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Working

Vandy - Mouse Echocardiography

Chee Lim[1]

[1]Vanderbilt University

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Mouse Metabolic Phenotyping Centers
Tech. support email: **info@mmpc.org**

Lili Liang

ABSTRACT

Summary:

Transthoracic mouse echocardiography is used to provide noninvasive imaging of the heart and allows for quantification of myocardialwall and chamber dimensions and systolic and diastolic performance.

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=225&docType=Protocol

MATERIALS

NAME	CATALOG #	VENDOR
Isoflurane		
Coupling gel		
Vevo2100 Imaging System	Vevo2100	VisualSonics

1 The chest hair is first shaved and a topical delipatory agent (e.g. Nair) is used to remove any remaining body hair.

2 The conscious mouse is held in the prone position, decreasing vagal reflexes and associated abnormalities of heartrate or AV conduction. If anesthesia is required, 3% isoflurane is used for sedation and the mouse is placed in a supine position on a heated platform (to maintain body temperature) with embedded ECG leads (Visual Sonics). A nose cone is placed over the snout and isoflurane (1%) is delivered to maintain sedation throughout the procedure.

3 Ultrasound coupling gel heated to 34C is applied to the chest area and a linear array transducer (18-23 MHz) is positioned to obtain two-dimensional B-mode parasternal long and short axis views at the mid-ventricular level(Vevo 2100, VisualSonics).

4 One-dimensional M-mode images are obtained for measurement in the short axis view to obtain cardiac wall and chamber dimensions.

5 Digital images are permanently archived. Depending on the type of measurement, the imaging procedure can last from one to several minutes.

6 Left ventricular (LV) chamber size and wall thickness are measured off-line in the M-mode from at least three consecutive beats and averaged. LV wall thickness: intraventricular septum (IVS) and posterior wall (PW) at systole and diastole; and LV internal dimensions (LVID) during systole and diastole are measured. LV percent fractional shortening (FS) and ejection fraction (EF) are calculated from the M-mode measurements.

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