Supplementary Information

Quantifying the area-at-risk of myocardial infarction *in-vivo* using arterial spin labeling cardiac magnetic resonance

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SUPPLEMENTARY TABLES

Supplementary Table 1

Table 1: IS/LV% values

IS/LV% from histological staining compared to LGE and ASL (2SD threshold). The number of histological slices used for analysis matches the spatial extent of each CMR method

	Histology (7 slices)	T2-mapping	Histology (6 slices)	ASL perfusion mapping	T1-mapping
Control	64.3 ± 6.1	60.3 ± 5.8 (p = 0.43)	64.3 ± 9.6	65.9 ± 5.6 (p = 0.71)	59.3 ± 9.2 (p = 0.40)
IPC	59.8 ± 7.9	50.7 ± 5.4 (p = 0.02)	59.8 ± 7.9	53.9 ± 14.3 (p = 0.33)	47.3 ± 13.8 (p = 0.04)
Vehicle	65.4 ± 7.0	65.4 ± 10.1 (p = 0.32)	61.4 ± 7.0	57.9 ± 5.0 (p = 0.79)	58.3 ± 13.8 (p = 0.90)
CsA	58.0 ± 12.6	62.8 ± 13.1 (p = 0.32)	57.3 ± 12.1	61.5 ± 12.6 (p = 0.10)	47.2 ± 16.6 (p = 0.12)

Supplementary Table 2

Table 2: AAR/LV% values

AAR/LV% from histological staining compared to T_2 mapping, ASL (1SD threshold) and T_1-mapping. The number of histological slices used for analysis matches the spatial extent of each CMR methods.

	Histology (7 slices)	LGE	Histology (6 slices)	ASL perfusion mapping
Control	32.3 ± 3.7	31.7 ± 5.8 (p = 0.74)	31.5 ± 4.8	24.8 ± 11.2 (p = 0.28)
IPC	16.8 ± 3.0	17.8 ± 4.9 (p = 0.77)	15.6 ± 3.3	26.6 ± 17.9 (p = 0.45)
Vehicle	34.9 ± 9.6	29.2 ± 5.8 (p = 0.07)	29.0 ± 8.3	25.1 ± 11.8 (p = 0.14)

	Histology (7 slices)	T_2 -mapping	Histology (6 slices)	ASL perfusion mapping	T_1 -mapping
Control	64.3 ± 6.1	60.3 ± 5.8 (p = 0.43)	64.3 ± 9.6	65.9 ± 5.6 (p = 0.71)	59.3 ± 9.2 (p = 0.40)
IPC	59.8 ± 7.9	50.7 ± 5.4 (p = 0.02)	59.8 ± 7.9	53.9 ± 14.3 (p = 0.33)	47.3 ± 13.8 (p = 0.04)
Vehicle	65.4 ± 7.0	65.4 ± 10.1 (p = 0.32)	61.4 ± 7.0	57.9 ± 5.0 (p = 0.79)	58.3 ± 13.8 (p = 0.90)
CsA	58.0 ± 12.6	62.8 ± 13.1 (p = 0.32)	57.3 ± 12.1	61.5 ± 12.6 (p = 0.10)	47.2 ± 16.6 (p = 0.12)

CsA	21.9 ± 4.5	19.2 ± 6.9 (p = 0.44)	20.0 ± 4.7	23.6 ± 20.3 (p = 0.69)

Supplementary Table 3

Table 3: Quantitative values from T_2 mapping, perfusion mapping and T_1 mapping

Quantitative normal and elevated or reduced values for T_2 mapping, perfusion mapping (1SD and 2SD thresholds) and T_1 mapping. p values from one-way ANOVA with Bonferroni correction are given to compare Control vs. IPC groups and Vehicle vs. CsA groups.

	T2 [ms]			**Perfusion (1std threshold) [ml/g/min]**		
	Normal	Elevated		Normal (1std)	Reduced (1std)	
Control	17.8 ± 2.3	21.5 ± 3.0		14.0 ± 3.4	4.3 ± 1.0	
IPC	19.6 ± 3.4	26.8 ± 5.4	(p = 0.07)	21.0 ± 5.0	(p = 0.47)	5.4 ± 2.8 (p > 0.9999)
Vehicle	17.3 ± 1.9	22.7 ± 2.4		17.0 ± 0.8	1.6 ± 1.6	
CsA	17.7 ± 1.9	(p > 0.9999)	23.8 ± 2.5 (p = 0.95)	28.9 ± 11.1	(p = 0.02)	7.8 ± 4.4 (p = 0.41)

	Perfusion (2 SD threshold) [ml/g/min]			**T1 [s]**		
	Normal (2std)	Reduced (2std)		Normal	Elevated	
Control	8.2 ± 2.3	2.3 ± 0.9		1.7 ± 0.1	1.9 ± 0.1	
IPC	13.7 ± 6.1	0.6 ± 3.6	(p > 0.9999)	1.7 ± 0.3	(p > 0.9999)	2.0 ± 0.3 (p > 0.9999)
Vehicle	12.7 ± 1.6	1.2 ± 3.3		1.5 ± 0.5	2.0 ± 0.1	
CsA	19.8 ± 7.6	(p = 0.13)	2.3 ± 4.4 (p > 0.9999)	1.6 ± 0.4	(p > 0.9999)	2.0 ± 0.1 (p > 0.9999)

SUPPLEMENTARY FIGURES

Supplementary Figure 1: Treatment groups for murine *in vivo* IRI

Mice were randomized to control or treatment groups for each study.

A. IPC study: control group received standard IRI protocol of 15 minutes stabilization, 30 minutes index ischemia and 72 hours reperfusion. IPC group received 5 minutes stabilization, one cycle of IPC consisting of 5 minutes ischemia and 5 minutes reperfusion, followed by 30 minutes index ischemia and 72 hours reperfusion.

B. CsA study: both groups received standard IRI protocol of 15 minutes stabilization, 30 minutes index ischemia and 72 hours reperfusion. Control group received a matched volume dose of vehicle (cremophor / ethanol-94%). CsA group received CsA 10mg/kg. Vehicle and CsA were administered as single intravenous dose delivered 5 minutes prior to the onset of reperfusion.

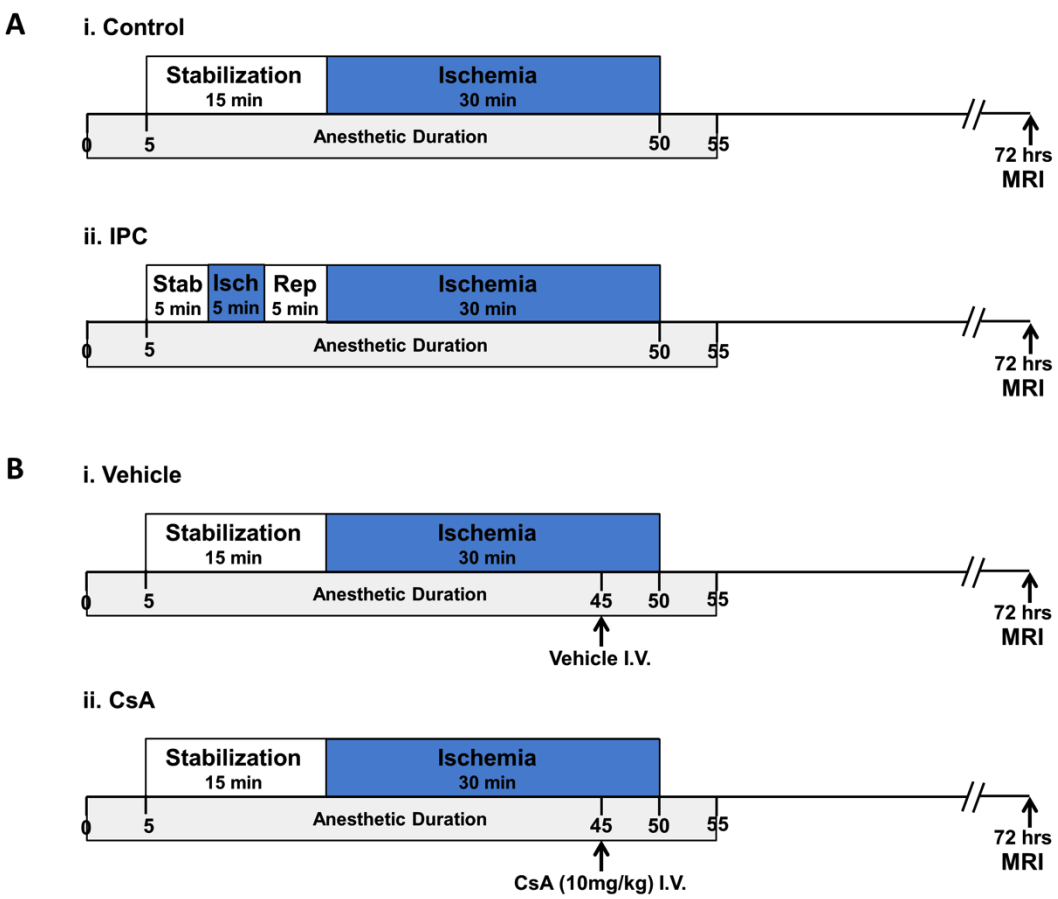

Fig. 1