

retracted back to a position closer to the retina for distance focus. The presence of lens element 72 is effective to inhibit cell growth from the capsule into the space defined by the capsule. This promotes vision clarity and allows for long term maintenance of the combination. In addition, lens element 72, which has a single optical power, may provide effective vision correction in combination with the multifocal lens body 112.

FIG. 6 illustrates another embodiment of a IOL, shown generally at 210, in accordance with the present invention. IOL 210 is structured somewhat similarly to IOL 10. Components of IOL 210 which correspond to components of IOL 110 are identified with the same reference numeral increased by 200.

The primary difference between IOL 210 and IOL 10 is the inclusion of plate haptics 80 in the IOL 210. The lens body 212 of IOL 210 has a similar optical profile as illustrated with regard to lens body 12. Each of the flexible plate haptics 80 has a hinge 82 formed by a groove in the anterior side of IOL 210, and a spring 84 at the end of each of the plate haptics 80. These haptics 80 are joined to, for example, are unitary with, the lens body 210. The springs 84 are resilient loops which are staked at one end to the end of the haptic 80 at opposite sides of the longitudinal center line of the IOL 210. These spring loops 84 bow outwardly lengthwise of the lens body 212 from their staked ends to their center and then turn back toward the lens body from their centers to their free ends. The ends of the haptics 80 have recesses 86 over which the spring loops 84 extend in such a way that the loops and the edges of the recesses form openings 88 therebetween. The ends of the spring loops 84 have holes 90 to receive instruments for positioning the IOL 210 in the eye.

IOL 210 is implanted within the capsular bag within the eye while the ciliary muscle is paralyzed in its relaxed state and the capsular bag is thereby stretched to its maximum diameter. The overall length of the IOL 210 measured between the ends of the haptics 80 at either of the haptic recesses 86 substantially equals the inner diameter of the stretched capsular bag. The overall length of the IOL 10 measured between the outer edges of the loop springs 84 at their centers when the loops are in their normal unstressed condition or state is slightly greater than the inner diameter of the capsular bag.

IOL 210 is particularly used when the interior capsular remnant or rim of the capsular bag is ruptured, that is, cut or torn. When IOL 210 is implanted in the capsular bag, the loop springs 84 press outward against the wall of the capsular bag sulcus to fixate the lens in the bag during fibrosis. Fibrosis occurs in such a way as to effect fusion of the anterior remnant to the posterior capsule. Constriction and relaxation of the ciliary muscle after fibrosis facilitates accommodating movement of the IOL 210. The IOL 210 utilizes the fibrosed interior capsular rim, the elastic posterior capsule, the vitreous cavity pressure, the zonules and the ciliary muscle constrictions, together with the multifocal lens body 212, to provide accommodating movement forward, for example, for near vision. Relaxation of the ciliary muscle stretches the capsular bag and the fibrosed anterior capsular rim to return the lens rearwardly toward its distant vision position.

The present IOLs very effectively provide for enhanced accommodation in cooperation with the eye. Thus, the accommodating movement of the IOL, together with the multifocal characteristics of the lens body of the present IOL, provide substantially enhanced performance, for

example, relative to a monofocal IOL adapted for accommodating movement or a multifocal IOL located in a substantially fixed position within the eye. Further, it should be understood that the present IOLs can be provided with multifocal characteristics using any suitable methodology. Also, the IOL can be configured to provide any suitable multifocal arrangement of optical powers. In addition, the present IOLs can be constructed to obtain accommodating movement in any suitable manner. The exemplary embodiments illustrated herein are presented for illustrative purposes and are not intended to be limiting to the broad scope of the present invention.

While this invention has been described with respect to various specific examples and embodiments, it is to be understood that the invention is not limited thereto and that it can be variously practiced within the scope of the following claims.

What is claimed is:

1. An intraocular lens comprising:

a lens body sized and adapted for placement in a mammalian eye and having a plurality of different optical powers; and

a movement assembly joined to the lens body and adapted to cooperate with the mammalian eye to effect axial accommodating movement of the lens body in the eye.

2. The intraocular lens of claim 1 wherein the lens body has a first optical power for near vision and a second optical power for far vision.

3. The intraocular lens of claim 2 wherein the lens body has a third optical power intermediate between the first and second optical powers.

4. The intraocular lens of claim 1 wherein the lens body includes a plurality of different regions each having an optical power.

5. The intraocular lens of claim 1 wherein the movement assembly comprises at least one biasing member coupled to the lens body.

6. The intraocular lens of claim 5 wherein the biasing member comprises a spring member.

7. The intraocular lens of claim 1 wherein the lens body includes a plurality of annular regions extending radially outwardly from a central axis of the lens body.

8. The intraocular lens of claim 7 wherein the movement assembly comprises at least one biasing member coupled to the lens body.

9. The intraocular lens of claim 1 wherein the movement assembly is adapted to cooperate with at least one of the ciliary muscle of the mammalian eye, the zonules of the mammalian eye and the vitreous pressure in the eye to effect axial accommodating movement of the lens body in the eye.

10. The intraocular lens of claim 9 wherein the movement assembly is adapted to cooperate with the ciliary muscle to move the lens body axially toward a first position relative to the retina of the eye when the ciliary muscle is relaxed and axially toward a different second position relative to the retina of the eye when the ciliary muscle is contracted.

11. The intraocular lens of claim 10 wherein the second position of the lens body enhances near vision.

12. The intraocular lens of claim 10 wherein the movement assembly comprises at least one biasing member coupled to the lens body.

13. The intraocular lens of claim 1 wherein the movement assembly comprises at least one fixation member including a proximal end region coupled to the lens body and distal end region extending away from the lens body and adapted to contact a capsular bag of the mammalian eye.

14. The intraocular lens of claim 7 wherein the movement assembly comprises at least one fixation member including