WHAT IS CLAIMED IS:

1. A system for ultrasound-enhanced transscleral delivery of at least one drug to a target site in a intraocular space, the system comprising:

(1) a signal generating unit operationally connected to an ultrasound transducer and a drug applicator,

wherein the drug applicator:

(a) comprises at least one space configured to hold the drug,

(b) is made from a low ultrasound attenuation material,

(c) is configured to provide low ultrasound loss coupling of the system to the sclera or cornea, and

(d) is configured to be mechanically coupled to the system and further configured to be coupled to the ultrasound transducer with low ultrasound loss; and

wherein the signal generating unit and/or the ultrasound transducer are configured to emit an ultrasound wave form in at least one application cycle, the application cycle comprising at least one ultrasound emitting event with a time duration TA and a waiting period with a time duration TW; and

(2) an information receiving and/or sending unit configured to receive and/or send information related to the drug,

wherein the information receiving and/or sending unit is operationally connected to the signal generating unit which comprises a controller, wherein the controller is configured to control at least one of a plurality of parameters of the application cycle based on the information related to the drug.

2. The system according to claim 1, wherein the at least one space has at least one opening at a surface directed towards a desired site of the eye, and wherein an ultrasound coupling agent is filled in a gap between the drug applicator and the desired site of the eye.

3. The system according to claim 1, wherein the drug applicator is configured to be exchangeable and/or designed for a single use application.

4. The system according to claim 1, wherein the drug receiving space is sealed at a surface designated for coupling with a desired site of the eye and the seal is configured to allow for drug permeation.

5. The system according to claim 1, wherein the drug receiving space is open at a surface designated for coupling with the sclera.

6. The system according to claim 1, wherein the drug applicator is configured to be filled and/or refilled, and wherein the drug applicator receives between 10 μL and 1.5 mL of the drug and optionally at least one additional substance.

7. The system according to claim 1, wherein the drug applicator is made from an elastic material having Young´s Modulus of greater than 20 GPa.

8. The system according to claim 1, wherein the drug applicator is made from at least one of the following materials:

epoxy resin, polyurethane rubber, polycarbonate, nylon 6 – 6, polyvinyl chloride, polyester, ultra-high molecular weight polyethylene, polypropylene, teflon, polystyrene, neoprene rubber, polyvinyl alcohol, polydimethylsiloxane, silicone-containing rubber, silicon hydrogel, silicone rubber, and

silicon rubber doped with at least one of the following materials: nickel, silver, palladium, tungsten, gold, platinum, silicon oxide, titanium oxide, aluminum oxide, barium sulphate, iron oxide, zirconium dioxide, cerium oxide, bismuth oxide, ytterbium oxide, lutetium oxide, hafnium oxide.

9. The system according to claim 1, wherein the controller is configured to control at least one of a plurality of parameters of the application cycle, the plurality parameters of the application cycle are selected from the following:

(a) the time duration TA of the ultrasound emitting event,
(b) the time duration TW of the wait period after the ultrasound emitting event,
(c) the number of application cycles,
(d) the intensity of the ultrasound emitting event,
(e) the central frequency of the ultrasound emitting event,
(f) the mechanical index of the ultrasound emitting system, and

in case of a pulsed ultrasound emitting event:

(g) the repetition rate of the ultrasound emitting event and

(h) the duty cycle of the ultrasound emitting event.

10. The system according to claim 1,

wherein the information related to the drug is stored on the drug applicator.

11. The system according to claim 1, wherein,

when the drug comprises molecules with a size of 70 kDa or less, the controller is configured to control the time duration TA to be between 30s and 300 s and the drug applicator is configured such that the drug transit through the sclera during the time duration TA; and/or

when the drug comprises molecules with a size of more than 70 kDa, the controller is configured to control the time duration TW to be between 60s and 600 s and the drug applicator is configured such that the molecules drug transit through the sclera during the time duration TW.

12. The system according to claim 1, wherein the system further comprises display and/or manual input unit configured to display and/or manually set at least one of the plurality parameters of the application cycle.

13. The system according to claim 1, wherein the system further comprises a temperature sensor configured to sense the temperature of the surface of the sclera or cornea, preferably a thermocouple and/or an infrared thermometer, and

wherein the controller is configured to control the ultrasound emission event such that during the time TA the temperature of the surface of the sclera or cornea does not increase by more than 1°C.

14. The system according to claim 1, wherein the information receiving and/or sending unit includes a sensor which is configured to capture information about a presence and/or absence of the drug applicator or collect information about the drug applicator.

15. The system according to claim 3, wherein the information receiving and/or sending unit is arranged and configured such that the information receiving and/or sending unit retrieves

information about the drug applicator and/or the drug when the drug applicator is coupled to the system.

16. The system according to claim 10, wherein the information related to the drug includes type of the drug applicator, one or more characteristics of the drug applicator, an identifier of the drug applicator, a serial number of the of the drug applicator, and/or additional information of the drug applicator.

17. The system according to claim 16, wherein the additional information includes at least one of a batch number of the of the drug applicator, a drug name of the drug applicator, and a date of manufacture of the drug applicator.