

What is Claimed:

1. A wearable drug delivery device comprising:
  - a main housing;
  - a container disposed in the main housing;
  - an insertion mechanism disposed in the main housing;
  - a fluid pathway connector defining a sterile fluid flowpath between the container and the insertion mechanism; and
  - the insertion mechanism including
    - a trocar or hollow delivery needle,
    - an insertion mechanism housing having a proximal end and a distal end,
    - a hub carrying the trocar or hollow delivery needle, the hub and being movable relative to the insertion mechanism housing between a first hub position adjacent to the proximal end of the insertion mechanism housing and a second hub position adjacent to the distal end of the insertion mechanism housing,
    - a power source configured to generate rotational motion, and
    - a motion conversion mechanism operatively connecting the power source and the hub, and configured to convert the rotational motion of the power source into linear motion of the hub.
2. The drug delivery device of claim 1, comprising a cannula guide removably connected to the hub, the cannula guide in fluid communication with the fluid pathway connector and movable relative to the insertion mechanism housing between a first cannula guide position adjacent to the proximal end of the insertion mechanism housing and a second cannula guide position adjacent to the distal end of the insertion mechanism housing.
3. The drug delivery device of claim 2, comprising a cannula having a hollow interior and being axially aligned with the trocar or hollow delivery needle, the cannula guide being configured to fluidly connect the hollow interior of the cannula and the fluid pathway connector.

4. The drug delivery device of any one of claims 1 to 3, wherein the motion conversion mechanism includes a pin and a yoke, the pin being slidably received in a slot formed in the yoke.

5. The drug delivery device of claim 4, wherein the pin is operatively connected to and receiving rotational motion from the power source, wherein rotation of the pin in a first rotational direction over a first arc causes the yoke to move linearly in a distal direction, and wherein rotation of the pin in the first rotational direction over a second arc causes the yoke to move linearly in a proximal direction.

6. The drug delivery device of claim 5, wherein the motion conversion mechanism includes a guide post extending through an aperture formed in the yoke, the yoke being movable relative to the guide post.

7. The drug delivery device of claim 4 or 5, wherein the motion conversion mechanism includes a rotatable member rotatable about a rotational axis by the power source, wherein the pin extends from the rotatable member at a position offset from the rotational axis.

8. The drug delivery device of claim 2, wherein the hub has a first stroke in which the hub initially moves from the first hub position to the second hub position to extend the trocar or hollow needle from the insertion mechanism housing, and a second stroke in which the hub subsequently moves from the second hub position to the first hub position to retract the trocar or hollow needle into the insertion mechanism housing, and wherein the hub carries the cannula guide from the first cannula guide position to the second cannula guide position during the first stroke.

9. The drug delivery device of claim 7, comprising a lock member configured to selectively engage and prevent rotation of the rotatable member.

10. An insertion mechanism for a drug delivery device, the insertion mechanism comprising:

- a trocar or hollow delivery needle;
- a housing having a proximal end and a distal end;
- a hub carrying the trocar or hollow delivery needle, the hub being movable relative to the housing between a first hub position adjacent to the proximal end of the housing and a second hub position adjacent to the distal end of the housing;
- a power source configured to generate rotational motion; and

a motion conversion mechanism operatively connecting the power source and the hub, and configured to convert the rotational motion of the power source into linear motion of the hub.

11. The insertion mechanism of claim 10, comprising a cannula guide removably connected to the hub, the cannula guide movable relative to the housing between a first cannula guide position adjacent to the proximal end of the housing and a second cannula guide position adjacent to the distal end of the housing.

12. The insertion mechanism of claim 11, comprising a cannula having a hollow interior and being axially aligned with the trocar or hollow delivery needle, the cannula guide being configured to fluidly connect the hollow interior of the cannula and a fluid pathway connector.

13. The insertion mechanism of any one of claims 10 to 12, wherein the motion conversion mechanism includes a pin and a yoke, the pin being slidably received in a slot formed in the yoke.

14. The insertion mechanism of claim 13, wherein the pin is operatively connected to and receiving rotational motion from the power source, wherein rotation of the pin in a first rotational direction over a first arc causes the yoke to move linearly in a distal direction, and wherein rotation of the pin in the first rotational direction over a second arc causes the yoke to move linearly in a proximal direction.

15. The insertion mechanism of claim 14, wherein the motion conversion mechanism includes a guide post extending through an aperture formed in the yoke, the yoke being movable relative to the guide post.

16. The insertion mechanism of any one of claims 13, 14 or 15, wherein the motion conversion mechanism includes a rotatable member rotatable about a rotational axis by the power source, wherein the pin extends from the rotatable member at a position offset from the rotational axis.

17. The insertion mechanism of claim 11, wherein the hub has a first stroke in which the hub initially moves from the first hub position to the second hub position to extend the trocar or hollow needle from the housing, and a second stroke in which the hub subsequently moves from the second hub position to the first hub position to retract the trocar or hollow needle into the housing.

18. The insertion mechanism of claim 17, comprising a catch member connected to the housing and configured to engage a proximally facing surface of the cannula guide when the cannula guide occupies the second cannula guide position.

19. The insertion mechanism of claim 18, wherein the hub is disconnected from the cannula guide by the catch member during the second stroke such that the catch member retains the cannula guide in the second cannula guide position while the hub returns to the first hub position.

20. The insertion mechanism of claim 18 or 19, wherein the catch member is configured to elastically deform to allow the cannula guide to move into the second cannula guide position during the first stroke.