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Echocardiography: Mouse V.2

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1 Works for me dx.doi.org/10.17504/protocols.io.7s7hnhn

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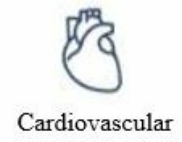
ABSTRACT

Summary:

This protocol describes the procedure used by the DiaComp for transthoracic echocardiography in awake mice.

Diabetic Complication:



EXTERNAL LINK

https://www.diacomp.org/shared/document.aspx?id=39&docType=Protocol

MATERIALS

NAME	CATALOG #	VENDOR
Isoflurane (1%)		

1 We perform transthoracic echocardiography in awake mice. If anesthesia is required we currently favor the use of inhaled isoflurane (1%), delivered via nose cone. The anesthesia flow can be titrated to minimize any reduction in heart rate. If inhaled anesthesia is not available, we have also had success with avertin (tribromoethanol)(0.2 ml/10 g body weight) or chloral hydrate (0.5 mg/g body weight). Heart rates are generally maintained at more than 400 per minute with these regimens. The chest hair is removed with a topical depilatory agent. Limb leads were attached for electrocardiogram gating, and the animals are imaged in the left lateral decubitus position with a 13-MHz linear probe (Vivid FiVe; GE Medical Systems, Milwaukee, Wisconsin, USA).

Two-dimensional images are recorded in parasternal long- and short-axis projections with guided M-mode recordings at the midventricular level in both views. Left ventricular (LV) cavity size and wall thickness are measured in at least three beats from each projection and averaged. LV wall thickness [interventricular septum (IVS) and posterior wall (PW) thickness] and internal dimensions at diastole and systole (LVIDd and LVIDs, respectively) are measured. LV fractional shortening [(LVIDd – LVIDs)/LVIDd], relative wall thickness [(IVS thickness + PW thickness)/LVIDd], and LV mass [1.05 (IVS thickness + LVIDd + PW thickness)^3 – LVIDd^3] are calculated from the M-mode measurements.