included (12 (40%) females, 51.5 (43.8-60.0) years old, Lung Allocation Score 40.5 (36.6-46.6)). Restrictive (14 (46%)) and suppurative (7 (23%)) diseases were the most frequent indications. Enlistment creatinine and estimated glomerular filtration rate were 0.78 (0.68-0.9) mg/dL and 91.0 (74.5-106.0) mL/min/1.73 m^2 (see Table 1), respectively. Creatinine peaked 2 [1-5] days after LUTX, at a median 0.98 (0.82-1.17) mg/dL, with 4 (13%), 2 (7%), and 4 (13%) patients having postoperative AKI stages 1, 2, and 3, and 3 (10%) needing renal replacement therapy during ICU stay. 6 (21%), 3 (10%), and 9 (31%) developed AKD stage 1, stage 2, and 3, respectively. AKI score was > 0.3 at 6 and 36 hours detected in 10 (33%) patients and 16 (53%) patients, respectively. 6-hours AKI score > 0.3 was associated with increased risk of AKI > 0 (p=0.036, OR 6.0 (1.2-31)) with AUC 0.66 (0.49-0.8 95% CI), with sensitivity of 0.6 (0.31-0.83 CI 95%) and specificity 0.8 (0.58-0.91 CI 95%). 36-hours AKI score > 0.3 was associated with increased risk of AKI > 0 (p=0.049, OR 5.9 (1.0-35)) with AUC 0.65 (0.47-0.81 95%CI), with sensitivity of 0.8 (0.49-0.94 CI 95%) and specificity 0.6 (0.38-0.78 CI 95%) (see Fig 1). AKI score > 0.3 was not associated with increased risk of AKD.
Conclusions: Patients undergone LUTX have high risk of AKI and AKD. Measurement of urinary cell cycle arrest proteins was predictive of AKI and may be used to guide AKI preventive measures in LUTX recipients.



	Clinical Characteristic	
Enlistment	Age (years)	51 [43 – 60]
	Sex (male)	18 (60%)
	BMI (kg/m2)	23,2 [19,3 – 25,3]
	Diagnosis group (restrictive)	17 (56,7%)
	Creatinine (mg/dL)	0,78 [0,68 – 0,90]
	eGFR (mL/min/1.73 m^2)	91,0 [74,5 – 106,0]
	Waiting List (days)	119 [34 – 277]
	Bridge to LUTX (%)	1 (3,3%)
	LAS	40,58 [36,65 – 46,66]
Perioperative	Intraoperative ECMO (%)	15 (50%)
	Postoperative ECMO (%)	4 (13,3%)
	Blood components (units)	2 [0 – 4,5]
	Red Blood Cells (units)	3 [1,75 – 6,5]
Donor	DBD donor (%)	27 (90%)
	Oto SCORE	4 [2 – 5]
	Total warm ischemia time (min)	77,3 [54,2 – 100,4]
	Total cold ischemia time (min)	769,5 [618 – 913,8]
	EVLP (%)	5 (17%)