CLAIMS

1. An introducer system comprising:

a hub configured to be coupled to a proximal end of an introducer sheath, the hub comprising:

a first arm having a first lumen and a first hemostasis valve, wherein the first lumen and the first hemostasis valve are configured to deploy a mechanical circulatory support device;

a second arm coupled to the first arm and having a second lumen and a second hemostasis valve, wherein the second lumen and the second hemostasis valve are configured to deploy a coronary reperfusion therapy device for providing a patient with percutaneous coronary intervention (PCI); and

a connection port configured to be coupled to the introducer sheath and to the first arm and the second arm, such that the first lumen and the second lumen are in communication with a lumen of the introducer sheath to allow the passage of at least one of the first medical device or the second medical device through the introducer sheath for delivery to a patient.

2. The introducer system of claim 1, further comprising the introducer sheath.

3. The introducer system of claim 2, wherein the first arm is arranged parallel to a longitudinal axis of the introducer sheath.

4. The introducer system of claim 2, wherein the first arm and the second arm are arranged in a Y-shaped configuration with respect to the introducer sheath.

5. The introducer system of claim 1, wherein the second lumen merges with the first lumen within the hub.

6. The introducer system of claim 2, wherein the introducer sheath comprises a single lumen for the passage of the first and second medical devices.

7. The introducer system of claim 1, wherein the first lumen and the second lumen are maintained as separate lumens within the hub.

8. The introducer system of claim 2, wherein the introducer sheath comprises a dual lumen sheath such that the first lumen is in communication with one of the lumens of the dual lumen sheath, and the second lumen is in communication with the other lumen of the dual lumen sheath.

9. The introducer system of claim 2, wherein the introducer sheath is an expandable sheath.

10. The introducer system of claim 2, wherein the introducer sheath is a peel-away sheath.

11. The introducer system of claim 10, wherein the hub further comprises tabs to enable separation of the hub and the peel-away sheath.

12. The introducer system of claim 1, wherein the hub further comprises at least one suture ring.

13. The introducer system of claim 1, wherein the first arm and the second arm each comprise at least one side-port.

14. The introducer system of claim 13, wherein the side-port comprises an irrigation port configured to be supplied with an irrigation fluid.

15. The introducer system of claim 1, wherein at least one of the first arm or the second arm comprises a locking mechanism configured to prevent axial movement of one or both of the first medical device and the second medical device within the introducer sheath after delivery to the patient.

16. The introducer system of claim 15, wherein the locking mechanism comprises at least one of: a Tuohy-Borst adaptor, an inflatable balloon, or a locking lever arm.

17. The introducer system of claim 15, wherein the locking mechanism is biased in a state that is configured to prevent axial movement of one or both of the first medical device and the second medical device within the introducer sheath.

18. The introducer system of claim 2, wherein the introducer sheath comprises at least one of: a polyether block amide; a polyethylene material; a polytetrafluoroethylene (PTFE) material; a high-density polyethylene (HDPE) material; a medium-density polyethylene (MDPE) material; or a low-density polyethylene (LDPE) material.

19. The introducer system of claim 1, wherein the hub comprises at least one of: ethylene-vinyl acetate (EVA); styrene-butadiene copolymer (SBC); styrene ethylene butylene styrene (SEBS); a high-density polyethylene (HDPE) material; a medium-density polyethylene (MDPE) material; a low-density polyethylene (LDPE) material; polyether ether ketone (PEEK); a polyether block amide; an elastomer; synthetic rubber; or a polyethylene, polyurethane, or polycarbonate material with an elastic modulus of about 40ksi.

20. The introducer system of claim 1, wherein the coronary reperfusion therapy device is a stent.

21. The introducer system of claim 20, wherein the stent is configured for insertion through the second arm and introducer sheath by a catheter.

22. The introducer system of claim 1, wherein the mechanical circulatory support device comprises at least one of: a blood pump; a transvalvular axial-flow (TV)-pump; an intra-aortic balloon pump; or an extracorporeal membrane oxygenation (ECMO) pump.

23. The introducer system of claim 20, wherein the mechanical circulatory support device is a rotary blood pump having a cannula and a rotor and rotor housing.

24. The introducer system of claim 1, wherein the hub comprises up to five second arms, each second arm configured with a hemostasis valve and a lumen in communication with the introducer sheath for the passage of the second medical device from a respective second arm into the introducer sheath.

25. The introducer system of claim 24, wherein the second arms are arranged in a radially symmetric manner about the first arm.

26. A method comprising:

inserting a mechanical circulatory support device into a first arm of an introducer hub, wherein the first arm has a first lumen and a first hemostasis valve, the first lumen and the first hemostasis valve are configured to deploy the mechanical circulatory support device ;

inserting a coronary reperfusion therapy device for providing a patient with percutaneous coronary intervention (PCI) into a second arm of the introducer hub that is attached to the first arm, wherein the second arm has a second lumen and a second hemostasis valve, the second lumen and the second hemostasis valve are configured to deploy the coronary reperfusion therapy device;

providing the mechanical circulatory support device and the coronary reperfusion therapy device to an introducer sheath via a connection port of the introducer hub, the connection port coupled to a proximal end of the introducer sheath; and

delivering the mechanical circulatory support device and the coronary reperfusion therapy device to a patient from a distal end of the introducer sheath.

27. The method of claim 26, further comprising the steps of:

inserting the mechanical circulatory support device through the first arm and through the introducer sheath into the patient's left ventricle to support the patient's heart after myocardial infarction;

operating the mechanical circulatory support device for a support period of greater than 30 minutes at a rate of at least 2.5 L/min of blood flow;

inserting the coronary reperfusion therapy device through the second arm and through the introducer sheath into a coronary vessel of the patient; and

operating the coronary reperfusion therapy device after the support period has elapsed.