Summary

This problem is solved by the means and methods of the present invention, with the features of the independent claims. Preferred examples, which might be realized in an isolated fashion or in any arbitrary combination are listed in the dependent claims and throughout the specification.

Accordingly, the present disclosure relates to an implantation needle comprising an implantable element receiving portion, a capsule receiving portion, and a tip portion, wherein the capsule receiving portion comprises at least one fixing element selected from the group consisting of a mechanical barrier and an adhesive surface.

In one aspect, the present disclosure provides an implantation needle comprising an implantable element receiving portion, a capsule receiving portion, and a tip portion, wherein the capsule receiving portion comprises at least one fixing element selected from the group consisting of a mechanical barrier and an adhesive surface, wherein the implantation needle is an open implantation needle, wherein the mechanical barrier is a taper, the capsule is made of a soft or semisoft, deformable material and the implantable element has a diameter small enough to pass through the smallest diameter of the taper.

In another aspect, the present disclosure provides an implantation kit comprising the implantation needle as described herein, an implantable element comprised in the implantable element receiving portion of said implantation needle, and a capsule comprised in the capsule receiving portion of said implantation needle.

As used in the following, the terms “have”, “comprise” or “include” or any arbitrary grammatical variations thereof are used in a non-exclusive way. Thus, these terms may both refer to a situation in which, besides the feature introduced by these terms, no further features are present in the entity described in this context and to a situation in which one or more further features are present. As an example, the expressions “A has B”, “A comprises B” and “A includes B” may both refer to a situation in which, besides B, no other element is present in A

Claims

1. An implantation needle comprising an implantable element receiving portion, a capsule receiving portion, and a tip portion, wherein the capsule receiving portion comprises at least one fixing element selected from the group consisting of a mechanical barrier and an adhesive surface, wherein the implantation needle is an open implantation needle, wherein the mechanical barrier is a taper, the capsule is made of a soft or semisoft, deformable material and the implantable element has a diameter small enough to pass through the smallest diameter of the taper.

2. The implantation needle of claim 1, wherein said mechanical barrier is selected from the group consisting of a tongue, a crimp, a bulge, a spring element, and a taper; and/or wherein said adhesive surface comprises, an adhesive which is shear thickening, biocompatible, and/or biodegradable.

3. An implantation kit comprising the implantation needle according to claim 1 or 2, an implantable element comprised in the implantable element receiving portion of said implantation needle, and a capsule comprised in the capsule receiving portion of said implantation needle.

4. The implantation kit of claim 3, wherein said capsule comprises at least one pharmaceutical compound and, optionally, at least one excipient.

5. The implantation kit of claim 4, wherein said at least one excipient is a biodegradable polymer.

6. The implantation kit of claim 4 or 5, wherein said at least one pharmaceutical compound comprises a compound improving tolerance of said implantable element in the body of a subject.

7. The implantation kit of any one of claims 4 to 6, wherein said at least one pharmaceutical compound comprises an immunosuppressive, anti-allergic, and/or anti-inflammatory agent.

8. The implantation kit of any one of claims 4 to 7, wherein said at least one pharmaceutical compound comprises dexamethasone or a derivative thereof.

9. The implantation kit of any one of claims 3 to 8, wherein said implantable element is a sensor or a cannula.