

Mouse model of myocardial infarction

An industry-standard heart failure model for testing pharmacological efficacy during transient or chronic myocardial ischemic injury.

LAD-ligation mouse model of myocardial infarction

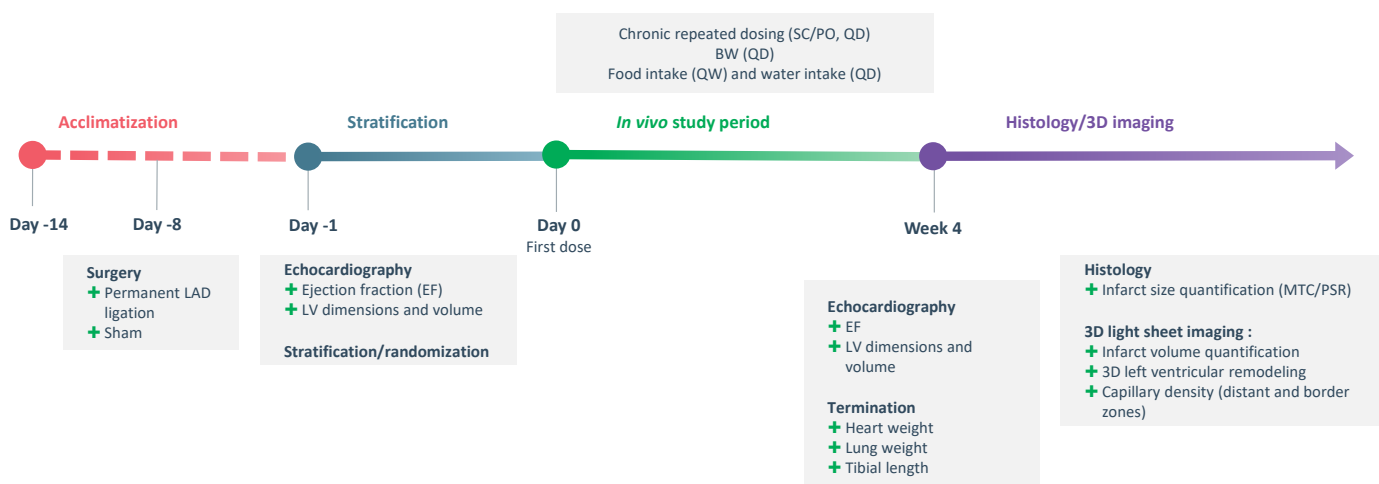
The left anterior descending (LAD) ligation mouse model exhibits hallmarks of myocardial infarction (commonly known as heart attack), including reduced ejection fraction (heart failure with reduced ejection fraction (HFrEF) and adverse cardiac remodelling due to cardiac ischemic injury.

Key model traits

- Transient LAD ligation mimicking ischemia/reperfusion injury following acute myocardial infarction.
- Permanent LAD ligation mimicking post-infarction cardiac remodelling.
- Reduced ejection fraction measured by echocardiography, allowing for pre-post analysis of treatment intervention efficacy.
- Ischemic injury reflected by wall thinning and reduced capillary density.
- Cardioprotective effects of Angiotensin-Converting Enzyme (ACE) inhibitors.

Model induction	Standard chow. Altromin Chow (1324)
Strain	Male C57BL/6J

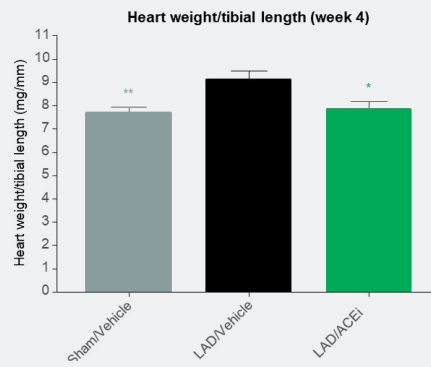
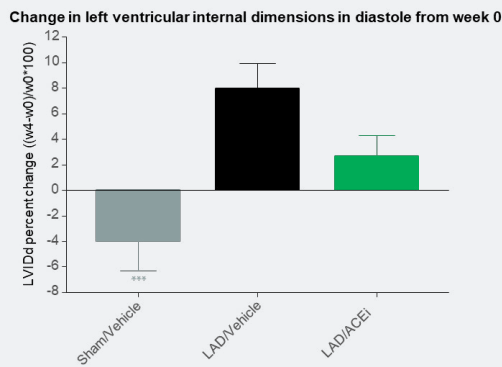
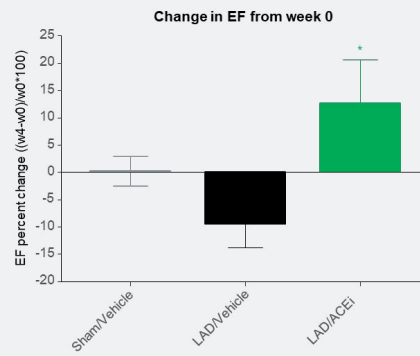
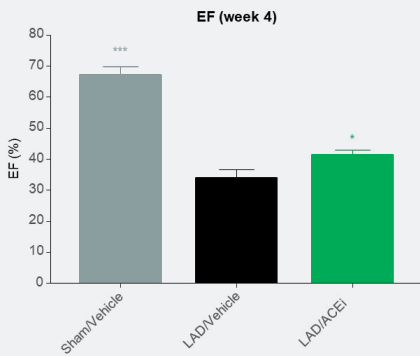
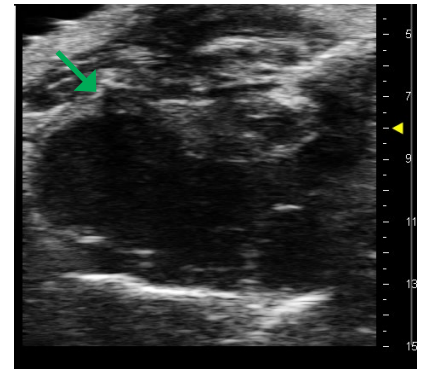
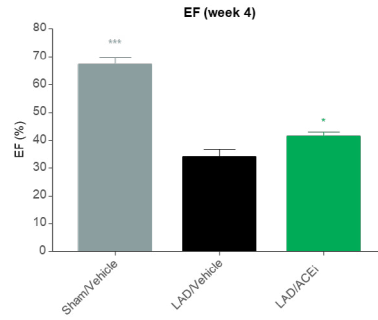
Study outline



Stratification into study groups

Assessment of left ventricular ejection fraction (EF) 7 days after LAD-ligation allows for stratification of baseline disease severity and evaluation of individual treatment effects.

Only mice with anterior wall infarction (green arrow) and reduced EF are included into study groups.



Individual pre- to post analysis of cardiac function and remodelling

Chronic LAD ligation demonstrates reduced echocardiographic EF and adverse cardiac remodelling which are reversed by 4 weeks of treatment with ACEi.

Infarct size and vascular density

Light sheet imaging provides accurate 3D quantification of cardiac remodelling including infarct volume and vascular density in infarct, border and remote myocardium. Treatment with ACEi improves cardiac 3D remodelling vascular rarefaction in the border zone.

