HEART FAILURE

Drug screening in *in vivo* (rat, mouse), *ex vivo* and *in vitro* models

Evaluation of compounds effects on ventricular dysfunction and remodeling

Evaluation of cardioprotective effects

Gold standard models to study the development of ventricular dysfunction and transition to overt heart failure

**IN VIVO MODELS**

- **Myocardial infarction** (rat, mouse): left coronary ligation
- **Thoracic aortic banding** (rat, mouse)
- **Anthracycline-induced cardiomyopathy**

**Ex VIVO / VITRO ASSAYS**

- Langendorff heart model
- Isolated cardiomyocytes

*Reference compounds: ACE inhibitors, Beta blockers, Calcium channel blockers, Aldosterone antagonists, Diuretics, Angiotensin receptors antagonists*

**READ-OUTS and SCIENTIFIC RESULTS**

Myocardial contractility and heart function

Heart rate, $dP/dt$, wall motion and thickness

Left ventricular volume

Mean arterial pressure

Pressure-volume determination

Hemodynamics

Myocyte calcium transients and contractility

Survival

Biomarkers

Ejection Fraction (%)

![Echocardiography (day 28)](image)