propel the drug from the device. Inconsistent propulsion of drug due to inconsistent user actuation is also far from optimal. For example, some existing devices are manually actuated and may be used in conjunction with a manual pump, such that the actuation of the device is dependent on a user's rate and/or strength of actuation of the pump. Some existing devices require the user to coordinate their breathing with device actuation, which can produce variable results due to differences in a user's breath power. In addition, some drug products are in an encapsulated form, which requires the capsule to be opened or punctured to administer the drug, which may result in particulate matter from the capsule contaminating the drug. Even further, in a metered dose inhaler (MDI) type device, some drug products do not readily mix and/or stay suspended with propellants.

[0009] Better mechanisms for administering desired agents to the brain, brain stem, and/or spinal cord are needed.

SUMMARY

[0009a] In a first aspect, the present disclosure provides a device for delivering a compound to an upper nasal cavity is described. The device comprises: a housing body comprising an actuator, a stem, and a release button. The actuator is configured to move relative to the housing body, where actuation of the actuator is configured to actuate a canister thereby releasing a contained propellant. The stem protrudes from the housing body and comprises a delivery opening at a distal end of the steam and a mating interface positioned about the delivery opening, the mating interface comprising an opening, where the mating interface is configured to mate with a nozzle containing the compound. The release button is positioned within the housing body and moves relative to the housing body. The release button is directly connected to a securing latch that is configured to protrude through the opening of the mating interface, where the securing latch is configured to mate with a reciprocal securing interface on the nozzle, thereby couples the nozzle to the mating interface, where actuation of the release button is configured to displace the securing latch from the reciprocal securing interface, thereby decouples the nozzle from the mating interface. The device further comprises a junction position within the housing body. The junction comprises a base, a first branch and a second branch of the junction extending from the base. The first branch comprises a propellant channel configured to be in fluid communication

with the canister. The second branch is in fluid communication with the first branch. The device further comprises a coupling mechanism configured to removably couple and decouple the nozzle coupled to the stem. The coupling mechanism comprises a compression spring and an ejector sleeve. The compression spring is positioned about a distal end of the second branch. The ejector sleeve is coupled to a distal end of the compression spring and configured to couple to a portion of the nozzle, where the ejector sleeve is configured to translate between a first position in which the compression spring is at rest and a second position in which the compression spring is compressed. When the nozzle is coupled to the stem, the ejector sleeve is configured to be in the second position and when the release button is depressed, the securing latch is configured to release the nozzle, thereby enables the ejector sleeve to return to the first position and decouples the nozzle from the stem.

[0010] In a second aspect, the present disclosure provides a device for delivering a compound to an upper nasal cavity is described. The device comprises: a housing body comprising an actuator, a stem, and a release button. The actuator is configured to move relative to the housing body, where actuation of the actuator is configured to actuate a canister thereby releasing a contained propellant. The stem protrudes from the housing body and comprises a mating interface that is configured to mate with a nozzle containing the compound. The release button is positioned within the housing body and configured to move relative to the housing body. The release button is directly connected to a securing mechanism that is configured to couple the nozzle to the mating interface, where actuation of the release button is configured to decouple the nozzle from the mating interface.

[0011] In one embodiment, the nozzle comprises a nozzle body, a diffuser, an outlet orifice, a removable seal, and a receiving cavity. The nozzle body comprises a channel that extends between a proximal end and a distal end of the nozzle body, and the diffuser is positioned within the channel. The outlet orifice is disposed at a distal end of the channel, and the removable seal is positioned across the outlet orifice. The compound is contained within the channel between the diffuser and the removable seal, and the removable seal may be removed by a user before the