Supplementary Table 1 Summary of major studies included in this paper

First Author/year	Species	Experimental set up in brief	Main findings
	Establishing link between liver IR injury and AKI		
Lee 2009	Male C57BL/6 mice	Development of a murine model of liver IR injury with AKI	Demonstrated that liver IR is associated with reproducible acute liver dysfunction and histological evidence of inflammatory change in the kidney
Rahman 2017	Human	Single centre retrospective study of 116 consecutive patients undergoing OLT	50% of patients developed AKI post operatively, hepatic ischaemia reperfusion injury was single most important factor predicting post-operative AKI.
Jochmans 2017	Human	Prospective cohort study evaluating risk factors for AKI in 80 OLT recipients	ALT at 6 hours post transplantation was only independent risk factor for AKI
Thongprayoon 2019	Human	Meta-analysis of incidence and impacts of post OLT AKI	Pooled estimated incidence of AKI was 40.7%, AKI requiring RRT 7.7%.
	Liver cytokine production		

Bezinover 2011	Human	Graft flush and blood samples obtained from patients undergoing liver transplantation and analysed for cytokine release	TNF-α, IL-1β, IL-2 and Il-8 increased in flush blood compared to radial artery samples
Pulitano 2018	Human	Evaluation of 23 genes in reperfusion graft biopsies from patients undergoing liver transplantation and serum levels of cytokines. Comparison of gene expression with development of aki	Fold changes in expression of ET-1, IL-18 and TNF-α strongly predictive of AKI. Combination of serum ET-1 and IL-18 found to be highly predictive of AKI
	Et-1		
Hetz 2005	Human	Prospective study of patients with normal renal functi4on undergoing first OLT. Plasma ET-1 levels measured before surgery, following graft reperfusion and daily for first 2 postoperative days	Early postoperative reduction in GFR correlated with high postoperative ET-1. Patients with early renal dysfunction did not recover to baseline function
Llado 2002	Human	Involved patients undergoing liver	Patients with reperfusion syndrome had greater

		transplantation, randomised to temporary portocaval shunt or no shunt	systemic ET-1 levels in anhepatic phase
	Mir122/ HIF-1α		
Zhang 2021	Male Sprague-dawley rats	Rat models exposed to IR liver injury (30 minutes total hilar ischaemia, reperfusion for 6 hours), pre-treatment with vehicle, HIF-1α agonist or HIF-1α inhibitor. Supplemental experimental work with BRL-3A (rat normal liver cell line), pre-treatment with hif-1α agonist followed by hypoxia/reperfusion injury.	HIF-1α expression was upregulated in both liver IR injury and H/R injury, HIF-1α expression was associated with a reduced inflammatory response, alleviated oxidative stress and protected liver/hepatocytes from IRI induced cell apoptosis. A2BAR blockade reversed protective effects of HIF-1α over-expression.
Ju 2021	Mice with hepatocyte specific deletion of miR122	Combination of techniques including mouse model of hepatic IR injury in presence of hepatocyte specific deletion of mir122 and human samples from transplant patients including liver	Identification of liver-specific mirna mir122 in human transplant patients. In mouse model HIF-1α found to induce mir122 through repression of PHD1 expression, mir122 over-expression associated with attenuation of

		biopsies,	liver injury. Correlation with human setting with identification that elevated mir122 associated with repressed PHD1 in post ischaemic liver biopsies.
Selten 2017	Human	Analysis of mirnas from samples from liver graft preservation fluid, verification of results from pig livers exposed to warm ischaemia	Absolute mir122 levels and mir122/mir222 ratios in graft preservation fluid were significantly higher in in grafts from DCD donors, those that developed EAD and serum transaminase levels in first 24 hours. High mir122/mir222 associated with prolonged WIT in pig livers and elevated transaminases post reperfusion.
	Oxidative stress		
Polat 2006	Wistar albino rats	Rats divided into 5 groups: 1) control 2) no pre-treatment 3) desferrioxamine 4) quercetin 5) desferrioxamine and quercetin pre-treatment. Groups 2-5 then exposed to 45 minutes total hepatic	Creatinine and BUN levels increased in groups 2-5. Increased in oxidative stress in group 2 (with reduction in GSH) but decreased in groups 4 and 5. Desferroxamine increased renal GSH

		ischaemia and 1 hour reperfusion. Measurement of renal oxidative stress, overall injury and function	
Kadhodaee 2012	Male albino rats	90 minutes partial hepatic ischaemia followed by either 4 hours or 24 hours reperfusion with measurement of renal functional, histological, oxidative stress and inflammatory indices	Evidence of liver injury, renal injury (BUN and histological evidence), increase in markers of renal oxidative stress (all findings more pronounced at 4 hours reperfusion than 24 hours reperfusion
Lasheen 2019	Adult female Wistar rats	Liver IR injury provided by total hepatic ischaemia for 45 minutes followed by 24 hours reperfusion. Rats divided into 4 groups: 1) Sham laparotomy 2) Garlic oil pre-treatment, sham laparotomy 3) liver IR injury 4) garlic oil pre-treatment, liver IR injury. Measurement of liver and renal markers of injury, oxidative stress and	Downregulation of liver IR injury and AKI following garlic oil pre-treatment. Upregulation of HO-1, PGC1α and Atg7 with garlic pre-treatment indicating increased mitophagy and biogenesis associated with reduction in renal injury

		mitochondrial function	
Sang 2015	Human	Retrospective analysis of 998 living donor liver transplantation patients	Early postoperative hypoalbuminemia (marker of oxidative stress) identified to be an independent RF for AKI post LDLT
Hilmi 2010	Human	Double blind randomised study of 100 patients undergoing OLT. Patients received either NAC or placebo during transplantation process.	NAC did not improve survival, graft function or postoperative renal function. GSH (free radical scavenger) levels highly variable with no difference between the 2 groups
	Cx32 (cell to cell communication of injury)		
Luo 2015	Male Sprague-dawley rats	Autologous, orthotopic liver transplantation (AOLT) in absence or presence of 2-aminothoxydiphenyl borate (selective Cx32 inhibitor) or propofol. Additional experimental work with NRK-52E kidney tubular cells in culture, subjected to hypoxia-reoxygenation with	AOLT associated with significant increase in renal CX32 expression and increased oxidative stress and renal impairment. In cell model, hypoxia-reoxygenation associated with significant cellular injury, attenuated by Cx32 gene knockdown and exacerbated by Cx32 enhancement.

		manipulation of Cx32 expression by either 1) cell culture density 2) pre-treatment with Cx32 inhibitors or enhancer 3) Cx32 gene knock-down	
Wu 2020	Human and mouse model with Cx32 knockout	Assessment of liver tissue and serum samples from patients undergoing OLT. Subsequent experimental work involving mouse model (WT and Cx32 knockout) of liver IR injury	Cx32 induction in human liver samples and mice correlated with injury. Cx32 knockout mice demonstrated less liver injury. Propofol (Cx32 inhibitor) was protective against IR injury
	Kupffer cell involvement		
Su 2018	Male C57BL/6 mice	Necrotic HEK293 cells injected into mice in presence/absence of Kupffer depletion or CXCL1, IL-6 or TNF-α blockade	Necrotic cells found to trigger neutrophil mobilisation by CXCL1, with liver snf hepatocytes specifically identified as being the major source of CXCL1. CXCL1 expression by hepatocytes was dependent on Kupffer cell derived TNF-α and NF-κβ signalling.
Chen 2009	huHSP27 OE	Comparison of degree of liver injury	Huhsp27 OE mice had significant protection

	and WT with C57BL/10 and CBA/Ca background	following IR in WT and huhsp27 OE mice with and without Kupffer cell depletion	against liver injury. Kupffer cell depletion provided significant protection against liver IR in WT mice but not huhsp27 OE mice.
	MAP and renal perfusion during transplantation		
Kong 2013	Male Sprague-dawley rats	Renal resistive index (RI) and AKI following reperfusion assessed in model of syngenic OLT	Intra-renal RI increased during anhepatic phase and decreased following reperfusion. There was no correlation between RI and renal function parameters 30 minutes post reperfusion.
Mizota 2017	Human	Retrospective study of patients undergoing living donor LT. Investigation of relationship between intraoperative haemodynamic parameters and postoperative AKI.	Nadir MAP was independently predictive of severe AKI
Kandil 2017	Human	50 patients randomised to terlipressin infusion intra-operatively and for 5 days post operatively or control group.	Postoperative AKI and NGAL comparable between terlipressin and control groups. MAP maintained in both groups, less fluctuations in

		Renal function, peak portal vein blood flow velocity and hepatic artery ri recorded. Measurement of plasma ngal at baseline, 2 and 24 hours post reperfusion.	SVR observed in terlipressin group and lower noradrenaline consumption. No difference in PPV and hepatic artery RI
Chae 2017	Human	Retrospective review of perioperative factors, including oxygen content, of 334 patients undergoing liver donor LT.	On multivariate analysis, oxygen content 5 minutes post reperfusion, BMI and furosemide administration independently associated with postoperative AKI.
	Kidney modulation of liver injury		
Park 2010	Male C57BL/6 mice	Lentivirus encoding green fluorescent protein (EGFP) or EGFP- human adenosine A1 receptors (hua1ar)	EGFP-hua1ar mice were protected against hepatic IR-induced liver and kidney injury. Removal of EGFP-hua1ar injected kidney prior to hepatic IR abolished renal and hepatic protection
Park 2009	huHSP27 OE and WT with C57BL/10 and	Comparison of hepatic IR injury and AKI 24 hours post liver IR in huhsp27 WT mice versus huhsp27 OE mice	Huhsp OE mice were significantly protected against both liver and kidney injury post hepatic IR. Hepatoprotection reduced or abolished when

	CBA/Ca background *IL-18 BP*		unilateral or bilateral nephrectomy included in model.
Gonul 2016	Wistar albino rats	Rats exposed to liver IR injury (pringle manoeuvre) or sham laparotomy following either IL-18BP or no intervention. TNF-α, IL-6, IL-1β, IFN-γ, total oxidant status and oxidative stress index measured in kidney tissue homogenate samples.	Renal total oxidant status, oxidative stress index, IL-18, serum AST, ALT, LDH and creatinine significantly lower in IR+IL-18BP group than IR group
	Mitochondrial injury		
Liu 2015	Inbred male Lewis rats	Rats subjected to liver transplantation or sham operation. Following 18 hours reperfusion, kidney and blood collected and analysed.	Renal suppression of markers of mitochondrial biogenesis, mitochondrial fission/fusion and enhancement of mitophagy (proteins and mrna).
	Renal endothelial injury in mediation of renal injury		
Lee 2011	Male C57BL/6	S1P and vehicle given to mice prior to	S1P pre-treatment was associated with

	mice	hepatic IR injury. Subsequent measurement of renal and hepatic injury	attenuation of systemic inflammation and kidney injury without attenuation of liver injury. Effect partially reversed by VPC 23019 (S1P1-R antagonist).

OE: Over-expression; WT: Wild type.