

PACKAGING FOR DRUG ADMINISTRATION**CROSS-REFERENCE TO RELATED APPLICATION**

[0001] The present application claims priority to U.S. Provisional Patent Application No. 63/612,689, filed December 20, 2023, the entire contents of which are hereby incorporated by reference herein.

FIELD OF DISCLOSURE

[0002] The present disclosure generally relates to drug administration, and, more particularly, to packaging assemblies, kits, and/or configurations for drug administration. This invention was made with government support under Contract No. 75A50119C00061 awarded by Administration for Strategic Preparedness & Response's (ASPR's) Biomedical Advanced Research and Development Authority (BARDA). The government has certain rights in the invention.

BACKGROUND

[0003] Drug delivery devices, such as pre-filled syringes (PFS) or injectors, are used to administer drugs to a patient. In some instances, such drug delivery devices are delivered or given to patients in an end-user packaging, such as in drug administration kits, so that the patients can self-administer the drug in the comfort of their home. For example, many drug administration kits are used for storing medicament dosages and drug delivery devices at home, in clinics, in hospitals, and/or in pharmacies. The kits used for storing these medicament dosages and drug delivery devices need to be sealed to prevent tampering with the contents of the carton prior to first use. As a result, most kits are sealed with tamper evident closures, such as closure labels that will damage the carton if the closure labels are tampered with.

[0004] Drug administration packaging or kits using tamper evident seals can be difficult to open without either using a cutting tool or damaging the packaging. The cutting tool can be dangerous to use and, in some instances, the damage to the carton leaves the medicament dosages stored in the carton exposed to the exterior environment. These medicament storage cartons may be more secure and provide evident proof of tampering, but may be difficult to open.

[0005] Moreover, conventional drug administration kits generally lack features that facilitate handling and manipulation of components within the packaging. For example, to self-administer certain drugs or medicament dosages at home, patients may need to perform certain procedures upon opening the packaging, including preparing a dose by mixing a drug contained in a vial with a diluent contained in a PFS, withdrawing an amount of the prepared drug using an injection syringe, and injecting the drug into the patient. These procedures may involve handling multiple drug containers and coupling multiple components within the packaging or the kit, which may be cumbersome and confusing for many patients without explicit instructions, demonstrations, or supervision. Therefore, there is a need for improved packaging assemblies,

kits, and/or configurations for drug administration that facilitate handling and manipulation of components therein and allow users to administer drugs with ease.

[0006] The present disclosure sets forth packaging for drug administration and corresponding approaches embodying advantageous alternatives to existing packaging and approaches and that may address one or more of the challenges or needs mentioned herein.

SUMMARY

[0007] According to an embodiment of the present disclosure, a packaging for drug administration is provided. The packaging may comprise a carton having a storage configuration where the carton is substantially flat, and an assembled configuration. The carton may comprise a bottom box having a first bottom wall, a first sidewall, a second sidewall, a first back wall, and a first front wall when the carton is in the assembled configuration, and a lid coupled to the bottom box and movable between an open position and a closed position. The packaging may also comprise a tray configured to be disposed within the bottom box of the carton, and the tray may also have a storage configuration where the tray is substantially flat and an assembled configuration. In the assembled configuration, the tray may comprise a plurality of cavities dimensioned to house one or more drug delivery components. In the assembled configuration, the tray may include a second front wall disposed adjacent to the first front wall of the bottom box, a second back wall disposed adjacent to the first back wall of the bottom box, a second bottom wall disposed on top of the first bottom wall of the bottom box, and a top wall.

[0008] In some embodiments, the carton may further comprise a release tab comprising a portion of one of the lid and bottom box and being defined by a perforated line in the one of the lid and the bottom box, and an adhesive positioned on at least a part of the release tab and selectively coupling the lid and the bottom box. In some embodiments, when the lid is in the closed position, the release tab may be secured to the one of the lid and the bottom box via the perforation and may be secured to the other of the lid and the bottom box via the adhesive. When the lid is in the open position, the release tab may be separated along the perforated line from the one of the lid and the bottom box and may be secured to the other of the lid and the bottom box via the adhesive. In some embodiments, the release tab may be a push tab that detaches the release tab from the one of the lid and the bottom box. In other embodiments, the adhesive may comprise an adhesive label. The adhesive label may be attached to the release tab and the one of the lid and the bottom wall of the bottom box. In some embodiments, the release tab may include a kiss cut to improve the securement between the release tab and the adhesive label. In other embodiments, the one of the lid and the bottom box may include a kiss cut to improve securement between the one of the lid and the bottom box and the adhesive label.

[0009] In some embodiments, the one or more drug delivery components may include at least one of: a drug vial, a vial adapter, a pre-filled syringe containing a diluent therein, an injection syringe, or an injection needle. In some embodiments, the one or more drug delivery components may include a drug vial filled for treatment or prefilled with a drug, the drug may

comprise a therapeutic product, and the therapeutic product may comprise romiplostim. In other embodiments, the carton may further comprise one or more locking tabs configured to prevent accidental opening of the carton when the lid is in the closed position. In yet another embodiment, the plurality of cavities may be dimensioned to house a plurality of drug delivery components, and the plurality of cavities may be arranged left to right in the tray such that the plurality of drug delivery components are arranged in a sequential order corresponding to a drug administration process. In some embodiments, the carton and the tray may be made of paperboard or a combination of synthetic and natural materials.

[0010] According to another embodiment of the present disclosure, a packaging for drug administration is provided. The packaging may comprise a carton having a storage configuration where the carton is substantially flat, and an assembled configuration. The carton may comprise a bottom box having a first bottom wall, a first sidewall, a second sidewall, a first back wall, and a first front wall when the carton is in the assembled configuration, and a lid coupled to the bottom box and movable between an open position and a closed position. The carton may also comprise a release tab comprising a portion of one of the lid and bottom box and being defined by a perforated line in the one of the lid and the bottom box, and one or more locking tabs configured to prevent accidental opening of the carton when the lid is in the closed position. The packaging may also comprise a tray configured to be disposed within the bottom box of the carton, and the tray may also have a storage configuration where the tray is substantially flat and an assembled configuration. In the assembled configuration, the tray may comprise a plurality of cavities dimensioned to house one or more drug delivery components. In the assembled configuration, the tray may include a second front wall disposed adjacent to the first front wall of the bottom box, a second back wall disposed adjacent to the first back wall of the bottom box, a second bottom wall disposed on top of the first bottom wall of the bottom box, and a top wall.

[0011] In some embodiments, the one or more drug delivery components may include at least one of: a drug vial, a vial adapter, a pre-filled syringe containing a diluent therein, an injection syringe, or an injection needle. In some embodiments, the one or more drug delivery components may include a drug vial, a first cavity of the plurality of cavities may be dimensioned to house the drug vial in a horizontal position, and a second cavity of the plurality of cavities may be dimensioned to accommodate the drug vial in an upright position. In some embodiments, the one or more drug delivery components may include a drug vial filled for treatment or prefilled with a drug, the drug may comprise a therapeutic product, and the therapeutic product may comprise romiplostim. In other embodiments, the plurality of cavities may be dimensioned to house a plurality of drug delivery components, and the plurality of cavities may be arranged left to right in the tray such that the plurality of drug delivery components are arranged in a sequential order corresponding to a drug administration process. In some embodiments, the carton may be made of paperboard or a combination of synthetic and natural materials.

Additionally, or alternatively, the tray may be made of paperboard or a combination of synthetic and natural materials.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] It is believed that the disclosure will be more fully understood from the following description taken in conjunction with the accompanying drawings. Some of the drawings may have been simplified by the omission of selected elements for the purpose of more clearly showing other elements. Such omissions of elements in some drawings are not necessarily indicative of the presence or absence of particular elements in any of the exemplary embodiments, except as may be explicitly delineated in the corresponding written description. Also, none of the drawings are necessarily to scale.

[0013] FIG. 1 is a plan view of a die cut of a carton for a drug administration packaging, in accordance with various embodiments of the present disclosure.

[0014] FIG. 2 is a perspective view of an assembled carton for a drug administration packaging, in accordance with various embodiments of the present disclosure.

[0015] FIG. 3 is a plan view of an easy open feature, in accordance with various embodiments of the present disclosure.

[0016] FIG. 4 is a perspective view of the carton of FIG. 2, additionally including a closure label to seal the drug administration packaging, in accordance with various embodiments of the present disclosure.

[0017] FIG. 5 is a perspective view of pressing the easy open feature of the carton of FIG. 2, in accordance with various embodiments of the present disclosure.

[0018] FIG. 6 is a perspective view of the carton of FIG. 2, with the easy open feature detached from the outer front wall, in accordance with various embodiments of the present disclosure.

[0019] FIG. 7 is a plan view of a die cut of a tray for a drug administration packaging, in accordance with various embodiments of the present disclosure.

[0020] FIG. 8 is a perspective view of the carton of FIG. 2, with an assembled tray disposed therein, in accordance with various embodiments of the present disclosure.

[0021] FIG. 9 is another view of the carton of FIG. 8, in accordance with various embodiments of the present disclosure.

[0022] FIG. 10 is a left-side view of the assembled tray of FIG. 8, in accordance with various embodiments of the present disclosure.

[0023] FIG. 11 is a right-side view of the assembled tray of FIG. 8, in accordance with various embodiments of the present disclosure.

[0024] FIG. 12 is a perspective view of an assembled packaging for drug administration, in accordance with various embodiments of the present disclosure.

[0025] FIG. 13 is a perspective view of another assembled packaging for drug administration, in accordance with various embodiments of the present disclosure.

[0026] FIG. 14 is a left-side view of a tray for the packaging of FIG. 13, in accordance with various embodiments of the present disclosure.

[0027] FIG. 15 is a right-side view of the tray of FIG. 14, in accordance with various embodiments of the present disclosure.

[0028] FIG. 16 is a top perspective view of the tray of FIG. 14, in accordance with various embodiments of the present disclosure.

[0029] FIG. 17 is another top perspective view of the tray of FIG. 14 with various drug delivery components housed therein, in accordance with various embodiments of the present disclosure.

[0030] FIG. 18 is a top perspective view of a carton for the packaging of FIG. 13, in accordance with various embodiments of the present disclosure.

[0031] FIG. 19 is a right-side view of the carton of FIG. 18, in accordance with various embodiments of the present disclosure.

[0032] FIG. 20 is a perspective view of the carton of FIG. 18 with the lid in a closed position, in accordance with various embodiments of the present disclosure.

[0033] Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the dimensions and/or relative positioning of some of the elements in the figures may be exaggerated relative to other elements to help to improve understanding of various embodiments of the present invention. Also, common but well-understood elements that are useful or necessary in a commercially feasible embodiment are often not depicted in order to facilitate a less obstructed view of these various embodiments. It will further be appreciated that certain actions and/or steps may be described or depicted in a particular order of occurrence while those skilled in the art will understand that such specificity with respect to sequence is not actually required. It will also be understood that the terms and expressions used herein have the ordinary technical meaning as is accorded to such terms and expressions by persons skilled in the technical field as set forth above except where different specific meanings have otherwise been set forth herein.

DETAILED DESCRIPTION

[0034] Generally speaking, pursuant to these various embodiments, a packaging for drug administration is provided that is sustainable and facilitates manufacturing, transportation, and storage. The packaging described herein includes a carton and a tray disposed within the carton. The carton and the tray are erectable from a folded, storage configuration where the carton and the tray are substantially flat to an assembled configuration, thereby reducing the overall size to facilitate manufacturing, transportation, and storage. The packaging are made of sustainable materials, such as recyclable paperboard or a combination of synthetic and natural materials.

[0035] Moreover, the packaging described herein provides improved security of drug delivery components accommodated therein while facilitating opening of the packaging by the user or patient. Packaging for drug administration store and protect drug delivery components, such as drug vials, syringes, vial adapters, injection needles, and the like. One such packaging includes

a lidded carton. A lidded carton can include, for example, an overlid carton (i.e., a carton with an overlid) or an underlid carton (i.e., a carton with an underlid). Such a carton can include a bottom box hingedly connected to a lid having sidewalls and a front wall that overlaps the sidewalls and front wall of the bottom box. These cartons are useful to protect the drug delivery components during transportation and also secure the medicament from tampering. These cartons are secured from tampering because the cartons are sealed with tamper evident seals. As a result, a carton having a broken seal or damaged exterior may indicate the contents of the carton have been tampered with and the medicament may be unsafe to use. However, while the security provided by the tamper evident seals is important, it makes opening the medicament storage carton difficult.

[0036] The packaging for drug administration, in accordance with the embodiments of the present disclosure, comprises an easy open feature that provides improved security while also making the medicament storage container user friend and highly accessible. For example, instead of a user needing to tear open the carton to access the medicament or use a sharp cutting tool to cut the tamper evident seal, the carton can include an easy open feature that both maintains all tamper evident seal integrity during shipping and storage while making the packaging carton easy-to-open. The packaging described herein also comprises one or more locking tabs to prevent secure the drug delivery components accommodated therein and prevent accidental opening of the carton.

[0037] The packaging of the present disclosure facilitates user or patient handling and manipulation of drug delivery components within the packaging. For example, the packaging comprises a tray configured to be disposed within the carton, and the tray comprise a plurality of cavities, each dimensioned to accommodate a drug delivery component, such as a drug vial, a diluent syringe, a vial adapter, an injection syringe, or an injection needle. The cavities may be arranged left to right in a sequential order corresponding to a drug administration process such that the user can easily prepare and administer the drug or medicament using the drug delivery components within the packaging. Additionally, the tray may comprise a cavity configured to hold a drug vial in an upright position while the user prepares and administers the drug. The packaging may also comprise a manual or instructions for the user or the patient to refer to to safely and easily administer the drug.

[0038] The drug delivery device described herein delivers a drug, which may also be referred to herein as a medicament or a drug product. The drug may be, but is not limited to, various biologicals such as peptides, peptibodies, or antibodies. The drug may be in a fluid or liquid form, although the disclosure is not limited to a particular state. In some embodiments, a container, such as a drug vial, may be filled for treatment or prefilled with the drug. By way of example, the drug may comprise a therapeutic product, such as Nplate® (romiplostim). The packaging described herein may be handled or manipulated by a patient for self-administration or by a caregiver or a formally trained healthcare provide (e.g., a doctor or nurse) for administration to a patient.

[0039] FIG. 1 is a plan view of a die cut of a carton 102 for a packaging 100 for drug administration, in accordance with some embodiments of the present disclosure. The carton 102 includes an easy open feature 104 (shown in FIG. 2). The carton 102 may be made from a unitary material. For example, the carton 102 may be made of a paperboard, cardboard, matboard, or similar materials. In some embodiments, the carton 102 may be made of a combination of natural and synthetic materials. In other embodiments, the carton 102 can be made from several pieces glued or otherwise secured together. The carton 102 includes a plurality of fold lines 106, dividing the carton 102 into a plurality of walls and flaps. FIG. 1 illustrates the carton 102 in a flat configuration. The carton 102 is erectable from a storage configuration where the carton 102 is substantially flat (shown in FIG. 1) to an assembled configuration (shown in FIG. 2). For example, when each of the plurality of fold lines 106 is folded, the carton 102 is erectable into the assembled configuration so as to form a box-shaped carton, as shown in FIG. 2.

[0040] The carton 102 includes a bottom box 110 having a bottom wall 112, a first sidewall 114, a second sidewall 116, a back wall 118, and a first front wall 120. The back wall includes flaps 122a and 122b, and the first front wall 120 includes flaps 124a and 124b. When each of the first sidewall 114, the second sidewall 116, the back wall 118, and the first front wall 120 are folded up, the flaps 122a and 124a are glued to the first sidewall 114 while the flaps 122b and 124b are glued to the second sidewall 116. Alternatively, the flaps 122a, 122b, 124a, and 124b can be secured to the first and second sidewalls 114 and 116 via interlocking slits, other adhesives, or other known methods of assembling boxes and cartons. As a result, the first sidewall 114, the second sidewall 116, the back wall 118, and the first front wall 120 are all secured together to form the bottom box 110. Additionally, the first front wall 120 includes a first locking tab 126a and a second locking tab 126b

[0041] Furthermore, the carton 102 includes a lid 140, hingedly connected to the back wall 118. In some embodiments, the lid 140 is an overlid and includes a top wall 142, a third sidewall 144, a fourth sidewall 146, and a second front wall 148. The second front wall 148 includes a first flap 152a and a second flap 152b. When the third sidewall 144, the fourth sidewall 146, and the second front wall 148 are folded, the first flap 152a and the second flap 152b are glued to the third sidewall 144 and the fourth sidewall 146, respectively. In some embodiments, the first flap 152a and the second flap 152b can be secured to the third and second sidewalls 144, 146, respectively, via interlocking slits, other adhesives, or other known methods of assembling boxes and cartons. As a result, when assembled, the third sidewall 144, the fourth sidewall 146, and the second front wall 148 for the lid 140 covers the bottom box 110, including the first side wall 114, the second sidewall 116, and the first front wall 120, as shown in FIGS. 2, 4, and 5.

[0042] Moreover, the second front wall 148 includes a third flap 152c and a fourth flap 152d. When assembled, the third flap 152c and the fourth flap 152d may be glued to the inner surface of the second front wall 148 such that the third flap 152c and the fourth flap 152d are hingedly connected to the second front wall 148. As a result, when assembled, the locking tabs 126a and

126b of the bottom box 110 may engage the third flap 152c and the fourth flap 152d of the lid 140, respectively, to secure and/or lock the carton 102 in a closed position and prevent accidental opening of the carton 102 when the lid 140 is in the closed position.

[0043] The second front wall 148 includes a perforated line 160 about a release tab 162 adjacent a bottom edge 164 of the second front wall 148. The release tab 162 is enclosed by a perforated line 160 and the bottom edge 164. As shown in FIG. 1, the release tab 162 includes a first kiss cut 166 and the bottom wall 112 includes a second kiss cut 168. The perforated line 160 allows the release tab 162 to be detached from the second front wall 148 when sufficient force is applied to the release tab 162. As shown in FIG. 1, the release tab 162 is partially rectangular with a rounded side, however, the release tab 162 could be any of a variety of shapes including semi-circular, triangular, quadrilateral, pentagonal, etc. As shown in FIG. 1, the first front wall 120 of the bottom box 110 may also include a perforated line 180 about a release tab 182 adjacent a bottom edge 184 of the first front wall 120. The release tab 182 is enclosed by the perforated line 180 and the bottom edge 184 of the first front wall 120. In some embodiments, when the carton 102 is folded into the assembled configuration and the lid 140 is placed over the bottom box 110, the position of the release tab 182 of the bottom box 110 may align with the position of the release tab 162 of the lid 140 (as shown in FIG. 6). Accordingly, the release tab 182 may be positioned directly behind the release tab 162 when the lid 140 is placed over the bottom box 110. As a result, when the user pushes the release tab 162 to open the carton 102, the user can easily remove or perforate the release tab 162 since the material of the bottom box 110 directly behind the release tab 162 can also be removed or perforated due to the release tab 182.

[0044] FIG. 2 is a perspective view of the carton 102 of the packaging 100 for drug administration when the carton 102 is folded into the assembled configuration, in accordance with various embodiments of the present disclosure. The carton 102 including a cavity 210 and the easy open feature 104 of FIG. 1. As shown in FIG. 2, the carton 102 is folded into the assembled configuration based on the die cut, as shown in FIG. 1, such that the cavity 210 can receive a tray and one or more drug delivery components therein. When the carton 102 is assembled, the bottom box 110 is at least partially disposed within the lid 140. As a result, the first sidewall 114 is adjacent the third sidewall 144 and the second sidewall 116 is adjacent the fourth sidewall 146. Additionally, when the carton 102 is in the closed position, the lid 140 covers the bottom box 110 such that the second front wall 148 covers the first front wall 120 of the bottom box 110. As a result, in the closed position, the second front wall 148 becomes an outer front wall with the bottom edge 164 adjacent the bottom wall 112.

[0045] In accordance with the present disclosure, the carton 102 is designed to accommodate a tray in the cavity 210 in the bottom box 110. As discussed in more detail below, the tray may be configured to accommodate one or more drug delivery components, such as a drug vial, a vial adapter, a pre-filled syringe containing diluent therein, an injection syringe, an injection

needle, or the like. Accordingly, when the tray is disposed within the cavity 210, the carton 102 may be configured to store the one or more drug delivery components.

[0046] As discussed above, the bottom box 110 includes the locking tabs 126a and 126b disposed on the first front wall 120. When the packaging 100 is assembled and in the closed position, the locking tabs 126a and 126b of the bottom box 110 may engage the third flap 152c and the fourth flap 152d glued to the inner surface of the second front wall 148 of the lid 140, respectively, to secure and/or lock the carton 102 in the closed position and prevent accidental opening of the carton 102 when the lid 140 is in the closed position.

[0047] FIG. 3 is a plan view of the easy open feature 104 including the release tab 162 constituting the easy open feature 104. The release tab 162 is partially circumscribed by a perforated line 160. The perforated line 160 consists of a series of cuts 302. The length of the cuts 302 shown in FIG. 3 could be longer or shorter. Additionally, while five cuts 302 are shown, the perforated line may consist of more or fewer cuts 302. Additionally, the release tab 162 includes the first kiss cut 166. The first kiss cut 166 is a partial cut through the release tab 162. The partial cut improves the bonding between the release tab 162 and a tamper evident seal by increasing the surface area the tamper evident seal can adhere to. While the first kiss cut 166 is in the shape of a trigonometric wave, the first kiss cut 166 could be any of a variety of shapes or patterns.

[0048] FIG. 4 is a perspective view of the carton 102 of FIG. 2, additionally including an adhesive or closure label 402 to seal the carton 102. The adhesive or closure label 402 may act as a tamper evident seal. Any attempt to pull the adhesive or closure label 402 off the carton 102, will result in visible damage to the carton 102 and/or the adhesive or closure label 402. Accordingly, a person can avoid using medicament stored in a carton that may have been tampered with by noticing evidence of such tampering.

[0049] As shown in FIG. 4, the release tab 162 may be secured to the bottom box 112 via an adhesive or closure label 402. Because the release tab 162 is connected to the second front wall 148, the lid 140 may be secured in a closed state. Alternatively, the release tab 162 may be secured to the first front wall 120 of the bottom box 110 via an adhesive disposed between the release tab 162 and the first front wall 120. However, in both examples, the lid 140 may be secured in a closed state through a closure label 402 or adhesive only applied to the lid 140 within the release tab 162. Additionally, the adhesive or closure label 402 can be applied on a substantial portion of the release tab 162, including along or adjacent the perforated line 160 of the release tab 162. For example, the adhesive or closure label 402 may have a similar shape and size to the release tab 162. In such an example, the adhesive or closure label 402 can concentrate the force exerted on the release tab 162 on the perforated line 160. Accordingly, the adhesive or closure label 402 covering substantially all of the release tab may make detaching the release tab 162 from the second front wall 148 easier. In some embodiments, the adhesive or closure label 402 may be positioned on at least a part of the release tab 162 and selectively couple the lid 140 and the bottom box 112. When the lid 140 is in the closed position, the

release tab 162 may be secured to one of the lid 140 and the bottom box 112 via the perforated line 160 and may be secured to the other one of the lid 140 and the bottom box 112 via the adhesive or closure label 402. When the lid 140 is in the open position, the release tab 162 may be separated along the perforated line 160 from one of the lid 140 and the bottom box 112 and may be secured to the other one of the lid 140 and the bottom box 112 via the adhesive or closure label 402.

[0050] Further, the closure label 402 may be disposed over the first kiss cut 166 and the second kiss cut 168. As a result, the closure label 402 may have a strong adhesive bond with both the release tab 162 and the bottom wall 112. Accordingly, tampering with the closure label 402 may result in visibly evident tampering and/or damage. Thus, the closure label 402 may provide security in the integrity of medicament stored in the carton 102.

[0051] FIG. 5 is a perspective view of pressing the easy open feature 104 of the carton 102 of FIG. 2. As shown in FIG. 5, a user can hold the carton 102 in one hand while pressing the easy open feature 104. However, the carton 102 may be too large to be opened with a single hand, and one hand may need to be used to hold the carton 102 while the other hand presses the easy open feature 104. According to the present disclosure, the release tab 162 may comprise the opening feature 104 of the carton that detaches the release tab 162 from the second front wall 148. The release tab 162 may act as a push tab that detaches the release tab 162 from the second front wall 148. Because the closure label 402 may only be adhered to the bottom wall 112 and the release tab 162, the second front wall 148 may no longer be retained in a closed position by the closure label 402. In other embodiments, the release tab 162 may act as a push tab that detaches from the bottom box 112.

[0052] FIG. 6 is a perspective view of the carton 102 of FIG. 2, with the easy open feature 104 detached from the second front wall 148. With the release tab 162 detached from the second front wall 148, the lid 140 can be both opened and closed. In the open position, the lid 140 does not cover the bottom box 110. In contrast, when in the closed position, the lid 140 covers the bottom box 110. Additionally, as discussed above, in the closed position, the locking tabs 126a and 126b of the bottom box 110 may engage the third flap 152c and the fourth flap 152d glued to the inner surface of the second front wall 148 of the lid 140, respectively, to removably secure and/or lock the carton 102 in the closed position.

[0053] FIG. 7 is a plan view of a die cut of a tray 700 for the packaging 100 for drug administration, in accordance with various embodiments of the present disclosure. The tray 700 may be made from a unitary material. For example, the tray 700 may be made of a paperboard, cardboard, matboard, or similar materials. In some embodiments, the tray 700 may be made of a combination of natural and synthetic materials. In other embodiments, the tray 700 can be made from several pieces glued or otherwise secured together. The tray 700 includes a plurality of fold lines 770, dividing the tray 700 into a plurality of walls and flaps. FIG. 7 illustrates the tray 700 in a flat configuration. Similar to the carton 102, the tray 700 is erectable from a storage configuration where the tray 700 is substantially flat (shown in FIG. 7) to an assembled

configuration (shown in FIGS. 8-11). For example, when each of the plurality of fold lines 770 is folded, the tray 700 is erectable into the assembled configuration so as to form the assembled tray 700, as shown in FIGS. 8-11.

[0054] The tray 700 includes a bottom wall 702, a back wall 706, a front wall 704, a first top wall 705a, and a second top wall 705b. The first top wall 705a includes a first plurality of walls 703, 707, 708, 709, and 710 that can be folded along the respective fold lines 770 to erect the tray 700 into the assembled configuration, as shown in FIGS. 10 and 11, for example. When each of the first plurality of walls 703, 707, 708, 709, and 710 are folded, the wall 707 can be glued to the inner surface of the bottom wall 702, and the wall 710 can be glued to an inner surface of the wall 703 (as shown in FIG. 10) to secure the tray 700 in the assembled configuration. Alternatively, the walls 703, 707, 708, 709, and 710 can be secured via interlocking slits, other adhesives, or other known methods of assembling boxes and trays.

[0055] The second top wall 705b includes a second plurality of walls 701, 711, 712, and 713 that can be folded along the respective fold lines 770 to erect the tray 700 into the assembled configuration, as shown in FIGS. 10 and 11, for example. When each of the second plurality of walls 701, 711, 712, and 713 are folded, the wall 711 can be glued to the inner surface of the bottom wall 702, and the wall 713 can be glued to the inner surface of the second top wall 705b (as shown in FIG. 10) to secure the tray 700 in the assembled configuration. Alternatively, the walls 711, 713 can be secured to the bottom wall 702 and the second top wall 705b, respectively, via interlocking slits, other adhesives, or other known methods of assembling boxes and trays.

[0056] When the erectable tray 700 is folded from its storage configuration where the tray 700 is substantially flat into the assembled configuration, the tray 700 may be configured to be disposed within the cavity 210 of the bottom box 110 of the carton 102, as shown in FIGS. 8 and 9. When disposed within the cavity 210 of the bottom box 110 of the carton 102, the front wall 704 of the tray 700 may be disposed adjacent to the front wall 120 of the bottom box 110, the back wall 706 of the tray 700 may be disposed adjacent to the back wall 118 of the bottom box 110, and the bottom wall 702 of the tray 700 may be disposed on top of the bottom wall 112 of the bottom box 110. In some embodiments, the tray 700 may be removably disposed within the cavity 210 of the bottom box 110 of the carton 102. In other embodiments, the tray 700 may be secured to the cavity 210 of the bottom box 110 via glue, other adhesives, or other known methods of assembling boxes, cartons, and trays.

[0057] In some embodiments, the tray 700 may include a cut-out 730. When the tray 700 is folded into the assembled configuration and placed within the cavity 210 of the bottom box 110 of the carton 102, the position of the cut-out 730 may align with the positions of the release tabs 162 and 182 of the carton 102. Accordingly, the cut-out 730 in the tray 700 may be placed directly behind the release tab 182, which may be positioned directly behind the release tab 162 when the lid 140 is placed over the bottom box 110 of the carton 102. Similar to the release tab 182, the cut-out 730 in the tray 700 may be configured to facilitate easy opening of the carton

102. By way of example, when the user pushes the release tab 162 to open the carton 102, the user can easily remove or perforate the release tab 162 because not only can the material of the bottom box 110 directly behind the release tab 162 be removed or perforated due to the release tab 182, but also the cut-out 730 allows the user to easily push through the release tabs 162 and 182.

[0058] As shown in FIG. 7, the first top wall 705a and the wall 703 may define a first plurality of recesses 720a, 721a, and 722a. Similarly, the second top wall 705b and the wall 701 may define a second plurality of recesses 720b, 721b, and 722b. The first plurality of recesses 720a, 721a, and 722a and the second plurality of recesses 720b, 721b, and 722b may together define a plurality of cavities that are dimensioned, sized, and configured to house one or more drug delivery components. For example, as shown in FIGS. 8 and 9, the first plurality of recesses 720a, 721a, and 722a may form bottom portions of the respective plurality of cavities for accommodating drug delivery components therein and the second plurality of recesses 720b, 721b, and 722b may form top portions of the respective plurality of cavities for accommodating drug delivery components therein. By way of example, when the tray 700 is in the folded and assembled configuration, recesses 720a and 720b may together define a first cavity, shaped, sized, and dimensioned to accommodate a drug vial 802 in its horizontal position, recesses 721a and 721b may together define a second cavity shaped, sized, and dimensioned to accommodate a vial adapter 804, and recesses 722a and 722b may together define a third cavity shaped, sized, and dimensioned to accommodate a pre-filled syringe 806 containing a diluent therein. Accordingly, the tray 700 may comprise a plurality of cavities dimensioned and sized to accommodate one or more drug delivery components, including, for example, the drug vial 802, the vial adapter 804, and/or the pre-filled syringe 806 containing a diluent therein.

[0059] The tray 700 may be configured to provide sufficient protection of the one or more drug delivery components housed therein against external disturbances, damage, and environmental factors. For example, as shown in FIGS. 10 and 11, when folded into the assembled configuration, the tray 700 is configured to physically support the drug delivery components, including the drug vial 802, the vial adapter 804, and the pre-filled syringe 806, such that they do not are not in contact with the bottom wall 703 or the side walls 704, 706 of the tray 700. Moreover, the wall 709 is configured to provide physical support the bottom surface of the drug vial 802 when the drug vial 802 is positioned within cavity 723. Additionally, each of the plurality of cavities in the tray 700 may be sized and dimensioned to securely fit and hold the respective drug delivery component(s) within each of the cavities, thereby minimizing any movement of the drug delivery component(s) within the tray 700 during transport. Accordingly, the tray 700 is configured to protect the drug delivery component(s) accommodated within the tray 700 and within the packaging 100 by physically supporting the drug delivery component(s) and prevent the drug delivery component(s) from contacting the outer walls of the tray 700, the carton 102, and the packaging 100, thereby minimizing the risk of damage due to external disturbances and environmental factors.

[0060] Moreover, when folded into the assembled configuration, the tray 700 may further define a cavity 724 (shown in FIG. 9) sized and dimensioned to accommodate an injection syringe 808 and an injection needle 810. The injection syringe 808 and the injection needle 810 may be individually packaged to maintain sterility. In some embodiments, the drug vial 802 may be filled for treatment or pre-filled with a drug. The drug may comprise a therapeutic product. For example, the drug may comprise a therapeutic product comprising Nplate® (romiplostim). Additionally, when folded into the assembled configuration, the tray 700 may further comprise a cavity 723 shaped, sized, and dimensioned to accommodate the drug vial 802 in its upright position (perpendicular to its horizontal position). The cavity 723 may be circular, elliptical, triangular, or rectangular in shape. As a result, when the user needs to secure the drug vial 802 in its upright position during the drug preparation process, the user may place the drug vial 802 in the cavity 723 to hold the drug vial 802 securely in its upright position. While FIGS. 8 and 9 illustrate a single cavity 724 formed in the tray 700 that is sized and dimensioned to accommodate both the injection syringe 808 and the injection needle 810, the tray 700 may alternatively comprise a plurality of cavities, each sized and dimensioned to accommodate respective one of the injection syringe 808 and the injection needle 810.

[0061] In some embodiments, the plurality of cavities formed in the tray 700 may be arranged left to right in the tray 700 such that the drug delivery components accommodated therein are arranged in a sequential order corresponding to the drug preparation and administration process. During the initial drug preparation process, the user may take the drug vial 802 and fit the vial adapter 804 over the drug vial 802. Then, the user may couple the pre-filled syringe 806 to the drug vial 802 via the vial adapter 804 to thereby inject the diluent within the pre-filled syringe 806 into the drug vial 802. Thus, the user may mix the diluent contained in the pre-filled syringe 806 with the drug contained in the vial 802 and prepare the drug for subsequent administration. The user may then dismount the empty pre-filled syringe 806 from the vial adapter 804 and place the drug vial 802 in the cavity 723 to keep the vial 802 steady in its upright position while preparing for the drug administration process. During the subsequent drug administration process, the user may remove the injection syringe 808 from its sterile packaging and couple the injection syringe 808 to the vial adapter 804 coupled to the drug vial 802. Afterwards, the user may draw the mixed drug in the vial 802 into the injection syringe 808, dismount the filled injection syringe 808 from the vial adapter 804, remove the injection needle 810 from its sterile packaging, and couple the injection needle 810 to the filled injection syringe 808. Subsequently, the user may administer the drug in the injection syringe 808 by piercing the skin with the injection needle 810 and delivering the drug.

[0062] As discussed above, the drug preparation and administration process are divided into the drug preparation workflow and the drug administration/injection workflow. To facilitate the user's manipulation and handling of the drug delivery components within the packaging 100, the plurality of cavities in the tray 700 may be formed in a sequential order (left to right within the tray 700) such that the drug delivery components accommodated therein can also be arranged

in a sequential order corresponding to the drug preparation and drug administration workflows. By way of example, as illustrated in FIGS. 8 and 9, the plurality of cavities in the tray 700 may be formed such that the drug vial 802, the vial adapter 804, the pre-filled syringe 806, and the injection syringe 808 and injection needle 810 are arranged in that sequential order of use during the initial drug preparation and the subsequent drug administration processes. Regardless of the number of cavities within the tray, the cavities formed in the tray may be arranged left to right such that the drug delivery components accommodated therein are arranged in a sequential order corresponding to the drug preparation and administration process.

[0063] Although FIGS. 7-9 illustrate a plurality of cavities in the tray 700 that are configured to accommodate each of the drug vial 802, the vial adapter 804, the pre-filled syringe 806, the injection syringe 808, and the injection needle 810, any number of cavities may be provided in the tray 700. For example, as shown in Fig. 12, the tray 700 may comprise the cavity 723 shaped, sized, and dimensioned to accommodate the drug vial 802 in its upright position and three additional cavities configured to accommodate only the vial adapter 804, the pre-filled syringe 806, the injection syringe 808, and the injection needle 810 (not shown in Fig. 12). Alternatively, as shown in Fig. 13, a tray 1400 may comprise a first cavity configured to accommodate a vial adapter 1304, a second cavity configured to accommodate a syringe barrel 1306, a third cavity configured to accommodate a plunger 1308, and a fourth cavity configured to accommodate an injection syringe (not shown in Fig. 13) and an injection needle 1309.

[0064] In some embodiments, the release tabs in the carton may be offset from the center of the front wall of the bottom box and the front wall of the lid. By way of example, as shown in FIG. 12, a carton 1202 of packaging 1200 for drug administration may include a bottom box 1210 and a lid 1240. The bottom box 1210 and the lid 1240 may be similar to the bottom box 110 and the lid 140, respectively, of the carton 102. The bottom box 1210 may have a first front wall 1220, and the lid 1240 may have a second front wall 1248. The second front wall 1248 may include a perforated line 1260 about a release tab 1262 (release tab 1262 is removed in FIG. 12). The release tab 1262 may be enclosed by the perforated line 1260 and a bottom edge 1264 of the second front wall 1248. The first front wall 1220 may include a perforated line 1280 about a release tab 1282. The release tab 1282 may be enclosed by the perforated line 1280 and a bottom edge 1284 of the first front wall 1220. Both the release tab 1262 and the release tab 1282 may be offset from the center of the second front wall 1248 and the first front wall 1220, respectively, as shown in FIG. 12.

[0065] Additionally, or alternatively, instead of having a plurality of locking tabs (such as locking tabs 126a and 126b of carton 102), the locking tabs may be consolidated into a single locking tab. By way of example, as shown in FIG. 12, the first front wall 1220 may include a single locking tab 1226. The second front wall 1248 may include a single flap 1252, similar to the third flap 152c or the fourth flap 152d of carton 102. As shown in FIG. 12, the single flap 1252 may be glued to the inner surface of the second front wall 1248 such that the flap 1252 is

hingedly connected to the second front wall 1248. When the carton 1202 is assembled, the single locking tab 1226 may engage the flap 1252 to secure and/or lock the carton 1202 in a closed position and prevent accidental opening of the carton 1202 when the lid 1240 is in the closed position.

[0066] FIG. 13 is a perspective view of another exemplary packaging 1300 for drug administration in its assembled configuration, in accordance with some embodiments of the present disclosure. The packaging 1300 includes a carton 1302 and a tray 1400 disposed within the carton 1302. The carton 1302 may be made from a unitary material. For example, the carton 1302 may be made of a paperboard, cardboard, matboard, or similar materials. In some embodiments, the carton 1302 may be made of a combination of natural and synthetic materials. In other embodiments, the carton 1302 can be made from several pieces glued or otherwise secured together. Similar to carton 102, the carton 1302 has a storage configuration where the carton 1302 is substantially flat and an assembled configuration (shown in FIGS. 13, 18, 19, and 20). The carton 1302 may be folded into the assembled configuration from the storage configuration to form a box-shaped carton, as shown in FIGS. 13, 18, 19, and 20.

[0067] Referring to FIGS. 13, 18, 19, and 20, the carton 1302 includes a bottom box 1310 having a bottom wall 1312, a first sidewall 1314, a second sidewall 1316, a back wall 1318, and a first front wall 1320. As shown in FIG. 18, the back wall 1318 includes flaps 1822a and 1822b, and the first front wall 1320 includes flaps 1824a and 1824b. When each of the first sidewall 1314, the second sidewall 1316, the back wall 1318, and the first front wall 1320 are folded up, the flaps 1822a and 1824a are glued to the first sidewall 1314 while the flaps 1822b and 1824b are glued to the second sidewall 1316. Alternatively, the flaps 1822a, 1822b, 1824a, and 1824b can be secured to the first and second sidewalls 1314 and 1316 via interlocking slits, other adhesives, or other known methods of assembling boxes and cartons. As a result, the first sidewall 1314, the second sidewall 1316, the back wall 1318, and the first front wall 1320 are all secured together to form the bottom box 1310.

[0068] Furthermore, the carton 1302 includes a lid 1340, hingedly connected to the back wall 1318. The lid 1340 may be an underlid and includes a front flap 1820. When the lid 1340 is in the closed position, as illustrated in FIG. 20, the front flap 1820 may be disposed within the bottom box 1310 and in contact with an inner surface of the first front wall 1320 to secure and/or lock the carton 1302 in a closed position. Moreover, the first sidewall 1314 and the second sidewall 1316 may include flaps 1344a and 1344b, respectively. The flaps 1344a and 1344b may be folded downward before closing the lid 1340 to further secure the components (e.g., drug delivery components and/or tray 1400) within the bottom box 1310 of the carton 1302 when the carton 1302 is in the closed position, as illustrated in Fig. 20.

[0069] As illustrated in FIGS. 19 and 20, the first front wall 1320 may further include a perforated line 1380 about a release tab 1382 adjacent a top edge 1384 of the first front wall 1320. The release tab 1382 is enclosed by a perforated line 1380 and the top edge 1384. The perforated line 1380 allows the release tab 1382 to be detached from the first front wall 1320

when sufficient force is applied to the release tab 1382. As a result, when the user pushes the release tab 1382 to open the carton 1302, the user can easily remove or perforate the release tab 1382 along the perforated line 1380. As shown in FIG. 20, the release tab 1382 is partially rectangular with a rounded side; however, the release tab 1382 could be any of a variety of shapes including semi-circular, triangular, quadrilateral, pentagonal, etc. In some embodiments, the release tab 1382 includes a kiss cut 1386. The kiss cut 1386 is a partial cut through the release tab 1382. The partial cut improves the bonding between the release tab 1382 and an adhesive, such as a tamper evident seal and/or an adhesive label, by increasing the surface area the adhesive can adhere to. While the kiss cut 1386 is in the shape of a trigonometric wave, the kiss cut 1386 could be any of a variety of shapes or patterns.

[0070] FIGS. 13-17 illustrate a tray 1400 for the packaging 1300 for drug administration, in accordance with various embodiments of the present disclosure. The tray 1400 may be made from a unitary material. For example, the tray 1400 may be made of a paperboard, cardboard, matboard, or similar materials. In some embodiments, the tray 1400 may be made of a combination of natural and synthetic materials. In other embodiments, the tray 1400 can be made from several pieces glued or otherwise secured together. Similar to the carton 1302, the tray 1400 can be folded from a storage configuration where the tray 1400 is substantially flat to an assembled configuration (shown in FIGS. 13-17).

[0071] The tray 1400 includes a bottom wall 1402, a back wall 1406, a front wall 1404, a first top wall 1408, and a second top wall 1405. The first top wall 1408 includes a first plurality of walls 1401, 1409, 1410, and 1411 that can be folded along respective fold lines to erect the tray 1400 into the assembled configuration, as shown in FIGS. 14 and 15, for example. When each of the first plurality of walls 1401, 1409, 1410, and 1411 are folded, the wall 1409 can be glued to the inner surface of the bottom wall 1402, and the wall 1411 can be glued to an inner surface of the first top wall 1408 to secure the tray 1400 in the assembled configuration. Alternatively, the walls 1401, 1409, 1410, and 1411 can be secured via interlocking slits, other adhesives, or other known methods of assembling boxes and trays.

[0072] The second top wall 1405 includes a second plurality of walls 1403 and 1407 that can be folded along respective fold lines to erect the tray 1400 into the assembled configuration, as shown in FIGS. 14 and 15, for example. When each of the second plurality of walls 1403 and 1407 are folded, the wall 1407 can be glued to the inner surface of the bottom wall 1402 to secure the tray 1400 in the assembled configuration. Alternatively, the walls 1403 and 1407 can be secured via interlocking slits, other adhesives, or other known methods of assembling boxes and trays.

[0073] When the tray 1400 is folded from its storage configuration where the tray 1400 is substantially flat into the assembled configuration, the tray 1400 may be disposed within the bottom box 1310 (shown in FIG. 13) of the carton 1302. When disposed within the bottom box 1310 of the carton 1302, the front wall 1404 of the tray 1400 may be disposed adjacent to the front wall 1320 of the bottom box 1310, the back wall 1406 of the tray 1400 may be disposed

adjacent to the back wall 1318 of the bottom box 1310, and the bottom wall 1402 of the tray 1400 may be disposed on top of the bottom wall 1312 of the bottom box 1310. In some embodiments, the tray 1400 may be removably disposed within the bottom box 1310 of the carton 1302. In other embodiments, the tray 1400 may be secured to the bottom box 1310 via glue, other adhesives, or other known methods of assembling boxes, cartons, and trays.

[0074] In some embodiments, the tray 1400 may include a cut-out 1500 in the front wall 1404, as shown in FIG. 15. When the tray 1400 is folded into the assembled configuration and placed within the bottom box 1310 of the carton 1302, the position of the cut-out 1500 may align with the position of the release tab 1382 of the carton 1302. For example, the cut-out 1500 in the tray 1400 may be placed directly behind the release tab 1382. As a result, when the user pushes the release tab 1382 to open the carton 1302, the user can easily remove or perforate the release tab 1382 because the cut-out 1500 allows the user to easily push through the release tab 1382.

[0075]

[0076] As shown in FIG. 16, the first top wall 1408 and the wall 1401 may define a first plurality of recesses 1321b, 1322b, and 1323b. Similarly, the second top wall 1405 and the wall 1403 may define a second plurality of recesses 1321a, 1322a, and 1323a. The first plurality of recesses 1321b, 1322b, and 1323b and the second plurality of recesses 1321a, 1322a, and 1323a may together define a plurality of cavities that are dimensioned, sized, and configured to house one or more drug delivery components. For example, as shown in FIG. 17, the first plurality of recesses 1321b, 1322b, and 1323b may form top portions of the respective plurality of cavities for accommodating drug delivery components therein and the second plurality of recesses 1321a, 1322a, and 1323a may form bottom portions of the respective plurality of cavities for accommodating drug delivery components therein. By way of example, when the tray 1400 is in the folded and assembled configuration, recesses 1321a and 1321b may together define a first cavity, shaped, sized, and dimensioned to accommodate a vial adapter 1304, recesses 1322a and 1322b may together define a second cavity shaped, sized, and dimensioned to accommodate a syringe barrel 1306 of a syringe, and recesses 1323a and 1323b may together define a third cavity shaped, sized, and dimensioned to accommodate a plunger 1308 of the syringe. Accordingly, the tray 1400 may comprise a plurality of cavities dimensioned and sized to accommodate one or more drug delivery components, including, for example, the vial adapter 1304, the syringe barrel 1306, and the plunger 1308.

[0077] The tray 1400 may be configured to provide sufficient protection of the one or more drug delivery components housed therein against external disturbances, damage, and environmental factors. For example, when folded into the assembled configuration, the tray 1400 may be configured to physically support the drug delivery components, including the vial adapter 1304, the syringe barrel 1306, and the plunger 1308, such that they do not are not in contact with the bottom wall 1402 of the tray 1400 and the sidewalls 1314, 1316 of the carton 1302. Moreover, each of the plurality of cavities in the tray 1400 may be sized and dimensioned to securely fit and hold the respective drug delivery component(s) within each of the cavities,

thereby minimizing any movement of the drug delivery component(s) within the tray 1400 during transport. Accordingly, the tray 1400 may be configured to protect the drug delivery component(s) accommodated within the tray 1400 and within the packaging 1300 by physically supporting the drug delivery component(s) and prevent the drug delivery component(s) from contacting the outer walls of the tray 1400, the carton 1302, and the packaging 1300, thereby minimizing the risk of damage due to external disturbances and environmental factors.

[0078] Additionally, when folded into the assembled configuration, the tray 1400 may further define a cavity 1324 (shown in FIG. 17) sized and dimensioned to accommodate an injection syringe (not shown, but similar to the injection syringe 808) and an injection needle 1309. The injection syringe and the injection needle 1309 may be individually packaged to maintain sterility. While FIG. 17 illustrates a single cavity 1324 formed in the tray 1400 that is sized and dimensioned to accommodate both the injection syringe and the injection needle 1309, the tray 1400 may alternatively comprise a plurality of cavities, each sized and dimensioned to accommodate respective one of the injection syringe and the injection needle 1309.

[0079] The above description describes various devices, assemblies, components, subsystems and methods for use related to a drug delivery device. The devices, assemblies, components, subsystems, methods or drug delivery devices can further comprise or be used with a drug including but not limited to those drugs identified below as well as their generic and biosimilar counterparts. The term drug, as used herein, can be used interchangeably with other similar terms and can be used to refer to any type of medicament or therapeutic material including traditional and non-traditional pharmaceuticals, nutraceuticals, supplements, biologics, biologically active agents and compositions, large molecules, biosimilars, bioequivalents, therapeutic antibodies, polypeptides, proteins, small molecules and generics. Non-therapeutic injectable materials are also encompassed. The drug may be in liquid form, a lyophilized form, or in a reconstituted from lyophilized form. The following example list of drugs should not be considered as all-inclusive or limiting.

[0080] The drug will be contained in a reservoir. In some instances, the reservoir is a primary container that is either filled or pre-filled for treatment with the drug. The primary container can be a vial, a cartridge or a pre-filled syringe.

[0081] In some embodiments, the reservoir of the drug delivery device may be filled with or the device can be used with colony stimulating factors, such as granulocyte colony-stimulating factor (G-CSF). Such G-CSF agents include but are not limited to Neulasta® (pegfilgrastim, pegylated filgrastim, pegylated G-CSF, pegylated hu-Met-G-CSF) and Neupogen® (filgrastim, G-CSF, hu-MetG-CSF), Udenyca® (pegfilgrastim-cbqv), Zixtenzo® (LA-EP2006; pegfilgrastim-bmez), or FULPHILA (pegfilgrastim-bmez).

[0082] In other embodiments, the drug delivery device may contain or be used with an erythropoiesis stimulating agent (ESA), which may be in liquid or lyophilized form. An ESA is any molecule that stimulates erythropoiesis. In some embodiments, an ESA is an erythropoiesis stimulating protein. As used herein, "erythropoiesis stimulating protein" means any protein that

directly or indirectly causes activation of the erythropoietin receptor, for example, by binding to and causing dimerization of the receptor. Erythropoiesis stimulating proteins include erythropoietin and variants, analogs, or derivatives thereof that bind to and activate erythropoietin receptor; antibodies that bind to erythropoietin receptor and activate the receptor; or peptides that bind to and activate erythropoietin receptor. Erythropoiesis stimulating proteins include, but are not limited to, Epogen® (epoetin alfa), Aranesp® (darbepoetin alfa), Dynepo® (epoetin delta), Mircera® (methoxy polyethylene glycol-epoetin beta), Hematide®, MRK-2578, INS-22, Retacrit® (epoetin zeta), Neorecormon® (epoetin beta), Silapo® (epoetin zeta), Binocrit® (epoetin alfa), epoetin alfa Hexal, Abseamed® (epoetin alfa), Ratioepo® (epoetin theta), Eporatio® (epoetin theta), Biopoin® (epoetin theta), epoetin alfa, epoetin beta, epoetin iota, epoetin omega, epoetin delta, epoetin zeta, epoetin theta, and epoetin delta, pegylated erythropoietin, carbamylated erythropoietin, as well as the molecules or variants or analogs thereof.

[0083] Among particular illustrative proteins are the specific proteins set forth below, including fusions, fragments, analogs, variants or derivatives thereof: OPGL specific antibodies, peptibodies, related proteins, and the like (also referred to as RANKL specific antibodies, peptibodies and the like), including fully humanized and human OPGL specific antibodies, particularly fully humanized monoclonal antibodies; Myostatin binding proteins, peptibodies, related proteins, and the like, including myostatin specific peptibodies; IL-4 receptor specific antibodies, peptibodies, related proteins, and the like, particularly those that inhibit activities mediated by binding of IL-4 and/or IL-13 to the receptor; Interleukin 1-receptor 1 ("IL1-R1") specific antibodies, peptibodies, related proteins, and the like; Ang2 specific antibodies, peptibodies, related proteins, and the like; NGF specific antibodies, peptibodies, related proteins, and the like; CD22 specific antibodies, peptibodies, related proteins, and the like, particularly human CD22 specific antibodies, such as but not limited to humanized and fully human antibodies, including but not limited to humanized and fully human monoclonal antibodies, particularly including but not limited to human CD22 specific IgG antibodies, such as, a dimer of a human-mouse monoclonal hLL2 gamma-chain disulfide linked to a human-mouse monoclonal hLL2 kappa-chain, for example, the human CD22 specific fully humanized antibody in Epratuzumab, CAS registry number 501423-23-0; IGF-1 receptor specific antibodies, peptibodies, and related proteins, and the like including but not limited to anti-IGF-1R antibodies; B-7 related protein 1 specific antibodies, peptibodies, related proteins and the like ("B7RP-1" and also referring to B7H2, ICOSL, B7h, and CD275), including but not limited to B7RP-specific fully human monoclonal IgG2 antibodies, including but not limited to fully human IgG2 monoclonal antibody that binds an epitope in the first immunoglobulin-like domain of B7RP-1, including but not limited to those that inhibit the interaction of B7RP-1 with its natural receptor, ICOS, on activated T cells; IL-15 specific antibodies, peptibodies, related proteins, and the like, such as, in particular, humanized monoclonal antibodies, including but not limited to HuMax IL-15 antibodies and related proteins, such as, for instance, 145c7; IFN gamma specific antibodies,

peptibodies, related proteins and the like, including but not limited to human IFN gamma specific antibodies, and including but not limited to fully human anti-IFN gamma antibodies; TALL-1 specific antibodies, peptibodies, related proteins, and the like, and other TALL specific binding proteins; Parathyroid hormone ("PTH") specific antibodies, peptibodies, related proteins, and the like; Thrombopoietin receptor ("TPO-R") specific antibodies, peptibodies, related proteins, and the like; Hepatocyte growth factor ("HGF") specific antibodies, peptibodies, related proteins, and the like, including those that target the HGF/SF:cMet axis (HGF/SF:c-Met), such as fully human monoclonal antibodies that neutralize hepatocyte growth factor/scatter (HGF/SF); TRAIL-R2 specific antibodies, peptibodies, related proteins and the like; Activin A specific antibodies, peptibodies, proteins, and the like; TGF-beta specific antibodies, peptibodies, related proteins, and the like; Amyloid-beta protein specific antibodies, peptibodies, related proteins, and the like; c-Kit specific antibodies, peptibodies, related proteins, and the like, including but not limited to proteins that bind c-Kit and/or other stem cell factor receptors; OX40L specific antibodies, peptibodies, related proteins, and the like, including but not limited to proteins that bind OX40L and/or other ligands of the OX40 receptor; Activase® (alteplase, tPA); Aranesp® (darbepoetin alfa) Erythropoietin [30-asparagine, 32-threonine, 87-valine, 88-asparagine, 90-threonine], Darbepoetin alfa, novel erythropoiesis stimulating protein (NESP); Epogen® (epoetin alfa, or erythropoietin); GLP-1, Avonex® (interferon beta-1a); Bexxar® (tositumomab, anti-CD22 monoclonal antibody); Betaseron® (interferon-beta); Campath® (alemtuzumab, anti-CD52 monoclonal antibody); Dynepo® (epoetin delta); Velcade® (bortezomib); MLN0002 (anti- α 4 β 7 mAb); MLN1202 (anti-CCR2 chemokine receptor mAb); Enbrel® (etanercept, TNF-receptor /Fc fusion protein, TNF blocker); Eprex® (epoetin alfa); Erbitux® (cetuximab, anti-EGFR / HER1 / c-ErbB-1); Genotropin® (somatropin, Human Growth Hormone); Herceptin® (trastuzumab, anti-HER2/neu (erbB2) receptor mAb); Kanjinti™ (trastuzumab-anns) anti-HER2 monoclonal antibody, biosimilar to Herceptin®, or another product containing trastuzumab for the treatment of breast or gastric cancers; Humatrope® (somatropin, Human Growth Hormone); Humira® (adalimumab); Vectibix® (panitumumab), Xgeva® (denosumab), Prolia® (denosumab), Immunoglobulin G2 Human Monoclonal Antibody to RANK Ligand, Enbrel® (etanercept, TNF-receptor /Fc fusion protein, TNF blocker), Nplate® (romiplostim), rilotumumab, ganitumab, conatumumab, brodalumab, insulin in solution; Infergen® (interferon alfacon-1); Natrecor® (nesiritide; recombinant human B-type natriuretic peptide (hBNP); Kineret® (anakinra); Leukine® (sargamostim, rhuGM-CSF); LymphoCide® (epratuzumab, anti-CD22 mAb); Benlysta™ (lymphotoxin B, belimumab, anti-BlyS mAb); Metalyse® (tenecteplase, t-PA analog); Mircera® (methoxy polyethylene glycol-epoetin beta); Mylotarg® (gemtuzumab ozogamicin); Raptiva® (efalizumab); Cimzia® (certolizumab pegol, CDP 870); Soliris™ (eculizumab); pexelizumab (anti-C5 complement); Numax® (MEDI-524); Lucentis® (ranibizumab); Panorex® (17-1A, edrecolomab); Trabio® (lerdelimumab); TheraCim hR3 (nimotuzumab); Omnitarg (pertuzumab, 2C4); Osidem® (IDM-1); OvaRex® (B43.13); Nuvion® (visilizumab); cantuzumab mertansine (huC242-DM1); NeoRecormon® (epoetin beta); Neumega® (oprelvekin, human

interleukin-11); Orthoclone OKT3® (muromonab-CD3, anti-CD3 monoclonal antibody); Procrit® (epoetin alfa); Remicade® (infliximab, anti-TNF α monoclonal antibody); Reopro® (abciximab, anti-GP IIb/IIIa receptor monoclonal antibody); Actemra® (anti-IL6 Receptor mAb); Avastin® (bevacizumab), HuMax-CD4 (zanolimumab); Mvasi™ (bevacizumab-awwb); Rituxan® (rituximab, anti-CD20 mAb); Tarceva® (erlotinib); Roferon-A®-(interferon alfa-2a); Simulect® (basiliximab); Prexige® (lumiracoxib); Synagis® (palivizumab); 145c7-CHO (anti-IL15 antibody, see U.S. Patent No. 7,153,507); Tysabri® (natalizumab, anti- α 4integrin mAb); Valortim® (MDX-1303, anti-B. anthracis protective antigen mAb); ABthrax™; Xolair® (omalizumab); ETI211 (anti-MRSA mAb); IL-1 trap (the Fc portion of human IgG1 and the extracellular domains of both IL-1 receptor components (the Type I receptor and receptor accessory protein)); VEGF trap (Ig domains of VEGFR1 fused to IgG1 Fc); Zenapax® (daclizumab); Zenapax® (daclizumab, anti-IL-2R α mAb); Zevalin® (ibritumomab tiuxetan); Zetia® (ezetimibe); Orencina® (atacept, TACI-Ig); anti-CD80 monoclonal antibody (galiximab); anti-CD23 mAb (lumiliximab); BR2-Fc (huBR3 / huFc fusion protein, soluble BAFF antagonist); CNTO 148 (golimumab, anti-TNF α mAb); HGS-ETR1 (mapatumumab; human anti-TRAIL Receptor-1 mAb); HuMax-CD20 (ocrelizumab, anti-CD20 human mAb); HuMax-EGFR (zalutumumab); M200 (volociximab, anti- α 5 β 1 integrin mAb); MDX-010 (ipilimumab, anti-CTLA-4 mAb and VEGFR-1 (IMC-18F1); anti-BR3 mAb; anti-C. difficile Toxin A and Toxin B C mAbs MDX-066 (CDA-1) and MDX-1388); anti-CD22 dsFv-PE38 conjugates (CAT-3888 and CAT-8015); anti-CD25 mAb (HuMax-TAC); anti-CD3 mAb (NI-0401); adecatumumab; anti-CD30 mAb (MDX-060); MDX-1333 (anti-IFNAR); anti-CD38 mAb (HuMax CD38); anti-CD40L mAb; anti-Cripto mAb; anti-CTGF Idiopathic Pulmonary Fibrosis Phase I Fibrogen (FG-3019); anti-CTLA4 mAb; anti-eotaxin1 mAb (CAT-213); anti-FGF8 mAb; anti-ganglioside GD2 mAb; anti-ganglioside GM2 mAb; anti-GDF-8 human mAb (MYO-029); anti-GM-CSF Receptor mAb (CAM-3001); anti-HepC mAb (HuMax HepC); anti-IFN α mAb (MEDI-545, MDX-198); anti-IGF1R mAb; anti-IGF-1R mAb (HuMax-Inflam); anti-IL12 mAb (ABT-874); anti-IL12/IL23 mAb (CNTO 1275); anti-IL13 mAb (CAT-354); anti-IL2Ra mAb (HuMax-TAC); anti-IL5 Receptor mAb; anti-integrin receptors mAb (MDX-018, CNTO 95); anti-IP10 Ulcerative Colitis mAb (MDX-1100); BMS-66513; anti-Mannose Receptor/hCG β mAb (MDX-1307); anti-mesothelin dsFv-PE38 conjugate (CAT-5001); anti-PD1mAb (MDX-1106 (ONO-4538)); anti-PDGFR α antibody (IMC-3G3); anti-TGF β mAb (GC-1008); anti-TRAIL Receptor-2 human mAb (HGS-ETR2); anti-TWEAK mAb; anti-VEGFR/Flt-1 mAb; and anti-ZP3 mAb (HuMax-ZP3).

[0084] In some embodiments, the drug delivery device may contain or be used with a sclerostin antibody, such as but not limited to romosozumab, blosozumab, BPS 804 (Novartis), Evenity™ (romosozumab-aqqg), another product containing romosozumab for treatment of postmenopausal osteoporosis and/or fracture healing and in other embodiments, a monoclonal antibody (IgG) that binds human Proprotein Convertase Subtilisin/Kexin Type 9 (PCSK9). Such PCSK9 specific antibodies include, but are not limited to, Repatha® (evolocumab) and Praluent® (alirocumab). In other embodiments, the drug delivery device may contain or be used with rilotumumab, bixalomer, trebananib, ganitumab, conatumumab, motesanib diphosphate,

brodalumab, vidupirant or panitumumab. In some embodiments, the reservoir of the drug delivery device may be filled with or the device can be used with IMLYGIC® (talimogene laherparepvec) or another oncolytic HSV for the treatment of melanoma or other cancers including but are not limited to OncoVEXGALV/CD; OrienX010; G207, 1716; NV1020; NV12023; NV1034; and NV1042. In some embodiments, the drug delivery device may contain or be used with endogenous tissue inhibitors of metalloproteinases (TIMPs) such as but not limited to TIMP-3. In some embodiments, the drug delivery device may contain or be used with Aimovig® (erenumab-aooe), anti-human CGRP-R (calcitonin gene-related peptide type 1 receptor) or another product containing erenumab for the treatment of migraine headaches. Antagonistic antibodies for human calcitonin gene-related peptide (CGRP) receptor such as but not limited to erenumab and bispecific antibody molecules that target the CGRP receptor and other headache targets may also be delivered with a drug delivery device of the present disclosure. Additionally, bispecific T cell engager (BiTE®) molecules such as but not limited to BLINCYTO® (blinatumomab) can be used in or with the drug delivery device of the present disclosure. In some embodiments, the drug delivery device may contain or be used with an APJ large molecule agonist such as but not limited to apelin or analogues thereof. In some embodiments, a therapeutically effective amount of an anti-thymic stromal lymphopoietin (TSLP) or TSLP receptor antibody is used in or with the drug delivery device of the present disclosure. In some embodiments, the drug delivery device may contain or be used with Avsola™ (infliximab-axxq), anti-TNF α monoclonal antibody, biosimilar to Remicade® (infliximab) (Janssen Biotech, Inc.) or another product containing infliximab for the treatment of autoimmune diseases. In some embodiments, the drug delivery device may contain or be used with Kyprolis® (carfilzomib), (2S)-N-((S)-1-((S)-4-methyl-1-((R)-2-methyloxiran-2-yl)-1-oxopentan-2-ylcarbamoyl)-2-phenylethyl)-2-((S)-2-(2-morpholinoacetamido)-4-phenylbutanamido)-4-methylpentanamide, or another product containing carfilzomib for the treatment of multiple myeloma. In some embodiments, the drug delivery device may contain or be used with Otezla® (apremilast), N-[2-[(1S)-1-(3-ethoxy-4-methoxyphenyl)-2-(methylsulfonyl)ethyl]-2,3-dihydro-1H-isoindol-4-yl]acetamide, or another product containing apremilast for the treatment of various inflammatory diseases. In some embodiments, the drug delivery device may contain or be used with Parsabiv™ (etelcalcetide HCl, KAI-4169) or another product containing etelcalcetide HCl for the treatment of secondary hyperparathyroidism (sHPT) such as in patients with chronic kidney disease (KD) on hemodialysis. In some embodiments, the drug delivery device may contain or be used with ABP 798 (rituximab), a biosimilar candidate to Rituxan®/MabThera™, or another product containing an anti-CD20 monoclonal antibody. In some embodiments, the drug delivery device may contain or be used with a VEGF antagonist such as a non-antibody VEGF antagonist and/or a VEGF-Trap such as aflibercept (Ig domain 2 from VEGFR1 and Ig domain 3 from VEGFR2, fused to Fc domain of IgG1). In some embodiments, the drug delivery device may contain or be used with ABP 959 (eculizumab), a biosimilar candidate to Soliris®, or another product containing a monoclonal antibody that specifically binds to the complement

protein C5. In some embodiments, the drug delivery device may contain or be used with Rozibafusp alfa (formerly AMG 570) is a novel bispecific antibody-peptide conjugate that simultaneously blocks ICOSL and BAFF activity. In some embodiments, the drug delivery device may contain or be used with Omecamtiv mecarbil, a small molecule selective cardiac myosin activator, or myotrope, which directly targets the contractile mechanisms of the heart, or another product containing a small molecule selective cardiac myosin activator. In some embodiments, the drug delivery device may contain or be used with Sotorasib (formerly known as AMG 510), a KRAS^{G12C} small molecule inhibitor, or another product containing a KRAS^{G12C} small molecule inhibitor. In some embodiments, the drug delivery device may contain or be used with Tezepelumab, a human monoclonal antibody that inhibits the action of thymic stromal lymphopoietin (TSLP), or another product containing a human monoclonal antibody that inhibits the action of TSLP. In some embodiments, the drug delivery device may contain or be used with AMG 714, a human monoclonal antibody that binds to Interleukin-15 (IL-15) or another product containing a human monoclonal antibody that binds to Interleukin-15 (IL-15). In some embodiments, the drug delivery device may contain or be used with AMG 890, a small interfering RNA (siRNA) that lowers lipoprotein(a), also known as Lp(a), or another product containing a small interfering RNA (siRNA) that lowers lipoprotein(a). In some embodiments, the drug delivery device may contain or be used with ABP 654 (human IgG1 kappa antibody), a biosimilar candidate to Stelara®, or another product that contains human IgG1 kappa antibody and/or binds to the p40 subunit of human cytokines interleukin (IL)-12 and IL-23. In some embodiments, the drug delivery device may contain or be used with Amjevita™ or Amgevita™ (formerly ABP 501) (mab anti-TNF human IgG1), a biosimilar candidate to Humira®, or another product that contains human mab anti-TNF human IgG1. In some embodiments, the drug delivery device may contain or be used with AMG 160, or another product that contains a half-life extended (HLE) anti-prostate-specific membrane antigen (PSMA) x anti-CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with AMG 119, or another product containing a delta-like ligand 3 (DLL3) CAR T (chimeric antigen receptor T cell) cellular therapy. In some embodiments, the drug delivery device may contain or be used with AMG 119, or another product containing a delta-like ligand 3 (DLL3) CAR T (chimeric antigen receptor T cell) cellular therapy. In some embodiments, the drug delivery device may contain or be used with AMG 133, or another product containing a gastric inhibitory polypeptide receptor (GIPR) antagonist and GLP-1R agonist. In some embodiments, the drug delivery device may contain or be used with AMG 171 or another product containing a Growth Differential Factor 15 (GDF15) analog. In some embodiments, the drug delivery device may contain or be used with AMG 176 or another product containing a small molecule inhibitor of myeloid cell leukemia 1 (MCL-1). In some embodiments, the drug delivery device may contain or be used with AMG 199 or another product containing a half-life extended (HLE) bispecific T cell engager construct (BiTE®). In some embodiments, the drug delivery device may contain or be used with AMG 256 or another

product containing an anti-PD-1 x IL21 mutein and/or an IL-21 receptor agonist designed to selectively turn on the Interleukin 21 (IL-21) pathway in programmed cell death-1 (PD-1) positive cells. In some embodiments, the drug delivery device may contain or be used with AMG 330 or another product containing an anti-CD33 x anti-CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with AMG 404 or another product containing a human anti-programmed cell death-1(PD-1) monoclonal antibody being investigated as a treatment for patients with solid tumors. In some embodiments, the drug delivery device may contain or be used with AMG 427 or another product containing a half-life extended (HLE) anti-fms-like tyrosine kinase 3 (FLT3) x anti-CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with AMG 430 or another product containing an anti-Jagged-1 monoclonal antibody. In some embodiments, the drug delivery device may contain or be used with AMG 506 or another product containing a multi-specific FAP x 4-1BB-targeting DARPIn® biologic under investigation as a treatment for solid tumors. In some embodiments, the drug delivery device may contain or be used with AMG 509 or another product containing a bivalent T-cell engager and is designed using XmAb® 2+1 technology. In some embodiments, the drug delivery device may contain or be used with AMG 562 or another product containing a half-life extended (HLE) CD19 x CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with Efavaleukin alfa (formerly AMG 592) or another product containing an IL-2 mutein Fc fusion protein. In some embodiments, the drug delivery device may contain or be used with AMG 596 or another product containing a CD3 x epidermal growth factor receptor vIII (EGFRvIII) BiTE® (bispecific T cell engager) molecule. In some embodiments, the drug delivery device may contain or be used with AMG 673 or another product containing a half-life extended (HLE) anti-CD33 x anti-CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with AMG 701 or another product containing a half-life extended (HLE) anti-B-cell maturation antigen (BCMA) x anti-CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with AMG 757 or another product containing a half-life extended (HLE) anti- delta-like ligand 3 (DLL3) x anti-CD3 BiTE® (bispecific T cell engager) construct. In some embodiments, the drug delivery device may contain or be used with AMG 910 or another product containing a half-life extended (HLE) epithelial cell tight junction protein claudin 18.2 x CD3 BiTE® (bispecific T cell engager) construct.

[0085] Although the drug delivery devices, assemblies, components, subsystems and methods have been described in terms of exemplary embodiments, they are not limited thereto. The detailed description is to be construed as exemplary only and does not describe every possible embodiment of the present disclosure. Numerous alternative embodiments could be implemented, using either current technology or technology developed after the filing date of this patent that would still fall within the scope of the claims defining the invention(s) disclosed herein.

[0086] Those skilled in the art will recognize that a wide variety of modifications, alterations, and combinations can be made with respect to the above described embodiments without departing from the spirit and scope of the invention(s) disclosed herein, and that such modifications, alterations, and combinations are to be viewed as being within the ambit of the inventive concept(s).

What is claimed is:

1. A packaging for drug administration, comprising:
 - a carton having a storage configuration where the carton is substantially flat, and an assembled configuration, the carton comprising:
 - a bottom box having a first bottom wall, a first sidewall, a second sidewall, a first back wall, and a first front wall when the carton is in the assembled configuration; and
 - a lid coupled to the bottom box and movable between an open position and a closed position; and
 - a tray configured to be disposed within the bottom box of the carton, the tray having a storage configuration where the tray is substantially flat and an assembled configuration, wherein, in the assembled configuration, the tray comprises a plurality of cavities dimensioned to house one or more drug delivery components, wherein, in the assembled configuration, the tray includes a second front wall disposed adjacent to the first front wall of the bottom box, a second back wall disposed adjacent to the first back wall of the bottom box, a second bottom wall disposed on top of the first bottom wall of the bottom box, and a top wall.
2. The packaging of claim 1, wherein the carton further comprises:
 - a release tab comprising a portion of one of the lid and bottom box and being defined by a perforated line in the one of the lid and the bottom box; and
 - an adhesive positioned on at least a part of the release tab and selectively coupling the lid and the bottom box.
3. The packaging of claim 2, wherein:
 - when the lid is in the closed position, the release tab is secured to the one of the lid and the bottom box via the perforation and is secured to the other of the lid and the bottom box via the adhesive, and
 - when the lid is in the open position, the release tab is separated along the perforated line from the one of the lid and the bottom box and is secured to the other of the lid and the bottom box via the adhesive.
4. The packaging of claim 2, wherein the release tab is a push tab that detaches the release tab from the one of the lid and the bottom box.
5. The packaging of claim 2, wherein the adhesive comprises an adhesive label.
6. The packaging of claim 5, wherein the adhesive label is attached to the release tab and the one of the lid and the bottom wall of the bottom box.

7. The packaging of claim 6, wherein the release tab includes a kiss cut to improve the securement between the release tab and the adhesive label.
8. The packaging of claim 6, wherein the one of the lid and the bottom box includes a kiss cut to improve securement between the one of the lid and the bottom box and the adhesive label.
9. The packaging of claim 1, wherein the one or more drug delivery components includes at least one of: a drug vial, a vial adapter, a pre-filled syringe containing a diluent therein, an injection syringe, or an injection needle.
10. The packaging of claim 1, wherein:
 - the one or more drug delivery components includes a drug vial filled for treatment or prefilled with a drug,
 - the drug comprises a therapeutic product, and
 - the therapeutic product comprises romiplostim.
11. The packaging of claim 1, wherein the carton further comprises one or more locking tabs configured to prevent accidental opening of the carton when the lid is in the closed position.
12. The packaging of claim 1, wherein:
 - the plurality of cavities are dimensioned to house a plurality of drug delivery components, and
 - the plurality of cavities are arranged left to right in the tray such that the plurality of drug delivery components are arranged in a sequential order corresponding to a drug administration process.
13. The packaging of claim 1, wherein the carton and the tray are made of paperboard or a combination of synthetic and natural materials.
14. A packaging for drug administration, comprising:
 - a carton having a storage configuration where the carton is substantially flat, and an assembled configuration, the carton comprising:
 - a bottom box having a first bottom wall, a first sidewall, a second sidewall, a first back wall, and a first front wall when the carton is in the assembled configuration;
 - a lid coupled to the bottom box and movable between an open position and a closed position;

a release tab comprising a portion of one of the lid and bottom box and being defined by a perforated line in the one of the lid and the bottom box; and
one or more locking tabs configured to prevent accidental opening of the carton when the lid is in the closed position; and
a tray configured to be disposed within the bottom box of the carton, the tray having a storage configuration where the tray is substantially flat and an assembled configuration, wherein, in the assembled configuration, the tray comprises a plurality of cavities dimensioned to house one or more drug delivery components, wherein, in the assembled configuration, the tray includes a second front wall disposed adjacent to the first front wall of the bottom box, a second back wall disposed adjacent to the first back wall of the bottom box, a second bottom wall disposed on top of the first bottom wall of the bottom box, and a top wall.

15. The packaging of claim 14, wherein the one or more drug delivery components includes at least one of: a drug vial, a vial adapter, a pre-filled syringe containing a diluent therein, an injection syringe, or an injection needle.

16. The packaging of claim 14, wherein:
the one or more drug delivery components includes a drug vial,
a first cavity of the plurality of cavities is dimensioned to house the drug vial in a horizontal position, and
a second cavity of the plurality of cavities is dimensioned to accommodate the drug vial in an upright position.

17. The packaging of claim 14, wherein:
the one or more drug delivery components includes a drug vial filled for treatment or prefilled with a drug,
the drug comprises a therapeutic product, and
the therapeutic product comprises romiplostim.

18. The packaging of claim 14, wherein:
the plurality of cavities are dimensioned to house a plurality of drug delivery components, and
the plurality of cavities are arranged left to right in the tray such that the plurality of drug delivery components are arranged in a sequential order corresponding to a drug administration process.

19. The packaging of claim 14, wherein the carton is made of paperboard or a combination of synthetic and natural materials.

20. The packaging of claim 14, wherein the tray is made of paperboard or a combination of synthetic and natural materials.