(e.g., water soluble antibiotics with acrylic lenses; corticosteroids with silicone lenses). Furthermore, this approach does not offer controlled release; rather, it is purely diffusion limited burst release.

[0010] In another example, a system was previously proposed, in which an ultra-thin transparent film that releases a drug is manufactured on the surface of the IOL without disrupting the optical properties of the lens. While it is plausible that this device could provide adequate drug release function and not require changes to the usual cataract surgical procedure, this system adds additional steps to the manufacturing process which has implications for the overall cost of goods. Furthermore, it is not readily applied to IOLs of varying sizes, shapes and refractive powers or material, and to do so would require the manufacturers to add this feature to each individual make and model of IOL separately.

[0011] Improved ophthalmic articles, devices, methods, systems, and kits for delivery or administration of active agents and/or diagnostic agents from an ocular device to an eye and/or that address at least some of the above disadvantages would be desirable.

SUMMARY

[0012] Embodiments of the present disclosure provide articles, methods, devices, systems, and kits for intraocular agent (e.g., active agent and/or diagnostic agent) delivery. The present disclosure provides articles, methods, systems, and kits for delivery or administration of active agents and/or diagnostic agents from an ocular device to an eye. The present disclosure also provides articles, methods, systems, and kits for diagnosis and/or treatment of ocular diseases, conditions, and/or complications.

[0013] In an aspect, the present disclosure provides an ophthalmic article. In one embodiment, the ophthalmic article comprises: (a) a biocompatible matrix comprising a copolymer derived from a caprolactone monomer and at least one other monomer; and (b) an active agent or a diagnostic agent; wherein the ophthalmic article is toroid shaped to contact and

enclose contiguously around an outer surface of a

matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agent.

[0014] In another embodiment, the present disclosure provides an ophthalmic article. In one embodiment, the ophthalmic article comprises (a) a biocompatible material; and (b) an active agent or a diagnostic agent, wherein the ophthalmic article has an equivalent elasticity, compressibility, tensile strength, shape recovery, or reshapability to another article comprising a biocompatible matrix comprising a copolymer derived from about 40 wt% of a caprolactone monomer and about 60 wt% of a lactide monomer, and wherein the ophthalmic article is configured to associate to a haptic of an intraocular lens (IOL). In some embodiments, the biocompatible material comprises a copolymer matrix. In some embodiments, the biocompatible material comprises a copolymer derived from about 20 wt% to about 60 wt% of a caprolactone monomer and from about 40 wt% to 80 wt% of at least one other monomer. In some embodiments, the at least one other monomer is lactide, glycolide, or trimethylene carbonate. In some embodiments, the biocompatible material or the another article comprising the biocompatible matrix comprises a random copolymer, a block copolymer, or a gradient copolymer. In some embodiments, the biocompatible material or the another article comprising the biocompatible matrix comprises a random copolymer. In some embodiments, the biocompatible material or the another article comprising the biocompatible matrix is biodegradable. In some embodiments, the another article comprises another active agent or diagnostic agent. In some embodiments, the another article comprising the biocompatible matrix has a tensile strength of at least about 0.5 megapascal (MPa). In some embodiments, the another article comprising the biocompatible matrix has a tensile strength from about 25 MPa to 35 MPa.

interocular pressure (IOP) lowering agent, corticosteroid, non-steroidal anti-inflammatory drug, antibiotic, antiviral, antimetabolite, antifungal, antifibrotic agent, or angiogenesis inhibitor. In some embodiments, the active agent is dexamethasone, ketorolac, diclofenac, moxifloxacin, travoprost, 5-fluorouracil, or methotrexate. In some embodiments, the ophthalmic article is configured such that the active agent or diagnostic agent is released from the biocompatible material. In some embodiments, the active agent or diagnostic agent is released from the biocompatible material over at least about 7 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible material over from about 5-30 days, 5-21 days, 5-14 days, 5-10 days, 7-30 days, 7-21 days, 7-14 days, or 7-10 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible material through degradation of the biocompatible material. In some embodiments, the ophthalmic article or the another article comprising the biocompatible matrix is sufficiently compressible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, ophthalmic article or the another article comprising the biocompatible matrix is sufficiently flexible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the ophthalmic article or the another article comprising the biocompatible matrix is sufficiently elastic such that it recovers its original shape after injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 μg to 800 μg of the one or more active agents and/or diagnostic agents.

[0015] In another aspect, the present disclosure provides an ophthalmic delivery system,

the ophthalmic delivery system comprising: (a) one or more ophthalmic articles comprising (1) a biocompatible matrix comprising a copolymer derived from a caprolactone monomer and at least one other monomer, and (2) one or more active agents or diagnostic agents; and (b) one or more intraocular lenses (IOL) comprising one or more haptics, wherein the one or more ophthalmic articles is toroid shaped to contact and enclose contiguously around an outer surface of the one or more haptics of the one or more IOL. In some embodiments, about one of the one or more ophthalmic articles is associated with the one or more haptics of the IOL. In some embodiments, about two of the one or more ophthalmic articles are associated with the one or more haptics of the IOL. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with the one or more haptics of the IOL. In some embodiments, about one of the one or more ophthalmic articles is associated with one of the one or more haptics of the IOL. In some embodiments, two of the one or more ophthalmic articles are associated with one of the one or more haptics of the IOL. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with one of the one or more haptics of the IOL. In some embodiments, the copolymer is derived from about 20 wt% to about 60 wt% of the caprolactone monomer and from about 40 wt% to 80 wt% of the at least one other monomer. In some embodiments, the copolymer is derived from about 40 wt% of the caprolactone monomer and about 60 wt% of the at least one other monomer. In some embodiments, the at least one other monomer is lactide, glycolide, or trimethylene carbonate. In some embodiments, the copolymer is a random copolymer, a block copolymer, or a gradient copolymer. In some embodiments, copolymer is a random copolymer. In some embodiments, the biocompatible matrix is biodegradable. In some embodiments, the one or more ophthalmic articles has a tensile strength of at least about 0.5 megapascal (MPa). In some embodiments, the one or more ophthalmic articles has a tensile strength from about 25 MPa to 35 MPa. In some embodiments, the one or more ophthalmic articles has a glass transition temperature of at most about 24ºC as measured by differential scanning calorimetry. In some embodiments, the one or more ophthalmic articles has

a glass transition temperature from about -

the one or more ophthalmic articles comprises an inner diameter of at most 0.7 mm. In some embodiments, the one or more ophthalmic articles is configured such that the active agent or diagnostic agent is released from the biocompatible matrix. In some embodiments, the active agent or diagnostic agent is released from the biocompatible matrix over at least about 7 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible matrix over from about 5-30 days, 5-21 days, 5-14 days, 5-10 days, 7-30 days, 7-21 days, 7-14 days, or 7-10 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible matrix through degradation of the biocompatible matrix. In some embodiments, the biocompatible matrix is sufficiently compressible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently flexible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently elastic such that it recovers its original shape after injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0016] In another embodiment, the present disclosure provides a method of treating or preventing a disease. In one embodiment, the method comprises implanting into an eye of a subject in need thereof an intraocular lens (IOL) for sustained intraocular drug delivery, which IOL comprises one or more drug release articles associated thereto, wherein the one or more drug release articles comprises one or more active agents, wherein within 7 days after implantation the

one or more

IOL injector that comprises the injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the subject is concurrently undergoing or has undergone ophthalmic surgery. In some embodiments, the subject is concurrently undergoing or has undergone cataract surgery. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

In another embodiment, the present disclosure provides a method of treating or preventing a disease. In one embodiment, the method comprises (a) associating one or more ophthalmic articles to one or more haptics of at least one intraocular lens (IOL), thereby generating at least one active agent-releasing intraocular lens; (b) implanting the at least one active agent-releasing intraocular lens into an eye of a subject in need thereof for sustained intraocular active agent delivery, wherein within 7 days after implantation the one or more ophthalmic articles releases the one or more active agents and results in an inflammation score of at most 1 as measured by an anterior chamber cell score using slit lamp biomicroscopy or absence of eye pain as measured by a 10-point visual analog scale. In some embodiments, within 7 days after implantation the one or more ophthalmic articles releases the one or more active agents and results in an inflammation score of at most 1 as measured by an anterior chamber cell score using slit lamp biomicroscopy. In some embodiments, within 7 days after implantation the one or more ophthalmic articles releases the one or more active agents and results in an absence of eye pain as measured by a 10-point visual analog scale. In some embodiments, about one of the one or more ophthalmic articles is associated with the one or more haptics. In some embodiments, about two of the one or more ophthalmic articles are associated with the one or more haptics. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with the one

embodiments, the one or more ophthalmic articles extends no more than about 0.32 mm beyond the one or more haptics once the one or more ophthalmic articles is associated to the one or more haptics. In some embodiments, a shape of the internal structure is the same as a shape of the one or more haptics. In some embodiments, one or more ophthalmic articles comprises an internal structure for securing around a notched region of the one or more haptics. In some embodiments, the one or more ophthalmic articles comprises an outer diameter of at most 1.5 mm. In some embodiments, the internal structure comprises a diameter of at most 0.7 mm. In some embodiments, the one or more ophthalmic articles is compressively associated to an outward surface of the one or more haptics. In some embodiments, prior to implanting into the eye of the subject, compressing the at least one active agent-releasing intraocular lens through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the compressing comprises folding the at least one active agent-releasing intraocular lens into a tubular shape through the IOL injector that comprises the injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the subject is concurrently undergoing or has undergone ophthalmic surgery. In some embodiments, the subject is concurrently undergoing or has undergone cataract surgery. In some embodiments, the associating comprises direct association between the one or more ophthalmic articles and the one or more haptics through a chemical bond, physical bond, compressive forces, or contractile forces. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 μg to 800 μg of the one or more active agents and/or diagnostic agents.

[0018] In another embodiment, the present disclosure provides method of treating or preventing a disease. In one embodiments, the method comprises (a) combining one or more

active agents

intraocular lens through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the compressing comprises folding the at least one active agent-releasing intraocular lens into a tubular shape through the IOL injector that comprises the injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the subject is concurrently undergoing or has undergone ophthalmic surgery. In some embodiments, the subject is concurrently undergoing or has undergone cataract surgery. In some embodiments, the associating comprises direct association between the one or more ophthalmic articles and the one or more haptics through a chemical bond, physical bond, compressive forces, or contractile forces. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0019] In another embodiment, the present disclosure provides a method of preparing at least one ophthalmic article. In one embodiment, the method comprises (a) combining one or more active agents or diagnostic agents in a solvent with a biocompatible matrix in the solvent, thereby generating a combined mixture in the solvent; (b) removing the solvent from the combined mixture, thereby generating an evaporated mixture; (c) using a weighted tool to compress the evaporated mixture, thereby generating a compressed mixture; and (d) using a shaping tool and an orifice tool to extract the at least one ophthalmic article from the compressed mixture. In some embodiments, the biocompatible matrix comprises a copolymer derived from about 20 wt% to about 60 wt% of a caprolactone monomer and from about 40 wt% to 80 wt% of at least one other monomer. In some embodiments, the biocompatible matrix comprises a copolymer derived from about 40 wt% of the caprolactone monomer and about 60 wt% of the at least one other monomer. In some embodiments, the at least one other monomer is lactide, glycolide, or trimethylene

agents or diagnostic agents is released from the biocompatible matrix. In some embodiments, the one or more active agents or diagnostic agents is released from the biocompatible matrix through degradation of the biocompatible matrix. In some embodiments, the biocompatible matrix is sufficiently compressible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently flexible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently elastic such that it recovers its original shape after injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, prior to the combining in (a), suspending the one or more active agents or diagnostic agents in the solvent, thereby generating a suspension. In some embodiments, the weighted tool is a steel plate. In some embodiments, the weighted tool is a heated steel plate. In some embodiments, the weighted tool is a heated steel plate with Teflon. In some embodiments, the weighted tool compresses the evaporated mixture into a sheet. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0020] In another embodiment, the present disclosure provides a method of preparing at least one agent-releasing intraocular lens. In one embodiment, the method comprises (a) combining one or more active agents or diagnostic agents with a biocompatible matrix comprising a copolymer derived from a caprolactone monomer and at least one other monomer, thereby generating one or more ophthalmic articles; (b) associating the one or more ophthalmic articles to one or more haptics of at least one intraocular lens (IOL). In some embodiments, about one of the

one or more

eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0021] In another embodiment, the present disclosure provides a method of administering an active agent or diagnostic agent. In one embodiment, the method comprises (a) associating one or more ophthalmic articles to one or more haptics of at least one intraocular lens, thereby generating at least one agent-releasing intraocular lens; (b) compressing the at least one agent-releasing intraocular lens through an intraocular lens injector comprising an injector tip inner diameter from about 0.5 mm to 3 mm; and (c) implanting the at least one agent-releasing intraocular lens into an eye of a subject in need thereof for sustained intraocular active agent or diagnostic agent delivery. In some embodiments, about one of the one or more ophthalmic articles is associated with the one or more haptics of the IOL. In some embodiments, about two of the one or more ophthalmic articles are associated with the one or more haptics of the IOL. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with the one or more haptics of the IOL. In some embodiments, about one of the one or more ophthalmic articles is associated with one of the one or more haptics of the IOL. In some embodiments, about two of the one or more ophthalmic articles are associated with one of the one or more haptics of the IOL. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with one of the one or more haptics of the IOL. In some embodiments, the one or more ophthalmic articles comprises a biocompatible matrix. In some embodiments, the biocompatible matrix comprises a copolymer derived from about 20 wt% to about 60 wt% of a caprolactone monomer and from about 40 wt% to 80 wt% of at least one other monomer. In some embodiments, the biocompatible matrix comprises a copolymer derived from about 40 wt% of the caprolactone monomer and about 60 wt% of the at least one other monomer. In some embodiments, the at least one other monomer is lactide, glycolide, or trimethylene carbonate. In some embodiments, the copolymer is a random copolymer, a block copolymer, or a gradient copolymer. In some embodiments, the copolymer is a random copolymer. In some

undergoing or has undergone ophthalmic surgery. In some embodiments, the subject is concurrently undergoing or has undergone cataract surgery. In some embodiments, the associating comprises direct association between the one or more ophthalmic articles and the one or more haptics through a chemical bond, physical bond, compressive forces, or contractile forces. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 μg to 800 μg of the one or more active agents and/or diagnostic agents.

[0022] In another embodiment, the present disclosure provides a method of administering an active agent or diagnostic agent. In one embodiment, the method comprises (a) compressing an intraocular lens (IOL) having one or more ophthalmic articles associated thereto through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm, thereby generating a compressed IOL having one or more ophthalmic articles associated thereto, which one or more ophthalmic articles comprises one or more active agents or diagnostic agents; and (b) implanting the compressed IOL having one or more ophthalmic articles associated thereto into an eye of a subject in need thereof for sustained intraocular active agent or diagnostic agent delivery. In some embodiments, about one of the one or more ophthalmic articles is associated with one or more haptics of the IOL. In some embodiments, about two of the one or more ophthalmic articles are associated with one or more haptics of the IOL. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with one or more haptics of the IOL. In some embodiments, about one of the one or more ophthalmic articles is associated with one of one or more haptics of the IOL. In some embodiments, about two of the one or more ophthalmic articles are associated with one of one or more haptics of the IOL. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more

ophthalmic articles is associated to the one or more haptics of the IOL. In some embodiments, a shape of the internal structure is the same as a shape of the one or more haptics of the IOL. In some embodiments, the one or more ophthalmic articles comprises an internal structure for securing around a notched region of one or more haptics of the IOL. In some embodiments, the one or more ophthalmic articles comprises an outer diameter of at most 1.5 mm. In some embodiments, the internal structure comprises a diameter of at most 0.7 mm. In some embodiment, the one or more ophthalmic articles is associated to one or more haptics of the IOL. In some embodiments, the one or more ophthalmic articles is compressively associated to an outward surface of the one or more haptics of the IOL. In some embodiments, the one or more ophthalmic articles is directly associated between the one or more ophthalmic articles and the one or more haptics through a chemical bond, physical bond, compressive forces, or contractile forces. In some embodiments, the compressing comprises folding the IOL having the one or more ophthalmic articles associated thereto into a tubular shape through the IOL injector that comprises the injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the subject is concurrently undergoing or has undergone ophthalmic surgery. In some embodiments, the subject is concurrently undergoing or has undergone cataract surgery. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0023] In another embodiment, the present disclosure provides kit. In one embodiment, the kit comprises a container comprising one or more ophthalmic articles comprising (1) a biocompatible matrix comprising a copolymer derived from a caprolactone monomer and at least one other monomer, and (2) one or more active agents or diagnostic agents; and instructions for

embodiments, the internal structure comprises a diameter of at most 0.7 mm. In some embodiments, the one or more ophthalmic articles is configured such that the active agent or diagnostic agent is released from the biocompatible matrix. In some embodiments, the active agent or diagnostic agent is released from the biocompatible matrix over at least about 7 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible matrix over from about 5-30 days, 5-21 days, 5-14 days, 5-10 days, 7-30 days, 7-21 days, 7-14 days, or 7-10 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible matrix through degradation of the biocompatible matrix. In some embodiments, the biocompatible matrix is sufficiently compressible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently flexible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently elastic such that it recovers its original shape after injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0024] In another embodiment, the present disclosure provides a method of diagnosing a disease or condition of an eye. In one embodiment, the method comprises administering into an eye of a subject in need thereof an intraocular lens (IOL) for delivery of one or more diagnostic agents to the eye of the subject, which IOL comprises one or more ophthalmic articles associated thereto, wherein the one or more ophthalmic articles comprises the one or more diagnostic agents

within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0025] In another embodiment, the present disclosure provides a method of administering an active agent or diagnostic agent. In one embodiment, the method comprises (a) combining one or more active agents or diagnostic agents with a biocompatible matrix, thereby generating one or more ophthalmic articles; (b) associating the one or more ophthalmic articles to one or more haptics of at least one intraocular lens, thereby generating at least one agent-releasing intraocular lens; (c) compressing the at least one agent-releasing intraocular lens through an intraocular lens injector comprising an injector tip inner diameter from about 0.5 mm to 3 mm; and (d) implanting the at least one agent-releasing intraocular lens into an eye of a subject in need thereof for sustained intraocular active agent or diagnostic agent delivery. In some embodiments, about one of the one or more ophthalmic articles is associated with the one or more haptics. In some embodiments, about two of the one or more ophthalmic articles are associated with the one or more haptics. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with the one or more haptics. In some embodiments, about one of the one or more ophthalmic articles is associated with one of the one or more haptics. In some embodiments, about two of the one or more ophthalmic articles are associated with one of the one or more haptics. In some embodiments, about 3, 4, 5, 6, 7, 8, 9, or 10 of the one or more ophthalmic articles are associated with one of the one or more haptics. In some embodiments, the biocompatible matrix comprises a copolymer derived from about 20 wt% to about 60 wt% of a caprolactone monomer and from about 40 wt% to 80 wt% of at least one other monomer. In some embodiments, the biocompatible matrix comprises a copolymer derived from about 40 wt% of the caprolactone monomer and about 60 wt% of the at least one other monomer. In some embodiments, the at least one other monomer is lactide, glycolide, or trimethylene carbonate. In some embodiments, the copolymer is a random copolymer, a block copolymer, or a gradient

shape through the IOL injector that comprises the injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the subject is concurrently undergoing or has undergone ophthalmic surgery. In some embodiments, the subject is concurrently undergoing or has undergone cataract surgery. In some embodiments, the associating comprises direct association between the one or more ophthalmic articles and the one or more haptics through a chemical bond, physical bond, compressive forces, or contractile forces. In some embodiments, the biocompatible matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 µg to 800 µg of the one or more active agents and/or diagnostic agents.

[0026] In another embodiment, the present disclosure provides an ophthalmic drug delivery system. In one embodiment, the ophthalmic drug delivery system comprises (a) one or more ophthalmic articles comprising (1) one or more active agents or diagnostic agents, and (2) a biocompatible copolymer matrix derived from about 40 wt% of a caprolactone monomer and 60 wt% of a lactide monomer, which biocompatible copolymer matrix comprises at least one of the following characteristics: (i) the biocompatible copolymer matrix comprises a random copolymer; (ii) the one or more ophthalmic articles has a tensile strength from about 25 Megapascal (MPa) to 35 MPa; (iii) the one or more ophthalmic articles has a glass transition temperature of at most about 24ºC as measured by differential scanning calorimetry; (iv) the one or more ophthalmic articles has an elasticity modulus from about 0.5 MPa to 3 MPa; (v) the one or more ophthalmic articles has an elongation at break from about 500% to 1500% at from about 18ºC to 24 ºC; and (b) one or more intraocular lenses (IOLs) comprising one or more haptics; wherein the one or more ophthalmic articles comprises an outer diameter of at most 1.5 mm and is configured to associate to an outward surface of the one or more haptics of the one or more

IOLs to secure the one or

articles is the same as a shape of the one or more haptic. In some embodiments, the one or more ophthalmic articles comprises an internal structure for securing around a notched region of the one or more haptics. In some embodiments, the one or more ophthalmic articles comprises an inner diameter of at most 0.7 mm. In some embodiments, the one or more ophthalmic articles is configured such that the active agent or diagnostic agent is released from the biocompatible copolymer matrix. In some embodiments, the active agent or diagnostic agent is released from the biocompatible copolymer matrix over at least about 7 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible copolymer matrix over from about 5-30 days, 5-21 days, 5-14 days, 5-10 days, 7-30 days, 7-21 days, 7-14 days, or 7-10 days. In some embodiments, the active agent or diagnostic agent is released from the biocompatible copolymer matrix through degradation of the biocompatible copolymer matrix. In some embodiments, the biocompatible copolymer matrix is sufficiently compressible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible copolymer matrix is sufficiently flexible such that it is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible copolymer matrix is sufficiently elastic such that it recovers its original shape after injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to 3 mm. In some embodiments, the biocompatible copolymer matrix is sufficiently elastic such that the ophthalmic article recovers its shape once implanted inside an eye. In some embodiments, the ophthalmic article is sufficiently physically stable in a physiologic environment such that it does not significantly change shape within at least 7 days after implantation of the ophthalmic article in an eye of a subject. In some embodiments, the ophthalmic article comprises from about 1 μg to 800 μg of the one or more active agents and/or diagnostic agents.

[0027] In another embodiment, the present disclosure provides an ophthalmic article. In one

CLAIMS

WHAT IS CLAIMED IS:

1. An ophthalmic article, comprising:

    a. a biocompatible matrix comprising a copolymer derived from a caprolactone monomer and at least one other monomer; and

    b. an active agent or a diagnostic agent;

wherein said ophthalmic article is toroid shaped to contact and enclose contiguously around an outer surface of a haptic of an intraocular lens (IOL).

2. The ophthalmic article of claim 1, wherein said copolymer is derived from about 20 wt% to about 60 wt% of said caprolactone monomer and from about 40 wt% to about 80 wt% of said at least one other monomer.

3. The ophthalmic article of claim 1 wherein said copolymer is derived from about 40 wt% of said caprolactone monomer and about 60 wt% of said at least one other monomer.

4. The ophthalmic article of claim 1, wherein said at least one other monomer is lactide, glycolide, or trimethylene carbonate.

5. The ophthalmic article of claim 1, wherein said ophthalmic article has a glass transition temperature of at most 24° C, as measured by differential scanning calorimetry.

6. The ophthalmic article of claim 1, wherein said ophthalmic article has an elasticity modulus of at most 10 MPa, as measured by dynamic mechanical analysis.

7. The ophthalmic article of claim 1, wherein said active agent is a corticosteroid, non-steroidal anti-inflammatory drug, or antibiotic.

8. The ophthalmic article of claim 1, wherein said ophthalmic article has a tensile strength of at least 0.5 megapascal (MPa).

9. The ophthalmic article of claim 1, wherein said ophthalmic article has an elongation at break of at least 100% as measured at from about 18 ºC to 24 ºC.

10. The ophthalmic article of claim 1, wherein said ophthalmic article has an elongation at break from about 500% to 1500% as measured at from about 18 ºC to 24 ºC.

11. The ophthalmic article of claim 1, wherein said ophthalmic article comprises an internal structure for contacting and enclosing contiguously around said outer surface of said haptic of said IOL.

12. The ophthalmic article of said 11, wherein a perimeter or widest dimension of said internal structure is less than or equal to a perimeter or widest dimension of said haptic of said IOL.

13. The ophthalmic article of claim 1, wherein said ophthalmic article extends no more than 0.32 millimeter (mm) beyond said haptic of said IOL once said ophthalmic article is associated around said haptic of said IOL.

14. The ophthalmic article of claim 1, wherein said ophthalmic article comprises an outer diameter of at most 1.5 mm.

15. The ophthalmic article of claim 1, wherein said biocompatible matrix is sufficiently compressible such that said biocompatible matrix is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to about 3 mm.

16. The ophthalmic article of claim 1, wherein said biocompatible matrix is sufficiently flexible such that said biocompatible matrix is compatible with injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to about 3 mm.

17. The ophthalmic article of claim 1, wherein said biocompatible matrix is sufficiently elastic such that said biocompatible matrix recovers its original shape after injection through an IOL injector that comprises an injector tip inner diameter from about 0.5 mm to about 3 mm.

18. The ophthalmic article of claim 1, wherein said ophthalmic article is sufficiently physically stable in a physiologic environment such that said ophthalmic article does not significantly change shape within at least 7 days after implantation of said ophthalmic article in an eye of a subject.

19. The ophthalmic article of claim 1, wherein said ophthalmic article comprises from about 1 microgram (μg) to 800 μg of said active agent or said diagnostic agent.

20. The ophthalmic article of claim 1, wherein said copolymer is a random copolymer, a block copolymer, or a gradient copolymer.

21. An ophthalmic delivery system, comprising:

a. one or more ophthalmic articles comprising (1) a biocompatible matrix comprising a copolymer derived from a caprolactone monomer and at least one other monomer, and (2) one or more active agents or diagnostic agents; and

b. one or more intraocular lenses (IOL) comprising one or more haptics,

wherein said one or more ophthalmic articles is toroid shaped to contact and enclose contiguously around an outer surface of said one or more haptics of said one or more intraocular lenses.

22. The ophthalmic delivery system of claim 21, wherein about one of said one or more ophthalmic articles is associated with about one of said one or more haptics of said one or more intraocular lenses.

23. The ophthalmic delivery system of claim 21, wherein said copolymer is derived from about 20 wt% to about 60 wt% of said caprolactone monomer and from about 40 wt% to 80 wt% of said at least one other monomer.

24. The ophthalmic delivery system of claim 21, wherein said at least one other monomer is lactide, glycolide, or trimethylene carbonate.

25. The ophthalmic delivery system of claim 21, wherein said one or more active agents is a corticosteroid, non-steroidal anti-inflammatory drug, or antibiotic.

26. The ophthalmic delivery system of claim 21, wherein at least two ophthalmic articles are toroid shaped to contact and enclose contiguously around said outer surface of said one or more haptics of said one or more intraocular lenses.