

CLAIMS

1. An apparatus for delivering therapeutic agent to an eye, wherein the apparatus comprises:

- (a) a body;
- (b) a cannula extending distally from the body, wherein the cannula is sized and configured to be insertable between a choroid and a sclera of a patient's eye, wherein the cannula defines a longitudinal axis;
- (c) a hollow needle having a proximal end, a sharp distal tip, and a needle lumen extending therebetween with a uniform inner diameter, wherein the needle is slidable within the cannula;
- (d) an actuation assembly, wherein the actuation assembly is operable to actuate the needle relative to the body, wherein the actuation assembly comprises:
 - (i) a rotating member rotatably coupled with the body, and
 - (ii) a translating member translatably coupled with the body such that a distal end of the translating member is housed within the body, wherein the translating member is operatively coupled with the rotating member and with the needle such that the proximal end of the needle extends directly from the distal end of the translating member, wherein the translating member is operable to actuate the needle relative to the body in response to rotation of the rotating member; and
- (e) a fluid path extending from a proximal end of the apparatus to a distal end of the needle, wherein a distal portion of the fluid path is defined by the needle lumen, wherein the fluid path is configured to communicate with a fluid source through the proximal end of the device to deliver therapeutic agent to an eye,

wherein the apparatus is operable to deliver therapeutic agent distally along the fluid path independently of translation of the translating member.

2. The apparatus of claim 1, wherein the actuation assembly comprises a cannula actuation assembly and a needle actuation assembly, wherein the cannula actuation assembly includes the rotating member, wherein the needle actuation assembly includes the translating member.

3. The apparatus of claim 2, wherein the needle actuation assembly is responsive to actuation of the cannula relative to the body.

4. The apparatus of claim 3, wherein the needle actuation assembly is configured to actuate the needle relative to the body as the cannula actuation assembly actuates the cannula relative to the body.

5. The apparatus of claim 2, further comprising a lock feature, wherein the lock feature is operable to transition between a first state and a second state, wherein the lock feature is operable to lock the cannula actuation assembly to thereby prevent actuation of the cannula relative to the body when the lock feature is in the second state.

6. The apparatus of claim 5, wherein the lock feature is operable to lock the needle actuation assembly to thereby prevent actuation of the needle relative to the cannula when the lock feature is in the first state.

7. The apparatus of claim 6, wherein the lock feature comprises a cam feature, wherein the cam feature has an elliptical cross-sectional shape, wherein the cam feature is rotatable to transition the lock feature between the first state and the second state.

8. The apparatus of claim 2, wherein the cannula actuation assembly comprises a cannula member, wherein the cannula member is configured to translate relative to the body to actuate the cannula relative to the body.

9. The apparatus of claim 8, wherein the cannula actuation assembly further comprises a rack and pinion assembly, wherein the rack and pinion assembly is in

communication with the cannula member, wherein the rack and pinion assembly is configured to drive translation of the cannula member.

10. The apparatus of claim 8, wherein the cannula member comprises a lumen extending from a distal end of the cannula member to a proximal end of the cannula member, wherein the lumen is configured to slidably receive the needle.

11. The apparatus of claim 8, wherein the needle actuation assembly includes the translating member, wherein at least a portion of the translating member is insertable within the cannula member.

12. The apparatus of claim 11, wherein the translating member is configured to selectively translate relative to the cannula member.

13. The apparatus of claim 12, wherein the needle actuation assembly further comprises an actuation selector, wherein the actuation selector is responsive to rotation of the translating member to simultaneously unlock translation of the translating member relative to the cannula member and lock translation of the cannula member relative to the body.

14. The apparatus of claim 1, further comprising a cannula guide, wherein the cannula guide extends distally from the body, wherein the cannula guide is configured to direct the cannula along a predetermined path.

15. The apparatus of claim 14, wherein the cannula guide comprises a lumen extending from a proximal end to a distal end of the cannula guide, wherein the lumen is configured to receive the cannula and direct the cannula along the predetermined path.

16. The apparatus of claim 1, wherein the actuation assembly further comprises:
- (i) a projection affixed to the translating member, and
 - (ii) a channel defined by a channel wall, wherein the projection is slidably disposed within the channel, wherein the channel wall is

movable relative to the body to engage the projection and drive the translating member relative to the body to thereby actuate the needle relative to the body in response to rotation of the rotating member.

17. An apparatus for delivering therapeutic agent to an eye, wherein the apparatus comprises:

- (a) a body;
- (b) a cannula, wherein the cannula is sized and configured to be insertable between a choroid and a sclera of a patient's eye, wherein the cannula comprises a cannula lumen extending therethrough;
- (c) a hollow needle, wherein the needle is slidably disposed within the cannula lumen; and
- (d) an actuation assembly, wherein the actuation assembly is operable to actuate the needle relative to the body, wherein the actuation assembly comprises:
 - (i) a rotating member rotatably coupled with the body,
 - (ii) a translating member translatably coupled with the body, wherein the translating member is operatively coupled with the rotating member and with the needle,
 - (iii) a projection affixed to the translating member, and
 - (iv) a movable structure operatively coupled with the body, wherein the movable structure includes a channel,

wherein the projection is slidably disposed within the channel, wherein the movable structure is movable relative to the body to engage the projection and drive the translating member relative to the body to thereby actuate the needle relative to the body in response to rotation of the rotating member.

18. The apparatus of claim 17, wherein the rotating member is operable to drive the translating member distally when rotated in a first direction, wherein the rotating member is operable to drive the translating member proximally when rotated in a second direction.

19. The apparatus of claim 18, wherein the rotating member comprises a wheel, wherein the actuation assembly further comprises a gear, wherein the wheel has a plurality of teeth, wherein the teeth are configured to engage a corresponding plurality of teeth of the gear, wherein the translating member is engaged with the gear.

20. An apparatus for delivering therapeutic agent to an eye, wherein the apparatus comprises:

- (a) a body;
- (b) a guide extending distally from the body;
- (c) a cannula slidably disposed within the guide, wherein the cannula is sized and configured to be insertable between a choroid and a sclera of a patient's eye;
- (d) a hollow needle slidably disposed within the cannula; and
- (e) an actuation assembly, wherein the actuation assembly comprises:
 - (i) a rotating member rotatably coupled with the body,
 - (ii) a first translating member translatably coupled with the body, wherein the cannula is fixed axially relative to the first translating member, and
 - (iii) a second translating member moveably coupled with the first translating member, wherein the needle is fixed axially relative to the second actuating member,

wherein the first and second translating members are operable to translate together relative to the body in response to rotation of the rotating member to thereby actuate the cannula and the needle relative to the body,

wherein the second actuating member is movable relative to the first actuating member to actuate the needle relative to the cannula.