



MEDICEL'S FIRST **DMEK** INJECTOR

ENDOJECT™

ACCORDING TO PROF. DR. KRUSE

FOR SAFE IMPLANTATION OF GRAFTS DURING
DESCEMET MEMBRANE ENDOTHELIAL KERATOPLASTY

Medicel introduces the first CE approved injector specifically designed for the safe implantation of grafts during descemet membrane endothelial keratoplasty.

Up until now, doctors are using classical cataract inserters in an off-label use in order to implant the graft during DMEK. With the new **ENDOJECT™** injector, surgeons have now access to a fully CE approved injector which is specifically designed for this purpose.



ENDOJECT™ INJECTOR SET, STERILE (BOX OF 1)

EJ2200

ENDOJECT™ 2.2 Injector Set

Medicel AG

Dornierstrasse 11

CH-9423 Altenrhein

SWITZERLAND

Tel. +41 71 727 10 50

Fax +41 71 727 10 55

info@medicel.com

www.medicel.com

medicel
SWISS TECHNOLOGY FOR SURGERY

What is the benefit of using ENDOJECT™ versus glass tubes?

Glass tubes require larger incision versus ENDOJECT™. Larger incision could cause higher amount of surgical induced astigmatism.

ENDOJECT™ cartridge tip could be introduced exceeding corneal center into the anterior chamber. The introduction capabilities allow positioning of the graft into its required position.

The injection principle of existent glass tubes is flushing the graft into the anterior chamber. Injection with a glass tube requires higher amount of fluid. The increased anterior pressure could cause a backflush while removing the glass tube from the incision. The backflush could likely flush the graft out of the anterior chamber. Furthermore, the risk of flushing the graft out of the glass tube while preparing the glass tube for injection is high.

Does injection of DMEK graft using silicone tip used in ENDOJECT™ damage the graft?

The ENDOJECT™ works on hydraulic principle. Dimensions used in ENDOJECT™ allow mobile movement of the graft within the cartridge. Once introduced into the cartridge, the silicone tip seals the cartridge completely at the rear end. The fluid within the cartridge barriers between graft and silicone tip and caused indirect advancement of the graft once plunger is moved manually.

Does ENDOJECT™ have an impact on endothelia cell loss?

Injecting DMEK graft using ENDOJECT™ causes only minor amount of endothelia cell loss¹. The amount of cell loss in comparative study using modified jones tube versus MEDICEL VISCOJECT™ 2.2 did not correlate with the injector used². Materials used for MEDICEL VISCOJECT™ 2.2 are identical with materials used for ENDOJECT™.

The cartridge material and manufacturing method allow thin-wall cartridge used in ENDOJECT™. The thinner wall thickness compared to glass tubes allow smaller outer diameter at same inner diameter of glass tubes.

¹ Roessler K et al. (2014), Experimental evaluation of a novel injector for the implantation of Descemet's membrane into the anterior chamber during DMEK, ARVO 2014 Poster

² Schallhorn et al. (2016), Quantification and Patterns of Endothelial Cell Loss Due to Eye Bank Preparation and Injector Method in Descemet Membrane Endothelial Keratoplasty Tissues. Cornea, 2016 Mar;35(3):377-82.

Which incision size does ENDOJECT™ require?

The suitable incision size to be able to introduce the ENDOJECT™ tip completely is 2.5mm. Surgeons comfortable to inject the graft while introducing the ENDOJECT™ tip into the incision only could use a minor smaller incision size.

Can DMEK grafts be stored in ENDOJECT™?

The ENDOJECT™ is actually not designed to fix DMEK graft in its position to allow secured transport. However, storage of tri-folded DMEK graft in MEDICEL VISCOJECT™ 2.2 cartridges manufactured out of same components has been analysed and proofed a limited impact on endothelia cell loss³.

³ Parekh M et al. (2016), Preloaded Tissues for Descemet Membrane Endothelia Keratoplasty. Am J Ophthalmol. 2016 Jun;166:120-5.

Why should I used ENDOJECT™ rather than a normal IOL injector?

ENDOJECT™ uses MEDICEL's GMS as gliding agent. MEDICEL's GMS is metabolizable by human cells and does not require liquefaction. MEDICEL Injectors using GMS and above principle have been FDA approved in 2006⁴.

Once positioned, the DMEK graft is tight applied at the stroma with no liquid flow in between. Modern IOL injectors are coated to allow IOL injection through micro incision. Particles from the coating could be transferred to the graft while injection. Coatings of IOL injectors are not metabolizable, but will liquefy and evacuated by human body. This process usually requires human body's natural anterior liquid exchange, which is not existent between DMEK graft and stroma.

ENDOJECT™ is a dedicated injector for DMEK graft. Using IOL injector is off-label use leaving the risk of treatment to the surgeon.

⁴ MEDICEL FDA Approval

How should a DMEK graft be loaded into ENDOJECT™ cartridge?

Instructions for use suggest a single roll with endothelia outside. However, applied studies suggest benefits tri-folding DMEK graft endothelia inside⁵.

⁵ Busin M (2015), Contact Lens-Assisted Pull-Through Technique for Delivery of Tri-Folded (Endothelium in) DMEK Grafts Minimizes Surgical Time and Cell Loss. AAO Journal, Manuscript 2015-1550