

## Technology information form

Technology title
SmarBUCKL ---A scleral buckling band used for retinal detachment.
One sentence description of technology
SmarBUCKL is produced with biocompatible and slow-resorbing biomaterials which will not induce immunoreactions and can be resorbed after being implanted in the human body, consequently, the SmarBUCKL doesn't need to be exteriorized by a second operation after the patient recovers.
Development status
Early stage <input type="checkbox"/> Preclinical <input checked="" type="checkbox"/> Phase I <input type="checkbox"/> Phase II <input type="checkbox"/> Phase III <input type="checkbox"/> Phase IV <input type="checkbox"/> Preregistration <input type="checkbox"/> Registered <input type="checkbox"/>
Full description (Less than 400 words)
<p>Retinal detachment is a serious ocular disease that can cause serious visual dysfunction for the patients. It occurs more frequently in cases after ocular trauma, after ocular surgery, and in patients with a high degree of myopia. Scleral buckling using permanent materials has served well for cases of uncomplicated retinal detachment for more than 40 years.</p> <p>Although the success rate is high, complication can occur using such permanent materials for scleral buckling procedures. For instance, anterior segment ischemia, induced ocular motility abnormalities, choroidal hemorrhage, choroidal detachment, macular pucker, glaucoma, high refractive errors, infection and buckle extrusion all are complications associated with scleral buckling. Some of these complications, such as anterior segment ischemia, conjunctival granuloma, high refractive errors, infection and buckle extrusion are related to the materials used after placing permanent buckling in the patients. In retinopathy of prematurity induced retinal detachment, an additional procedure has to be performed to sever or remove these permanent buckling materials three months later to prevent the inhibition of normal eye growth.</p>

Permanent silicone implants have been used for decades for scleral buckling in retinal detachment surgery. Buckling implants close retinal tears and provide mechanical support until the retina and choroids have attached and a chorioretinal scar has been formed. Some patients need permanent support to prevent redetachment, but in simple uncomplicated cases of retinal detachment the need for a buckling effect is temporary. Permanent implants can cause long-term complications such as extrusion through the conjunctiva, infection, pain, or diplopia, by disturbing normal function of the ocular muscles.

**【Complications of permanent scleral buckling implants】**

- Macular pucker
- Motility disturbances
- Changes in refractive errors
- Buckle erosion
- Buckle extrusion and infection
- Retinal incarceration, scleral perforation...

SmarBUCKL is specifically designed to solve these complications. SmarBUCKL is produced with biocompatible and slow-resorbing biomaterials which will not induce immunoreactions and can be resorbed after being implanted in the human body: consequently, the SmarBUCKL doesn't need to be exteriorized by a second operation after the patient recovers.

In addition, the SmarBUCKL can be manufactured by different processes to produce different degradation rates to fit the recovery ability of different patients. SmarBUCKL contains variety of agents and the specific agent can be released at different treatment periods after implantation in the human body.

Patent status and no.

Patent pending application PCT/ CN2005/ 001801

Patent no.: TW I275387

Type of business relationship sought
Licensing or partnering
Licensing contact
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