

**SOP No:** AHP 78

**SUBJECT:** Ultrasound Biomicroscopy to identify microinjected mouse embryos

**POLICY:** This procedure must be performed by an experienced operator.

**PRECAUTIONS:** Gloves, long-sleeved gown, closed in shoes, face mask, hair net.

**EQUIPMENT:** Ultrasound Biomicroscope (Vevo 770, Visualsonics Inc)  
25 MHz transducer  
Rail system (Visualsonics Inc)  
Rectal probe  
Heart rate monitor  
Anaesthetizing chamber  
Isoflurane  
Animal clipper  
Hair removal cream (eg: Nair)  
70% ethanol  
Ultrasound gel

**PROCEDURE:**

1. Restrain pregnant mouse with embryos pre-injected with inorganic glass microbeads
2. Induce anaesthesia with isoflurane at a dose of 5% in a closed anaesthetizing chamber then maintain at 1.5% by nose cone for the duration of the ultrasound scan.
3. Shave the abdominal fur region of the isoflurane-anaesthetized pregnant mouse with an animal clipper first.
4. Completely remove the remaining fur with a standard chemical hair removal cream (Nair) then cleanse the skin with 70% ethanol.
5. Apply ultrasound gel liberally over the abdominal region of the mouse.
6. Place the animal on the heated platform of a rail system, monitor the body temperature via a rectal thermometer and maintain at 35°C-38°C using a heating pad and lamp. Monitor the heart rate with electrodes attached to the paws (Indus Instruments).
7. Carefully monitor body temperature, heart rate, respiratory vigour, and anaesthetic depth throughout the ultrasound procedure.
8. Use the transducer to scan for embryos with glass microbeads (the glass beads are echogenic).

9. Once the ultrasound examination is concluded, usually within a total of 15 min period, clean the animal of gel.
10. Switch off the anaesthesia and return the mouse to its cage with food and water ad libitum. Mice normally recover (awake) within 3-5 min.

## RECOMMENDATIONS

**DATE ISSUED:** 22.10.2008

**REVISED:**

## REFERENCES

1. Slevin JC, Byers L, Gertsenstein M, Qu D, Mu J, Sunn N, Kingdom JC, Rossant J, Adamson SL. (2006) *High resolution ultrasound-guided microinjection for interventional studies of early embryonic and placental development in vivo in mice*. BMC Dev Biol. 6:10.
2. Kulandavelu S, Qu D, Sunn N, Mu J, Rennie MY, Whiteley KJ, Walls JR, Bock NA, Sun JC, Covelli A, Sled JG, Adamson SL. (2006). *Embryonic and neonatal phenotyping of genetically engineered mice*. ILAR J. 47(2):103-17.