Echocardiography

Version: 1
Modified from: Timofeyev V. *et al.* J Mol Cell Cardiol. 2006 Jul;41(1):170-81.
Edited by: Dr. Singapuri, UC Davis

Summary: Cardiac hypertrophy is one of the most common causes of heart failure. The development of cardiac hypertrophy and failure can be monitored using noninvasive imaging with echocardiogram in conscious animals.

Reagents and Materials:

Reagent/Material	Vendor	Stock Number

Protocol:

1. The animals' chest will be shaved and then be placed in a supine position on a warmed (37°C) towel covered surgical table.
2. The mice are restrained in a 50 ml conical tube with an opening for the nose and chest, a standard procedure for imaging mice for this kind of study.
3. The imaging generally lasts for only 2-5 min, we were trained in this method by CLAS personnel and in our experience works very well.
4. M-mode and two-dimensional measurements are used to assess systolic function.
5. An average of six selected cardiac cycles from at least two separate scans performed in random-blindfashion with papillary muscles used as a point of reference.
6. End diastole was defined as the maximal left ventricular (LV) diastolic dimension and end systole was defined as the peak of posterior wall motion.
7. Fractional shortening (FS), a surrogate of systolic function, was calculated from LV dimensions as follows: FS = ((EDD − ESD) / EDD) × 100%, where EDD and ESD are LV end diastolic and end systolic dimension, respectively.

Reagent Preparation: *none*