

Double-port injector for DMEK (endothelial corneal transplant) surgery

Novel injector designed to reduce endothelial damage during implantation of the endothelial roll in the anterior chamber of the eye.

Description and essential characteristics

Corneal endothelium injector with two separated asymmetric ports. The port with the larger lumen is intended to allow frictionless entry of the graft. The port with the smaller lumen—located at the injector tip—is designed to allow a controlled exit of the endothelium through a minimum incision.

This double-port design enables a reduction in the graft's compression when entering through the port, as compared to single port injectors where the graft needs to be compressed to enter through the same port by which it will come out, thus increasing friction.

It is a closed system, so it is possible to get the graft into the injector without grabbing it, and makes the use of viscoelastic agents—which may interfere with graft adhesion once the graft is inside the eye—unnecessary.

Furthermore, the entire process is done continuously, with no need to disassemble the injector from the aspiration tubing, as with other commercially available injectors.

The injector is made of glass to prevent adhesion of the endothelium to the walls and to diminish friction during the transit of the graft through the device.

In short, this new design is meant to reduce endothelial damage during implantation of the endothelial roll in the anterior chamber of the eye.

Competitive advantages

The primary difference this injector makes, as compared to models currently available on the market, is that it has a double asymmetric port to separate entry from exit, thus reducing compression while aspirating the graft into the device. This is a key property in comparison with single port injectors, which share an entry and exit.

The injector is made of glass to reduce adhesion and friction from the injector's walls, in comparison with plastic injectors.

Both ports are separated and unrelated to the tubing system, so the manoeuvre is made in a continuous fashion, without the need to disassemble the injector from the aspiration tubing.

Type of collaboration sought

Cooperation is sought with any Party interested in partnering, licensing or investing in the technology, whether it be an investor to fund the project, a partner interested in getting involved in any of the various phases until its placement on the market, a patent licensee, etc. Organisations potentially interested in this technology are those devoted to the manufacture, commercialisation and/or distribution of healthcare products, particularly medical devices; as well as hospitals, ophthalmological clinics, etc.

Current stage of development

A hand-made prototype has been developed, which has been validated in animal and human models.

Current state of intellectual property

Spanish patent P201131222, granted in December 2013.
International patent application PCT/ES2012/070543.



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