

Using Vascular Access Buttons™

Guidance for one and two channel magnetic mouse buttons (parts starting with VABM)

INTENDED USE

Application

Intermittent or continuous infusion or sampling of fluids from vascular or non-vascular catheters, including:

- Jugular vein
- Femoral vein
- Carotid artery
- Femoral artery
- Portal vein
- Bile duct
- Duodenum
- Colon
- Gastric
- Bladder
- Intrathecal
- Subcutaneous

Species

Designed for mice and rodents of a similar size. A larger version is available for rats.



IMPLANTATION

You may order mice with VABs™ implanted as a surgical service or perform the surgery yourself.

1. Perform catheterization surgery using strict aseptic technique, including a sterile catheter primed with sterile saline. For small vessels such as the carotid artery use catheters that transition from 1Fr in the vessel to 2Fr or 3Fr for connection to the VAB™. If you need help with the procedure, seek [virtual or in person training](#).



in sterile saline prior to implantation. Implant button by placing the disk subcutaneously. Close skin over the disk. Do not attach to muscle. You may find it helpful to use a demagnetizer on your surgical tools.

5. Fill with sterile lock solution of your choice.

Use aseptic technique (disinfect septum prior to access). Use [positive pressure technique](#) when removing injector. Take care not to infuse any harmful lock solutions into the animal. Studies suggest viscous/high-heparin-concentration lock solutions are not needed with the VAB™. Instech provides [syringes prefilled with pharmaceutical-grade heparine saline](#) and with injectors attached and sealed.



VAB™ CONNECTOR COMPATIBLE CATHETER (PROXIMAL END)

22ga	Polyurethane, ID 0.61-0.63mm (3Fr)
25ga	Polyurethane, ID 0.41-0.43mm (2Fr)

2. Tunnel catheter to the back; exteriorize between shoulder blades.
3. Connect primed catheter to primed VAB™; push catheter at least 2-3mm onto connector. Check patency. A properly connected Compatible Catheter should be able to withstand up to 1kg of pull force and over 100PSI of pressure before it will disconnect. If you need even greater protection against disconnections, use a catheter with sleeve that is moved over the joint (up to 200PSI) or have Instech bond your catheter to the button in production (however, this reverses the surgical procedure and puts the catheter tip at greater risk of contamination).
4. Make an appropriate-sized pocket to accommodate the disk. Too small may lead to pressure necrosis of the skin. If using felt, soak

VAB™ PORT DEAD VOLUME CATHETER DEAD VOLUME (PER CM)

3-4µL	3Fr: 3µL/cm
	2Fr: 1.5µL/cm
	1Fr: 0.3µL/cm

6. Allow 5-7 days for recovery. Do not connect a tether during recovery. A tissue reaction may occur during this period but should resolve itself. With the VAB™, you should not have to flush catheters more than once per week.

Note: success with the VAB™ is critically dependent on surgical technique, including aseptic procedures, catheter tip placement, proper sutures, time under anesthesia, etc. These should not be considered complete instructions for use and are not a substitute for proper surgical training. Always validate new models and surgical techniques with appropriate pilot studies.

DIRECT ACCESS



PNP3M



PNP3MS



PNP3MC



Use a PNP3M injector connected to a syringe to flush, sample or deliver a bolus dose. Alternatively, use a PNP3MS connector to collect blood directly into Sartstedt capillary tubes (arterial pressure

required). Or use a PNP3MC PinPort-to-tubing connector.

Accessing the ports with any other type of sharp or blunt needle will damage the septum and cause leaks. Use the VABMG tool to avoid putting pressure on the animal. Use [positive pressure technique](#) to avoid pulling blood into the catheter tip when removing the injector from the port; this is critical with mouse catheters as 1µL will fill about 1cm of a 2Fr catheter and 5cm of a 1Fr catheter.



GROUP HOUSING

Place a magnetic cap on the button to protect the ports if you want to group house mice. Caps may be autoclaved and reused. Use the fork end of the VABMG tool to minimize forces on the animal when removing the cap; you may be able to twist single channel VAB™ caps to disengage the magnet and remove.

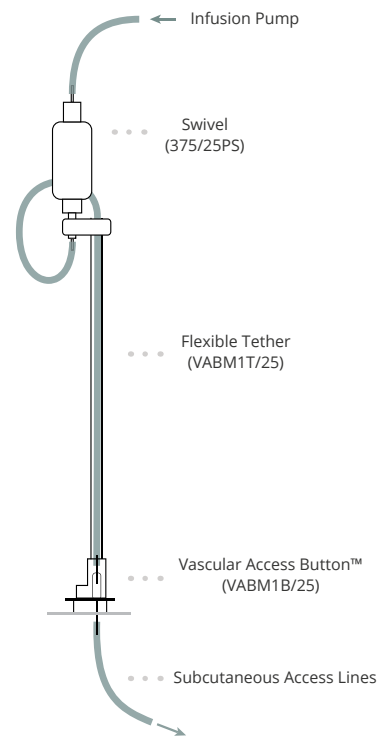


TETHERED ACCESS

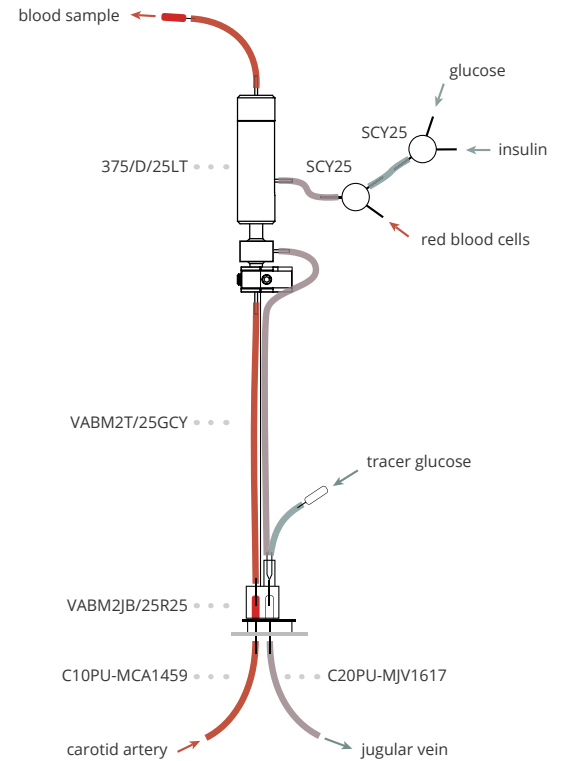
Connect a mating tether for continuous access. With two-channel VAB™s, align the red dot on the tether with the red port. Use Instech 25ga single or dual channel swivels outside the cage to prevent tangling, and always mount swivels in a responsive counter-balance arm to reduce forces on the animal and surgical site and to take up slack in the tether as the animal moves.



Example Configuration: Infusion



Example Configuration: Glucose Clamp



INSTECH

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