

# Using Vascular Access Buttons™

Guidance for 1 - 4 channel magnetic rat buttons (parts starting with VABR)

## 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 rats, but have been used with similar sized rodents such as guinea pigs, and with larger animals including rabbits and minipigs (intermittent access only). A smaller version of the VAB™ is available for mice.



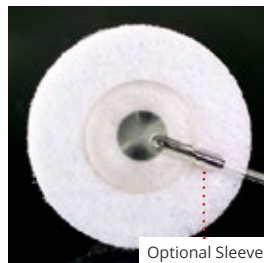
## IMPLANTATION

You may order rats 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. If you need help with the procedure, seek [virtual or in person training](#).

VAB™ CONNECTOR	COMPATIBLE CATHETER
22ga	Polyurethane, ID 0.61-0.63mm (3Fr)
25ga	Polyurethane, ID 0.41-0.43mm (2Fr)
27ga	Instech or Recathco intrathecal catheters

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 appropriately sized subcutaneous pocket to accommodate the disk. Too large may lead to seroma formation. Too small may lead to pressure necrosis of the skin. Soak felt disk in sterile saline prior to implantation. Implant button by placing the disk subcutaneously. Close skin over felt, under flange.



Optional Sleeve

5. Do not secure felt disk to underlying tissues or muscles as this can lead to irritation.
6. Fill with sterile lock solution. Use aseptic technique (disinfect port prior to access). Use [positive pressure technique](#) when removing injector. Take care not to infuse any harmful lock solutions into the bloodstream. Studies suggest viscous/high-heparin-concentration lock solutions are not needed with the VAB. Instech provides [pre-filled syringes with sterile pharmaceutical-grade heparin-saline](#) with injectors attached and sealed.



VAB™ PORT DEAD VOLUME	CATHETER DEAD VOLUME (PER CM)
3-4µL	3Fr: 3µL/cm 2Fr: 1.5µL/cm

7. Allow 5-7 days for recovery. Do not connect a tether during recovery. A tissue reaction during this period is normal but should resolve itself. The button may lateralize during recovery and this may be exacerbated by the weight of the protective cap. Lateralization does not typically impact performance. With the VAB™, you should not have to flush catheters more than once per week. Do not allow any solution to pool inside the button.

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.

# INSTECH

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Part No. 7700-05-0206.01  
April 10, 2024 10:42 AM

## DIRECT ACCESS



PNP3M



PNP3MS



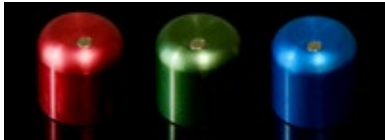
PNP3MC



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 positive pressure technique to avoid pulling blood into the catheter tip when removing the injector from the port.

## GROUP HOUSING

Place an aluminum cap on the button to protect the port when group housing animals. The cap connects to all models of magnetic rat VABs™. Caps may be autoclaved and reused.



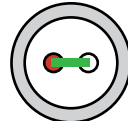
VABRC

VABRC-G

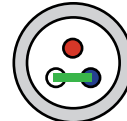
VABRC-B

## BILE SAMPLING

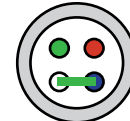
Use a primed VABR2L, VABR3L and VABR4L connector to shunt bile from a catheterized bile duct to the duodenum after surgery. Remove the loop connector and connect a primed mating tether for bile sampling and, optionally, bile salt replacement.



VABR2L



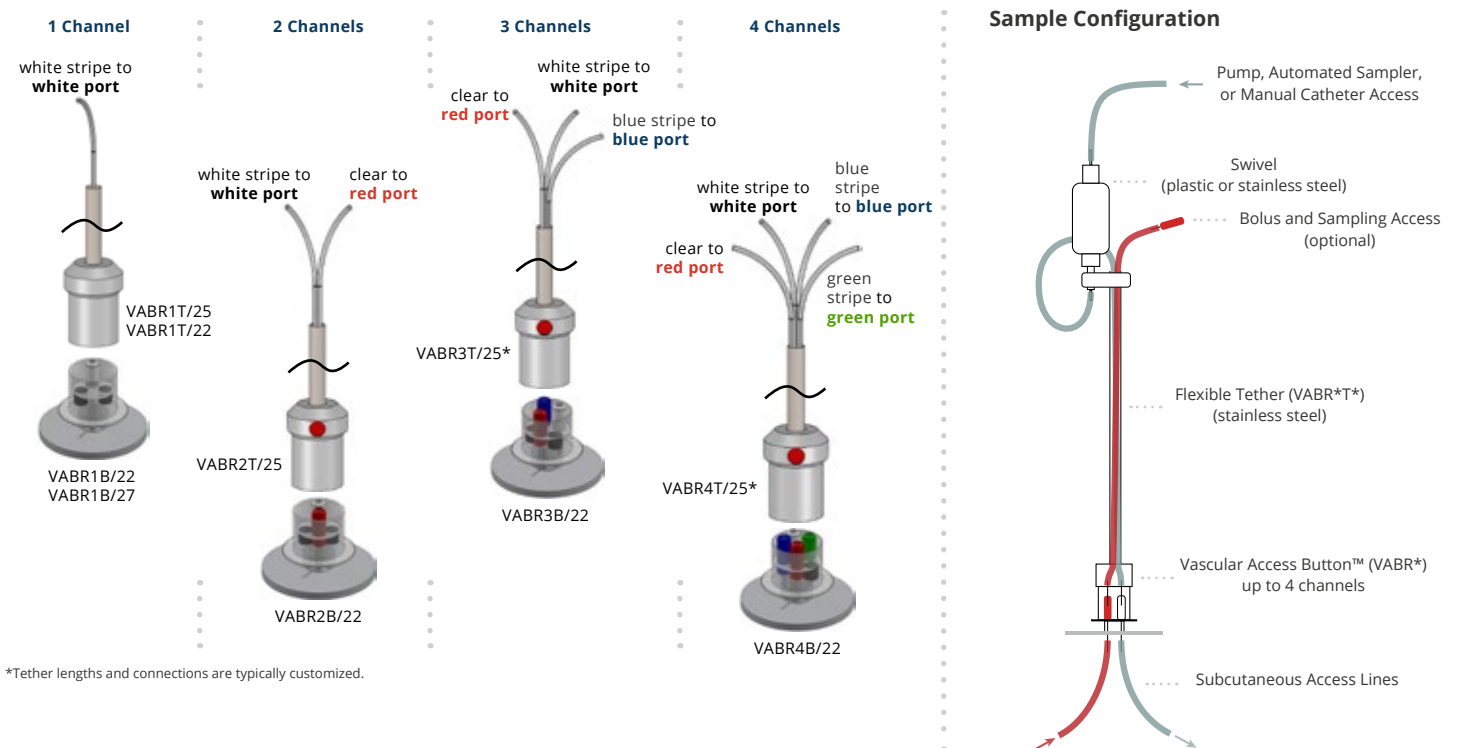
VABR3L



VABR4L

## TETHERED ACCESS

Snap in a mating magnetic VAB™ tether for continuous access. With two, three and four channel buttons, align the red dot with the red port. Use Instech swivels outside the cage to prevent tangling. Mount swivels in counter-balanced lever arms to reduce the forces on the animal and the VAB™ implantation site and to take up slack in the spring tether.



\*Tether lengths and connections are typically customized.