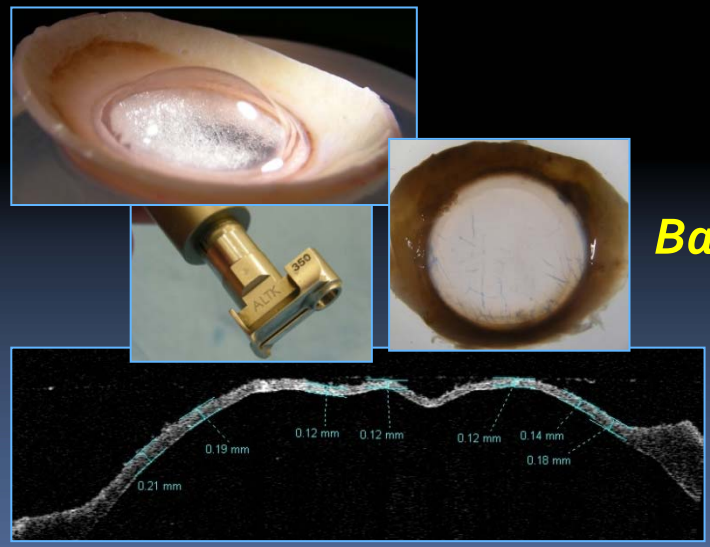
Roberto Donati

Domenico Amato

Banca degli Occhi di Roma



5-6 Novembre 2010 – Lucca

Endothelial keratoplasty: DSEK/DSAEK or DMEK - the thinner the better?

Isabel Dapena[a,b], Lisanne Ham[a,c] and Gerrit R.J. Melles[a,b,c]

Current Opinion in Ophthalmology 2009, 20:299–307

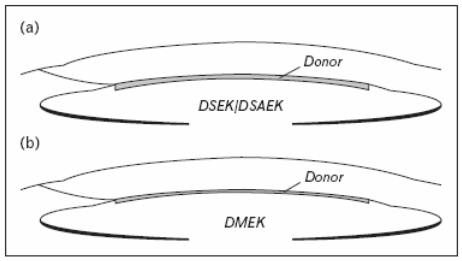
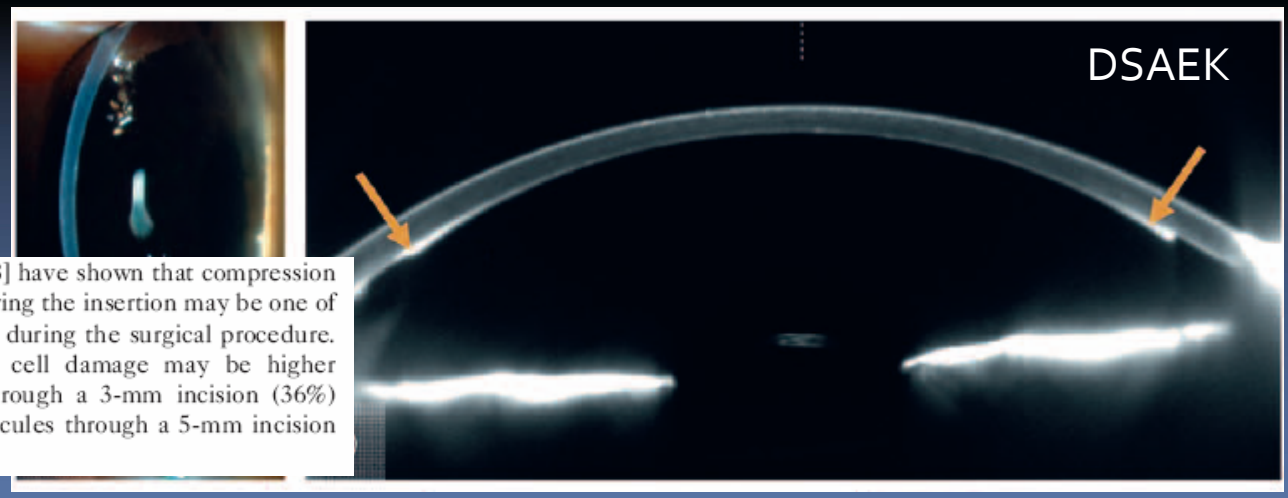


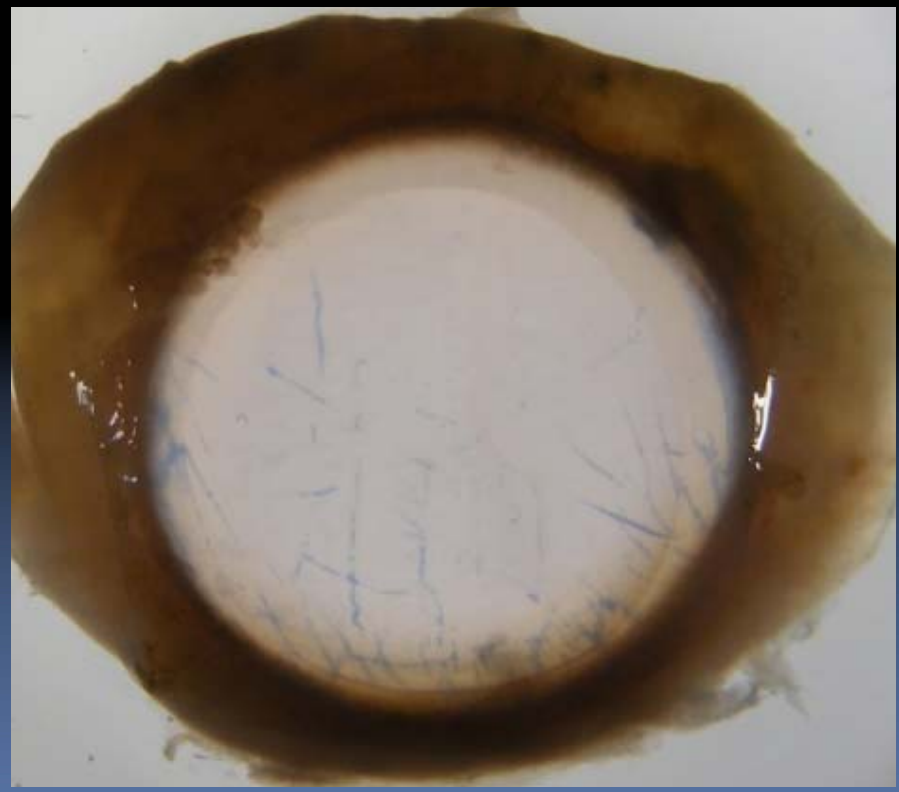
Diagram displaying (a) DSEK/DSAEK and (b) DMEK procedures. In both techniques, the recipient Descemet membrane is excised by descemetorhexis. In DSEK/DSAEK, a donor posterior lamellar disk consisting of posterior stroma, Descemet membrane, and its endothelium is transplanted, whereas in DMEK only an isolated donor Descemet membrane with its endothelium is transplanted. In DSEK, donor stromal dissection is performed manually, and in DSAEK, with the use of a microkeratome. In DMEK, the donor Descemet membrane is stripped off from a corneoscleral button. DMEK, Descemet membrane endothelial keratoplasty; DSAEK, Descemet stripping automated endothelial keratoplasty; DSEK, Descemet stripping endothelial keratoplasty.



Several studies [21•,47,48] have shown that compression of the donor lenticule during the insertion may be one of the most traumatic steps during the surgical procedure. In DSAEK, endothelial cell damage may be higher with 'trifolded' grafts through a 3-mm incision (36%) than 'bifolded' taco lenticules through a 5-mm incision (19%) [47].

MATERIALI E METODI

- Microcheratomo Moria ALTK con testina da 300/350 μm
- THIN-C™ (Al.chi.mi.a. Srl, Padova)
- Visante™ (Carl Zeiss + *device* Al.chi.mi.a. Srl, Padova)
- Classe A
- Tessuti a 4°C
  Eusol-C & THIN-C (Al.chi.mi.a. Srl, Padova)
- Taglio *free-flap*
- Tessuti *over 50*




no
ok
no
3.5 mm


NAC
02564
CE

ANTERIOR CHAMBER OCT ADAPTOR TO ASSESS INTACT AND PRE-CUT EYE BANK CORNEAL BUTTONS FOR PK AND DSEAK

Sonia Yoo[1,2], Caro De Freitas[1], Wiliam Lee[1], Izuru Nose[1], Jorge Pena[3], Concetta Triglia[3]
Elizabeth Fout-Caraza[3], Stephen Uhlhorn[1], Sander Dubovy[1,2], William Culbertson[2], Jean-Marie Parel[1,4,5]

[1]Ophthalmic Biophysics Center, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL
[2]ABLEH,Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, FL
[3]Florida Lions Eye Bank, Miami
[4]Dept. of Biomedical Engineering, College of Engineering, Univ. of Miami, Coral Gables, Florida;
[5]Univ. of Liege, CHU Sart-Tilman, Liege, Belgium.

Evaluation of lamellar thickness by ultrasound pachimetry and non-contact optical coherence tomography in Eye Bank-prepared tissues for DSAEK

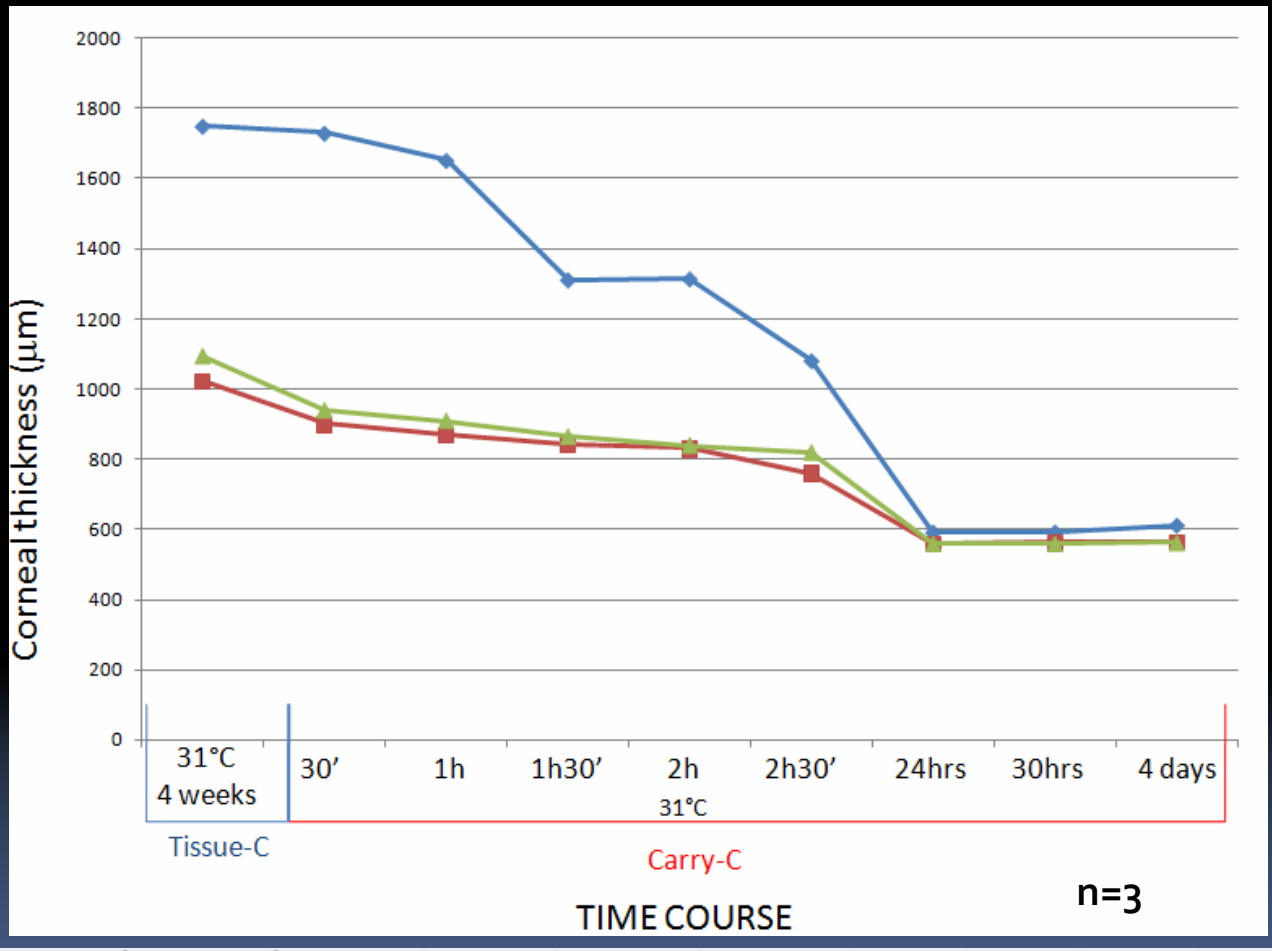
Amato D.,BS*; Oddone F.,MD,PhD[1] and Pocobelli A.,MD*
*San Giovanni-Addolorata-Britannico Hospital; Via dell'Amba Aradam n.9 00184, Rome, Italy. [1]G.B.Bietti Eye Foundation IRCCS, Via Livenza 3, 00198, Rome, Italy

Clinical Follow-up of Ultra-thin Pre-cut Tissue Prepared with a New Media for DSAEK

Mariela Caridad Aguilar[1], Domenico Amato[2], Domenico Schiano Lomoriello[2], Maria Luisa Livani[3], Jana D.Tothova[4], Mauro Beccaro[4], Sonia Yoo[1], Jean-Marie Parel[1], Augusto Pocobelli[3]

[1]Department of Ophthalmology, Ophthalmic Biophysics Center, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, Florida, USA [2]G. B. Bietti Eye Foundation IRCCS, Rome, Italy [3]S. Giovanni-Addolorata-Britannico Hospital, Rome, Italy
[4]Al.Chi.Mi.A, SRL, Padova, Italy

"De-swelling" corneale

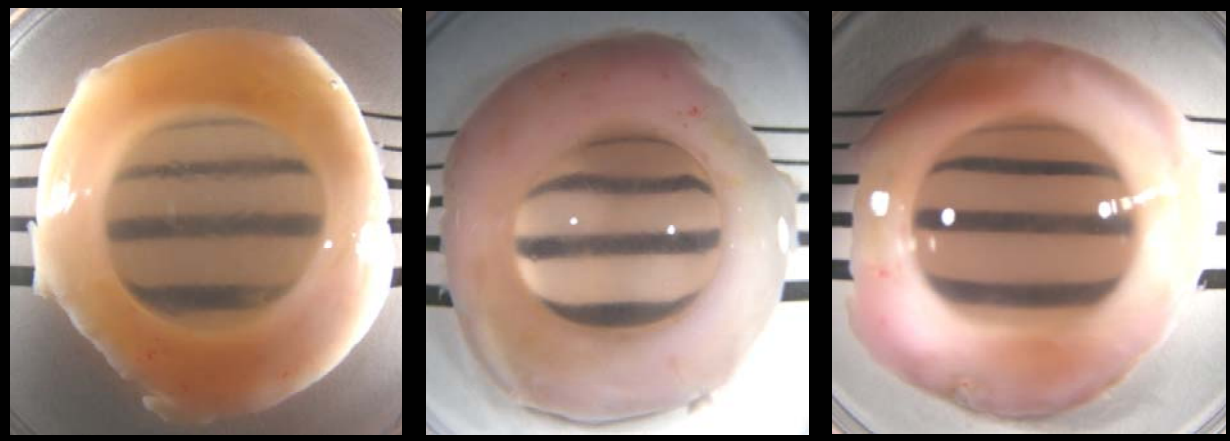


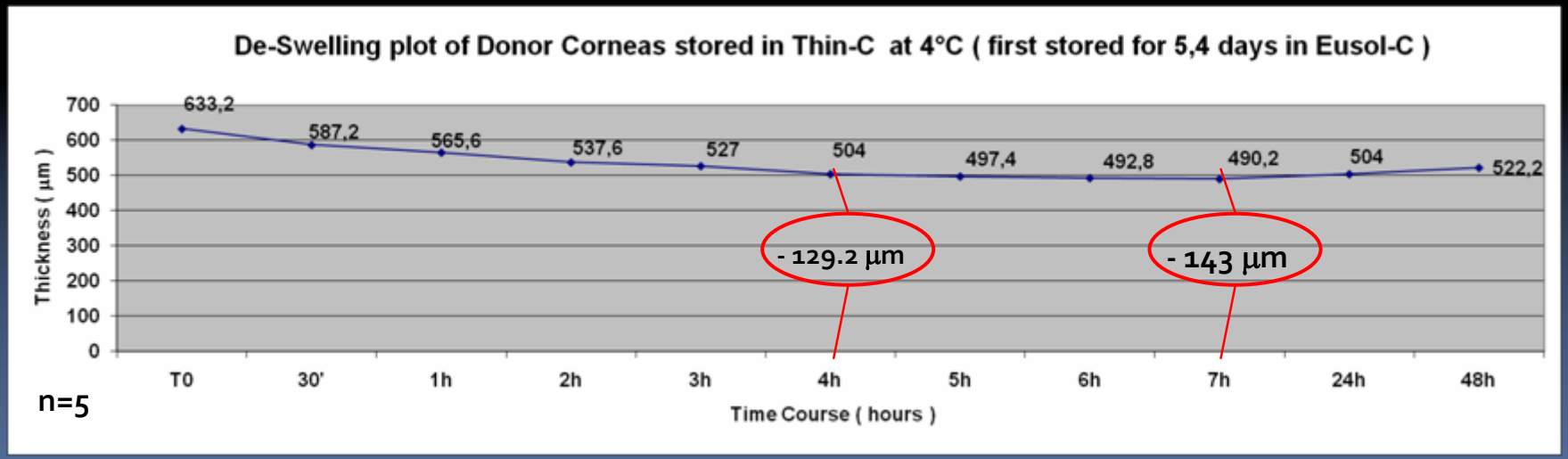
		Vol. 20ml										
Storage Medium	Tissue-C 31°C	Carry-C 31°C										
Time course	4 weeks 31°C	30'	1h	1h30'	2hrs	2h30'	24hrs	30hrs	4 days	Cut	24h post-cut	*Donor age*
Measurement	1750 (µm)	1730	1652	1311	1314	1080	590(µm)	590	610	/	/	80
	1021 (µm)	900(µm)	870 (µm)	840 (µm)	830	760	560	564	565	170	200	71
	1094 (µm)	940(µm)	910 (µm)	865 (µm)	840	820	560	560	562	180	230	71

Mix di Destrano
ad alto e basso peso molecolare

THIN-C
(AL.CHI.MI.A. Srl)

Eusol-C	THIN-C	THIN-C
Dopo 5 giorni a 4°C	Dopo 4 ore a 4°C	Dopo 24 ore a 4°C





Risultati

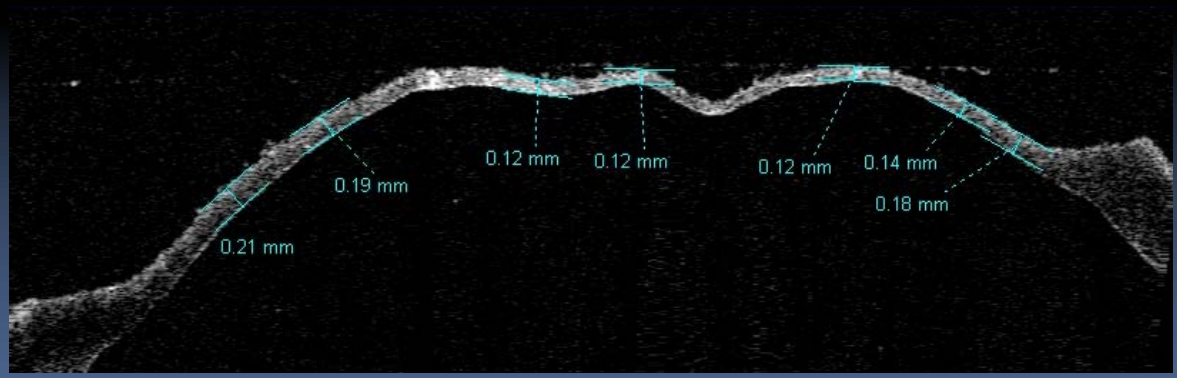
Mortalità endoteliale:

≤ 8%

Residuo stromale post-taglio* anteriore :

410,34±22,6 μm

n=44



Spessore residuo:
Compreso tra 120 e 180 μm

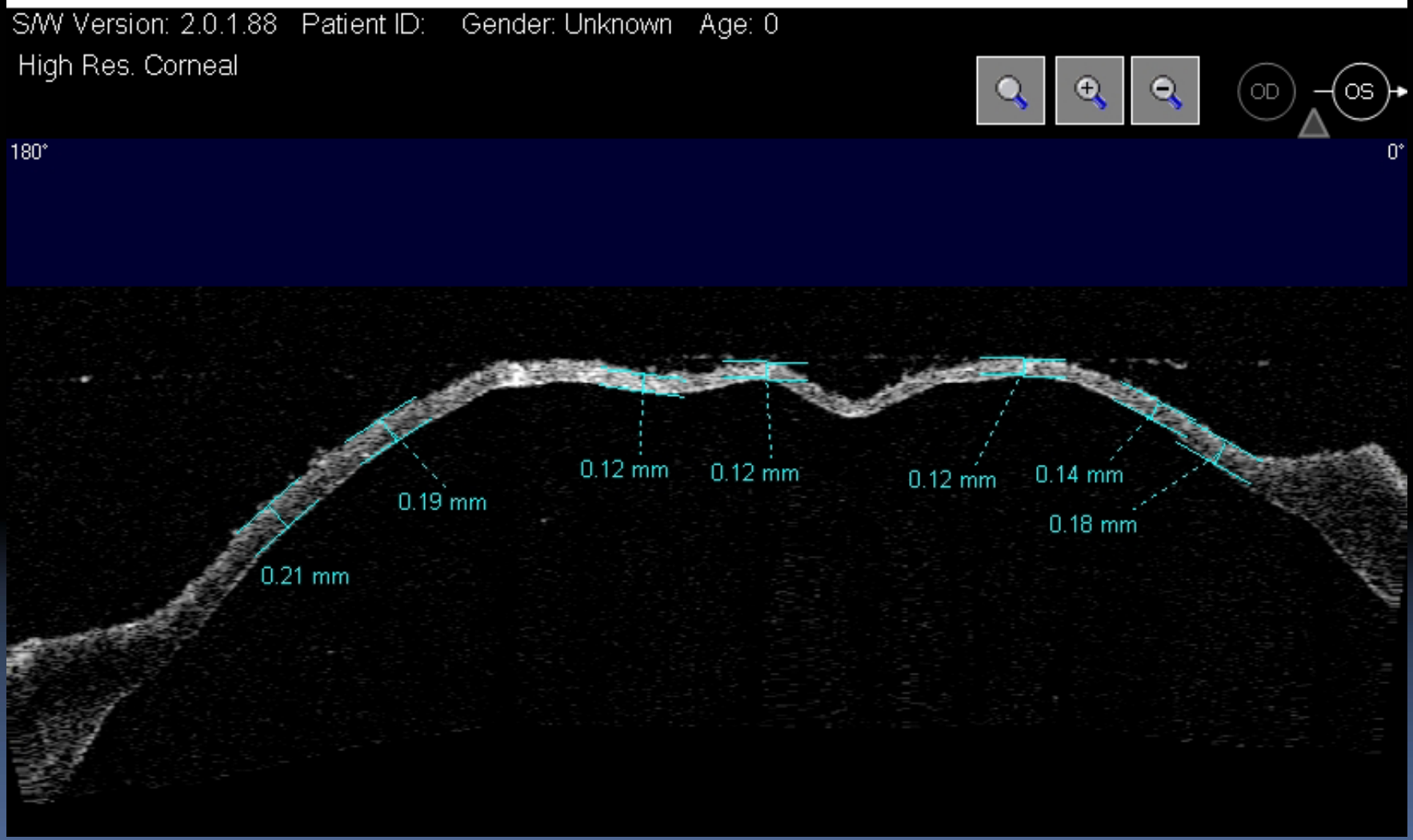
* Testina da 350 μm

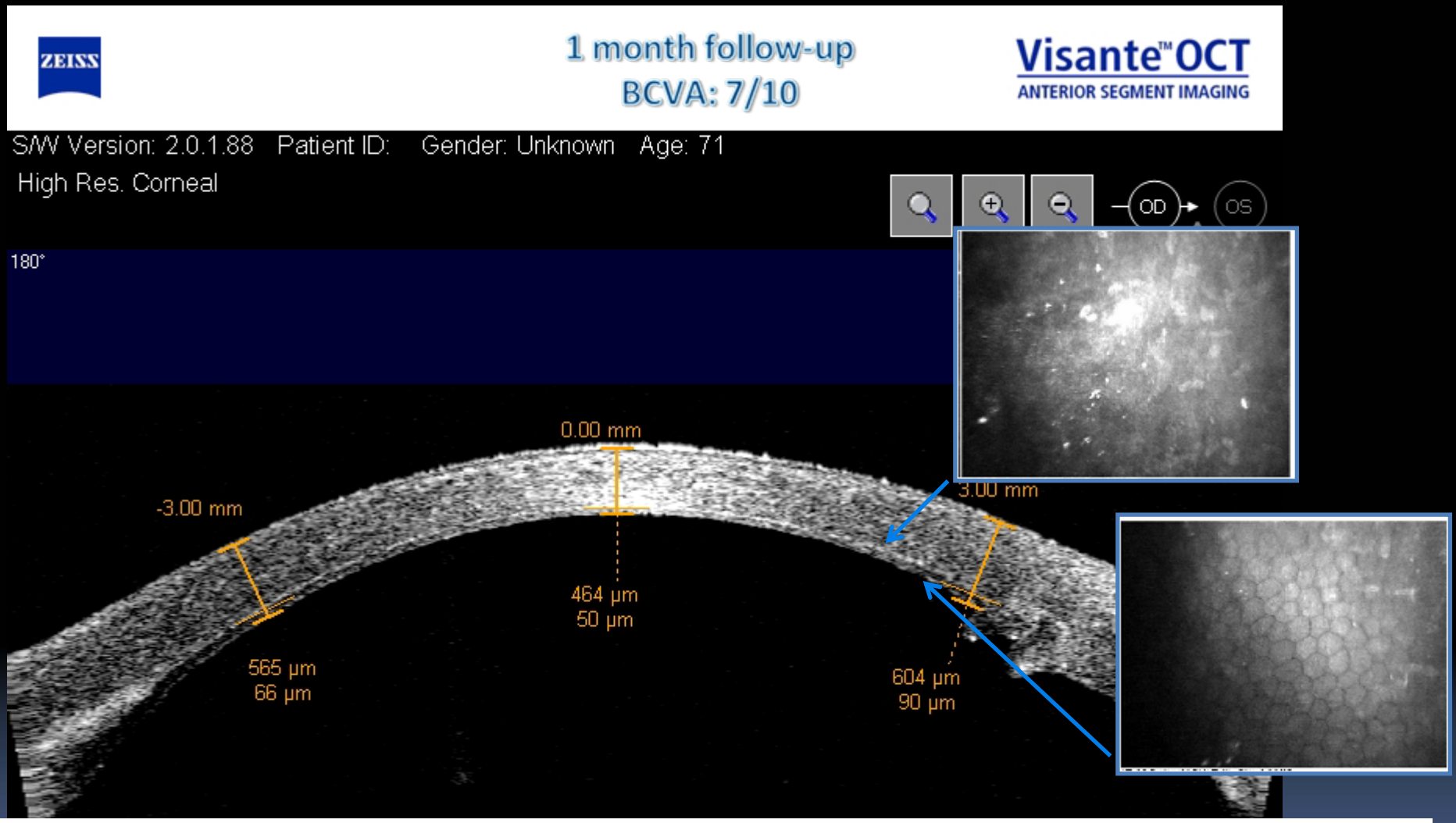
ULTRA-THIN DSAEK

ZEISS

Visante™ OCT
ANTERIOR SEGMENT IMAGING

Cornea dopo taglio in *vial*





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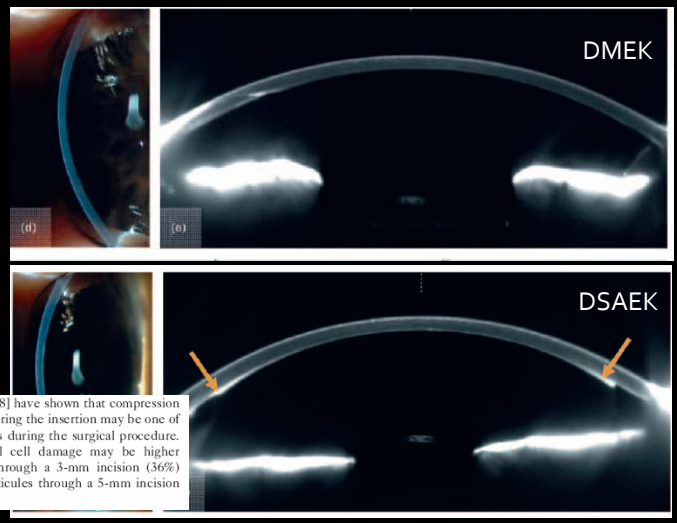

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Laboratory Science

Pre-cut donor tissue for Descemet stripping automated keratoplasty: anterior hinged lamella on versus off

Domenico Amato,[1] Francesco Oddone,[2] Mario Nubile,[3]
Rossella Anna Maria Colabelli Gisoldi,[1] Carlo Maria Villani,[1] Augusto Pocobelli[1]

Br J Ophthalmol (2010). doi:10.1136/bjo.2009.161158

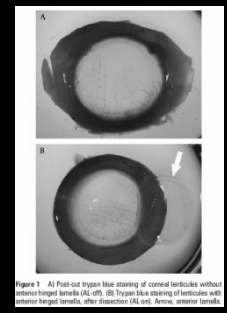


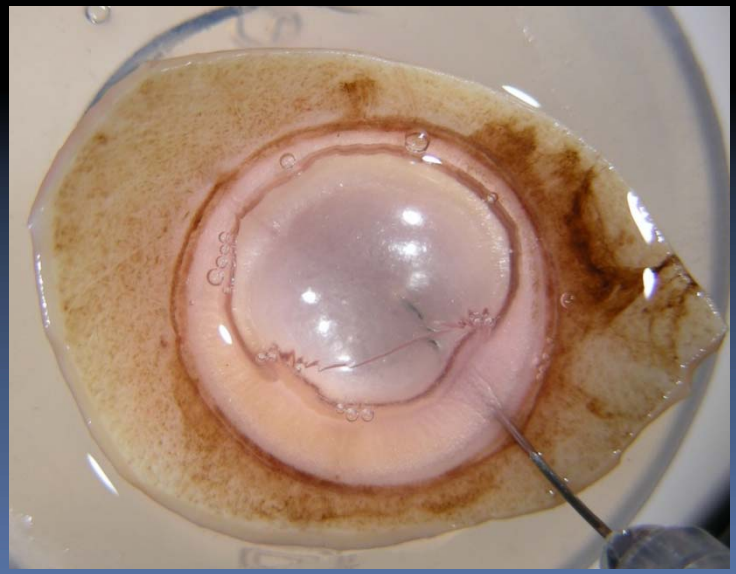
Figure 1 A) Post-cut trypan blue staining of corneal lenticules without anterior hinged lamella (AL-off). (B) Trypan blue staining of lenticules with anterior hinged lamella, after dissection (AL-on). Arrow, anterior lamella.

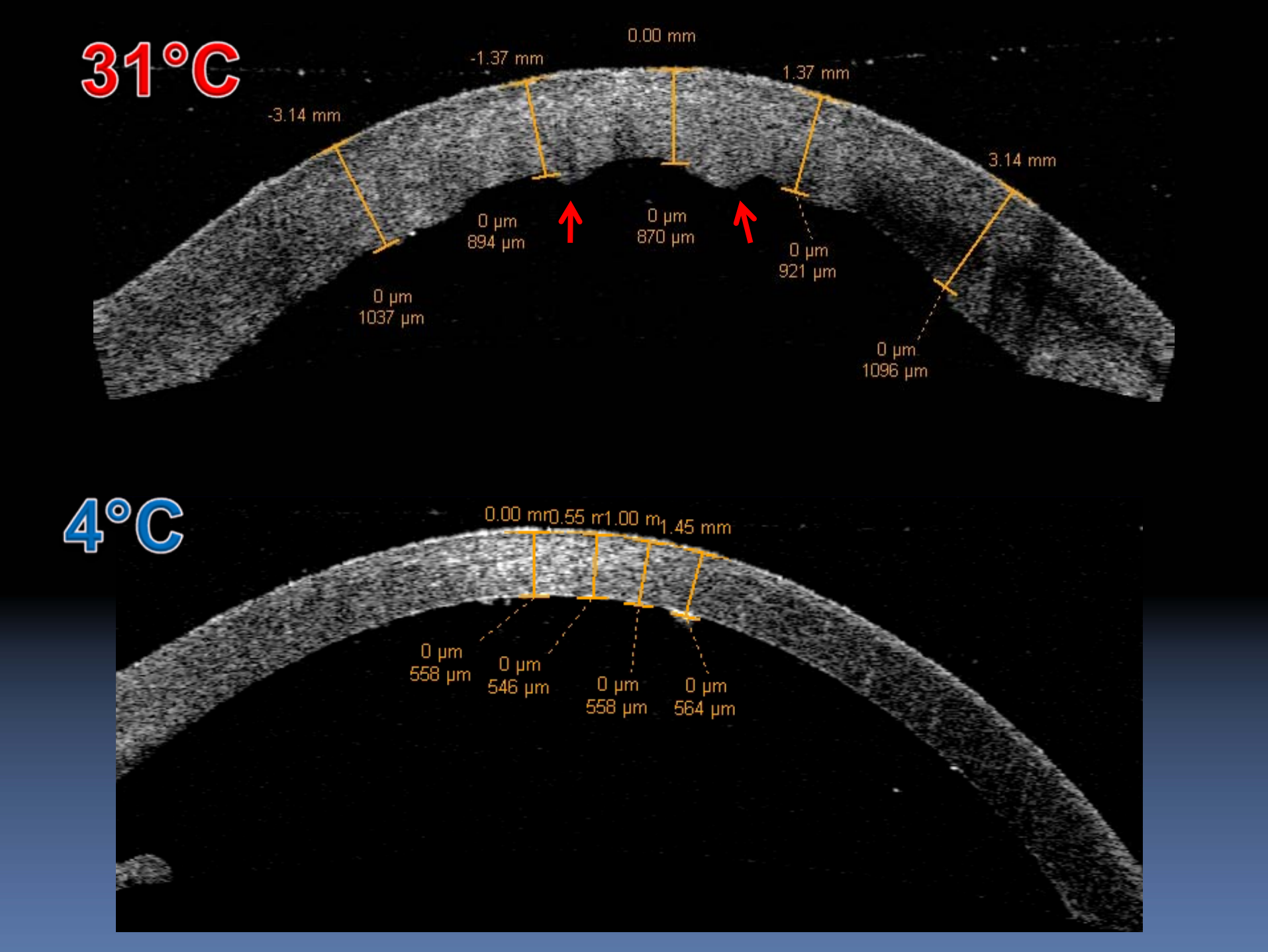
E' possibile prepare lembi per DMEK in banca degli occhi?

DMEK

MATERIALI E METODI

- 18 cornee
- Siringa da 0,5 ml da insulina
- Supporto in silicone
- Eusol-C / Tissue-C (Al.chi.mi.a. Srl, Padova)
- Steromicroscopio
- Saggio di mortalità endoteliale: Trypan blue
- Età dei donatori compresa tra i 30 e 75 anni




31°C
0.00 mm
-1.37 mm
1.37 mm
-3.14 mm
3.14 mm
0 µm
894 µm
0 µm
870 µm
0 µm
921 µm
0 µm
1037 µm
0 µm
1096 µm
4°C
0.00 mm
0.55 mm
1.00 mm
1.45 mm
0 µm
558 µm
0 µm
546 µm
0 µm
558 µm
0 µm
564 µm

What Biomechanical Properties of the Cornea Are Relevant for the Clinician?

Aachal Kotecha, PhD

SURVEY OF OPHTHALMOLOGY VOLUME 52 • SUPPLEMENT 2 • November 2007

Glaucoma Research Unit, Moorfields Eye Hospital, and Department of Optometry, City University, London, United Kingdom

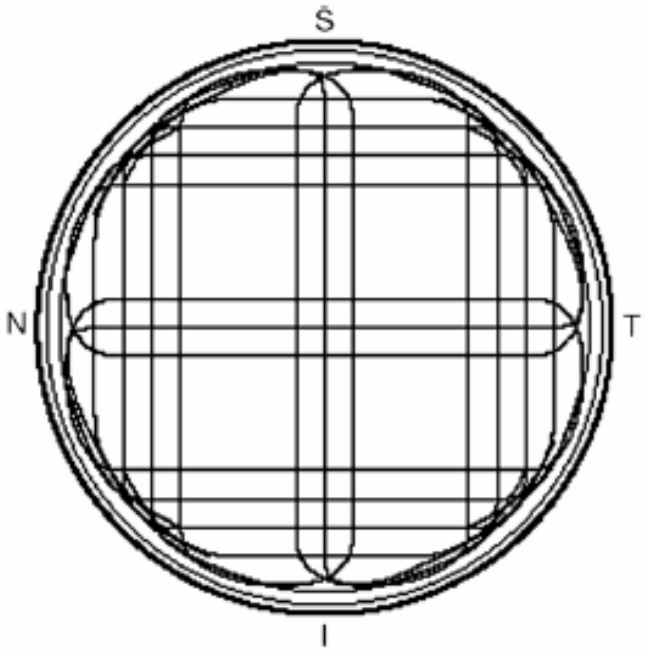
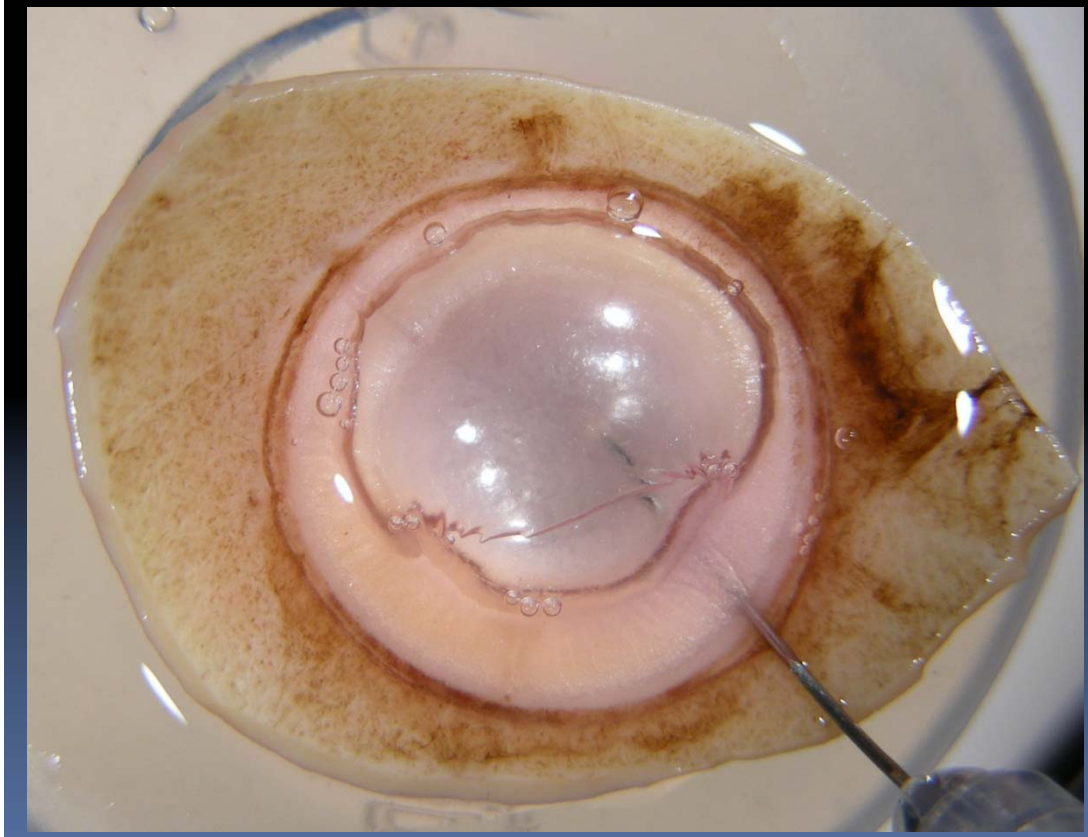
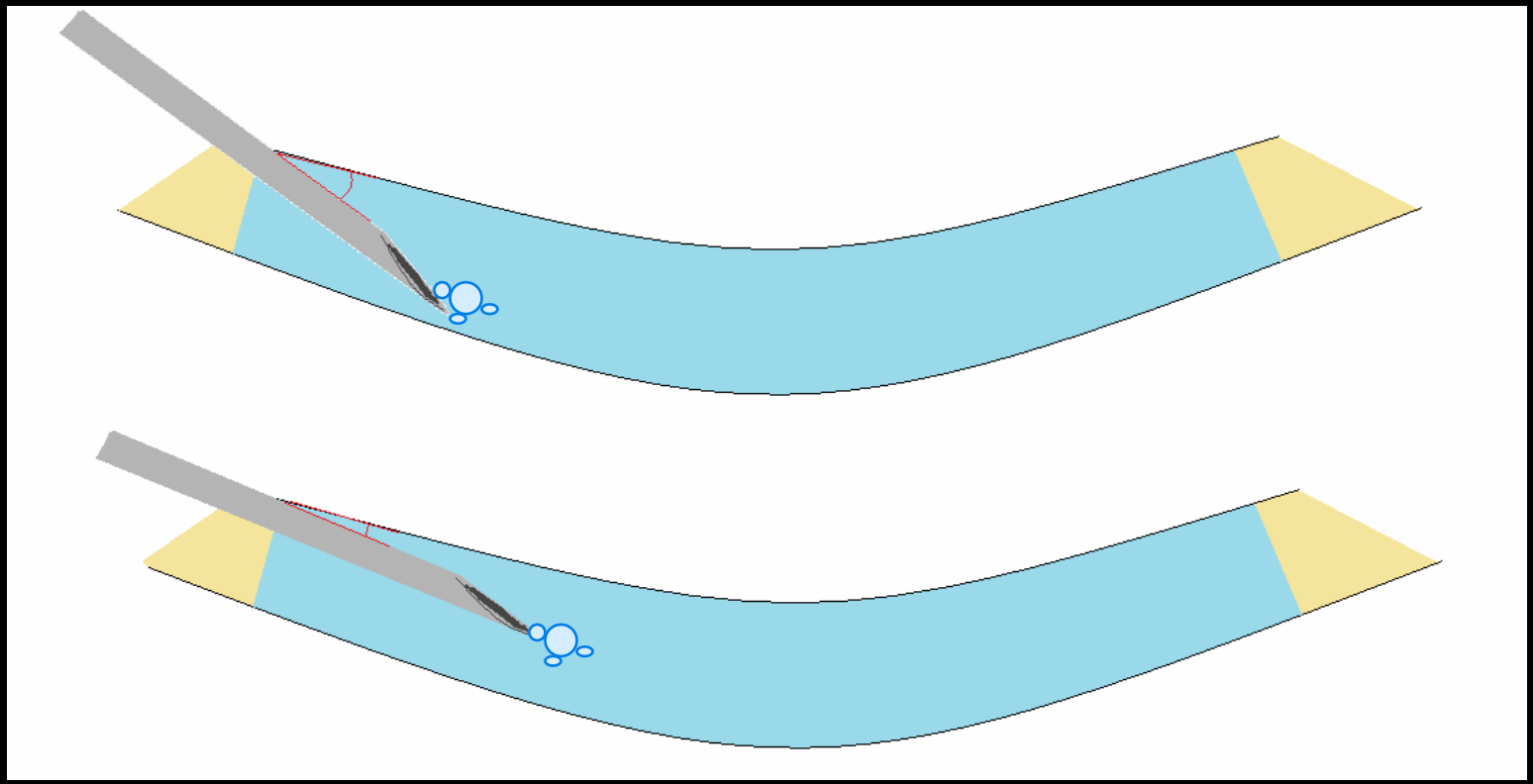
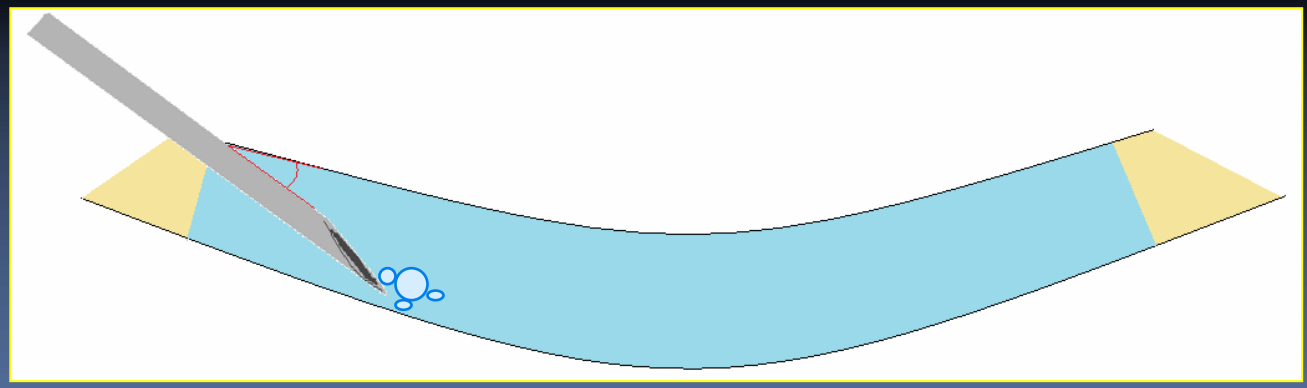
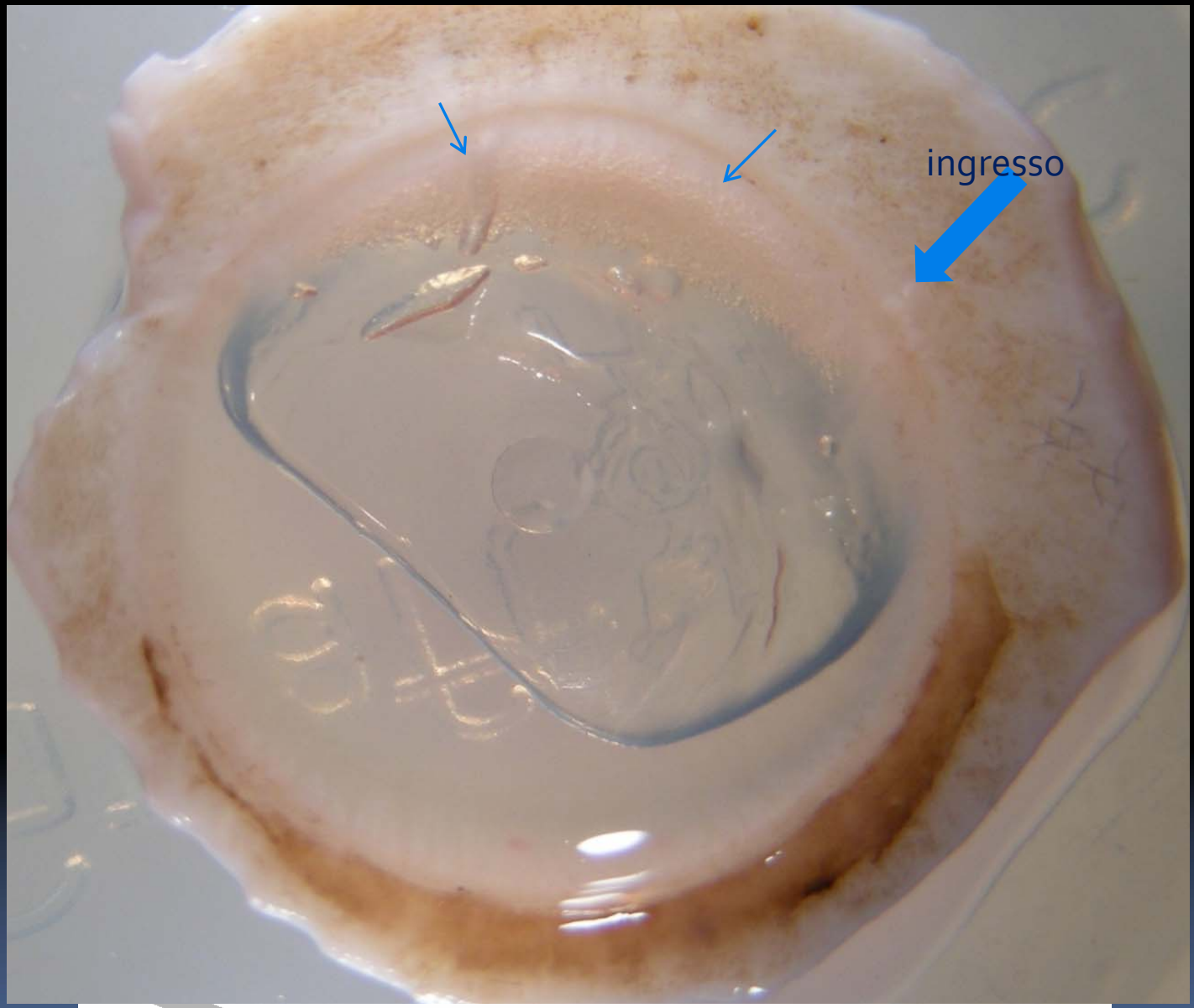


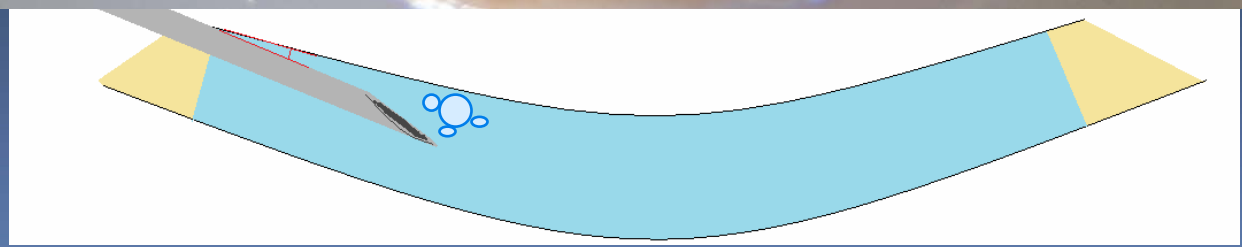
Fig. 1. Preferential orientation of collagen fibrils in posterior stroma. Fibrils have an ordered limbal-to-limbal arrangement, running preferentially in the inferior–superior and medial–lateral meridians, interweaving circumferentially with scleral collagen fibrils at the limbus. (Reprinted from K. Meek[23] with permission of the Biophysical Society.)

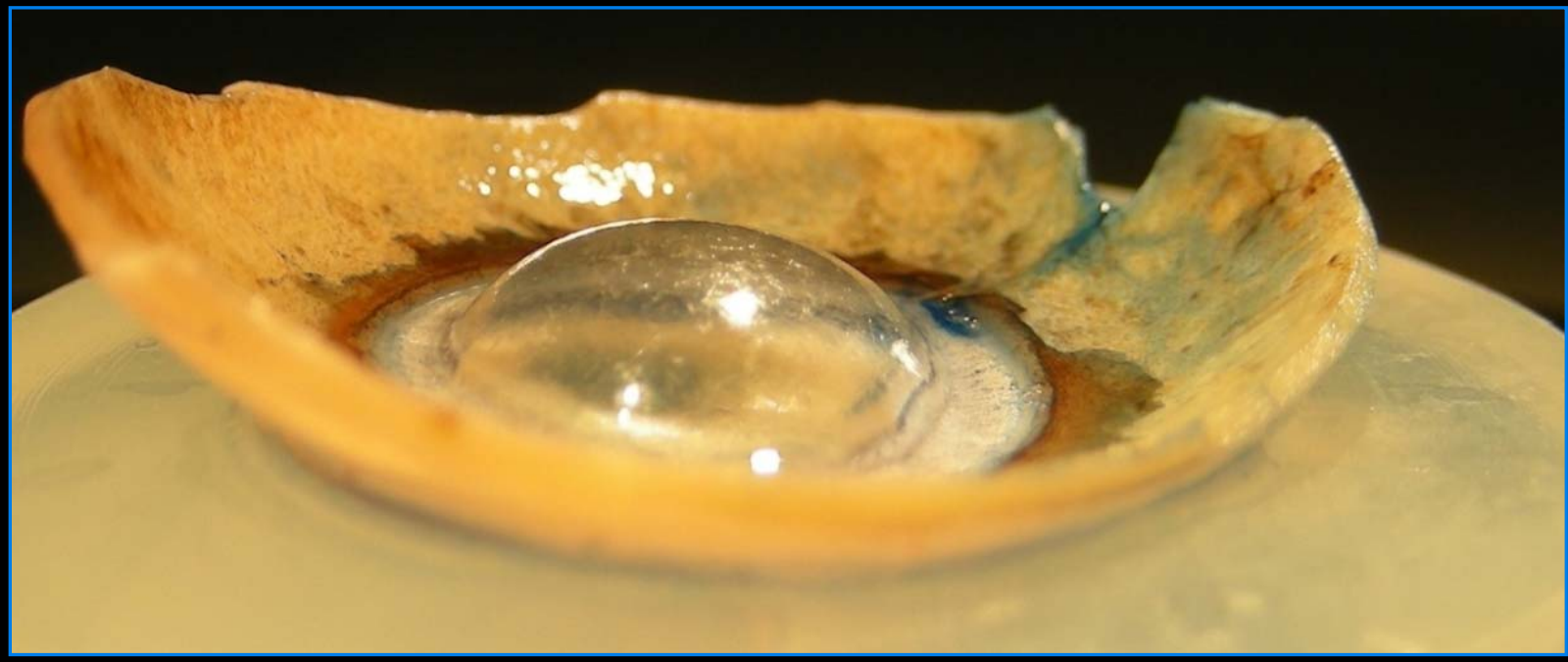







ingresso



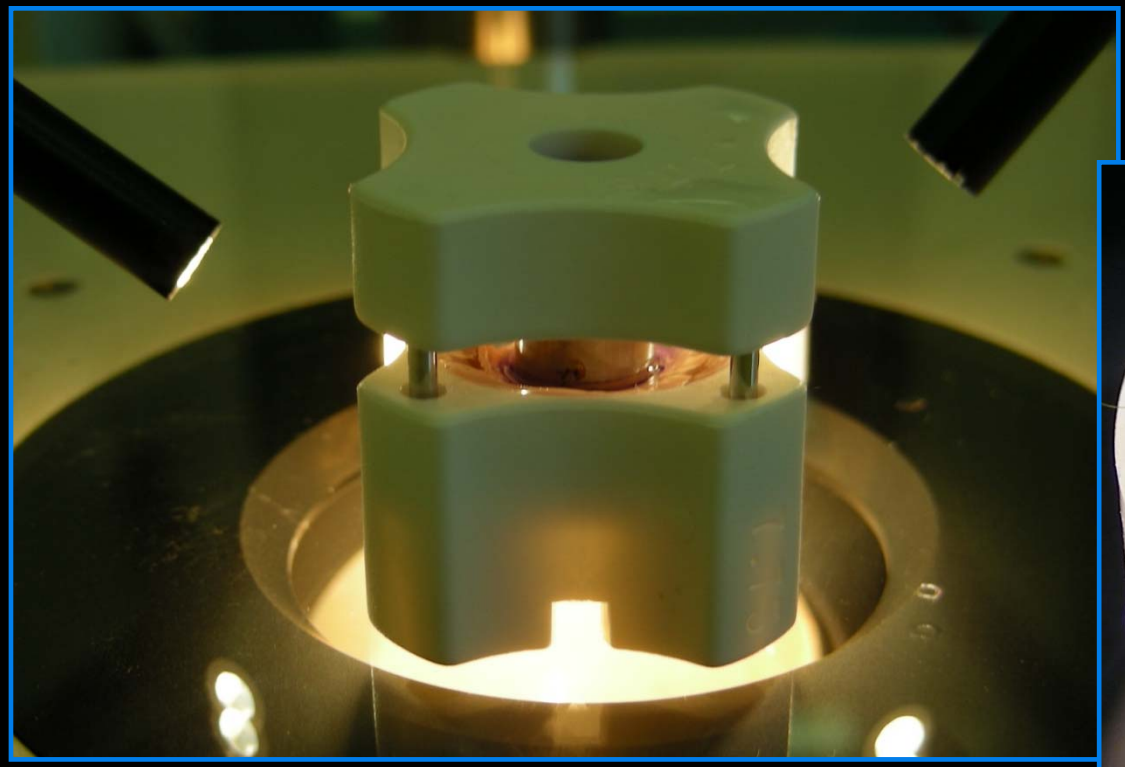


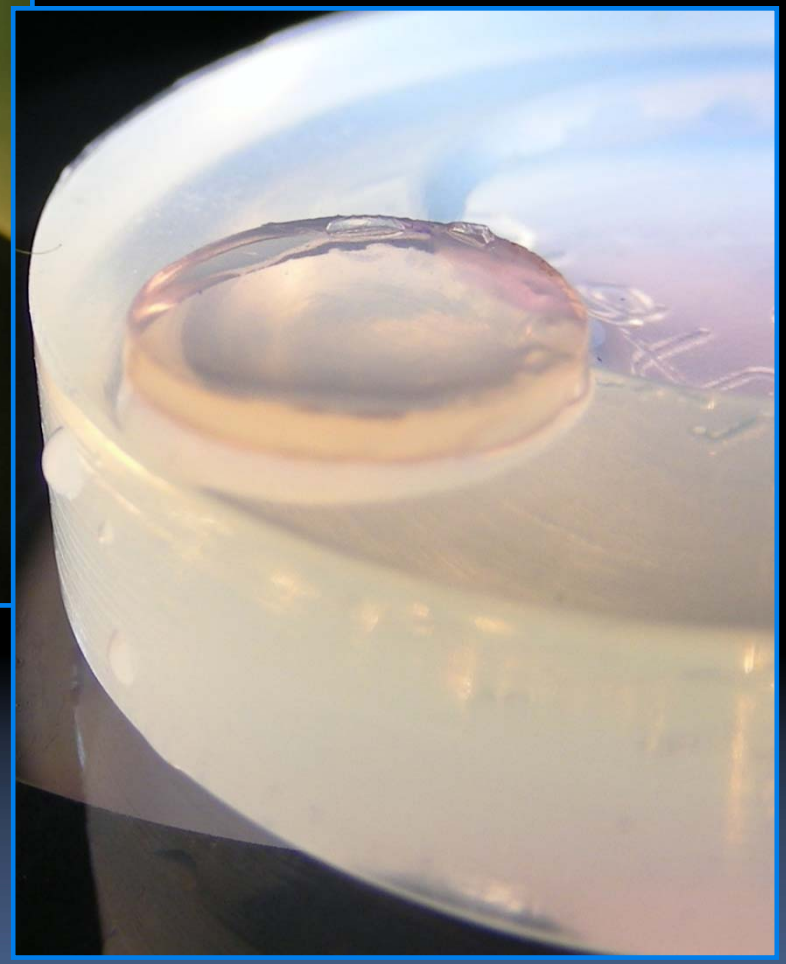
isante™ OCT
TERIOR SEGMENT IMAGING

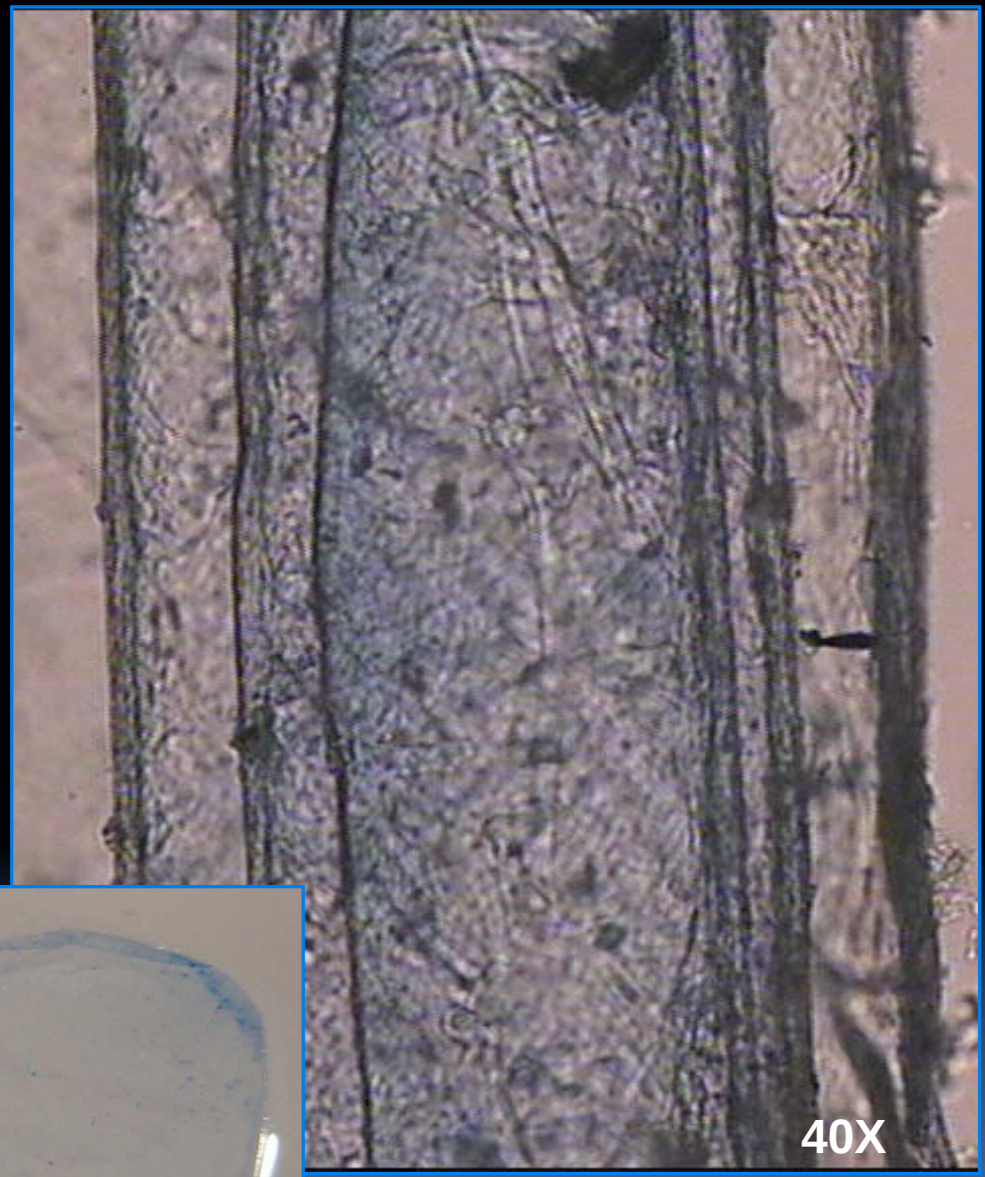
OD OS

298° 118°

0.03 mm

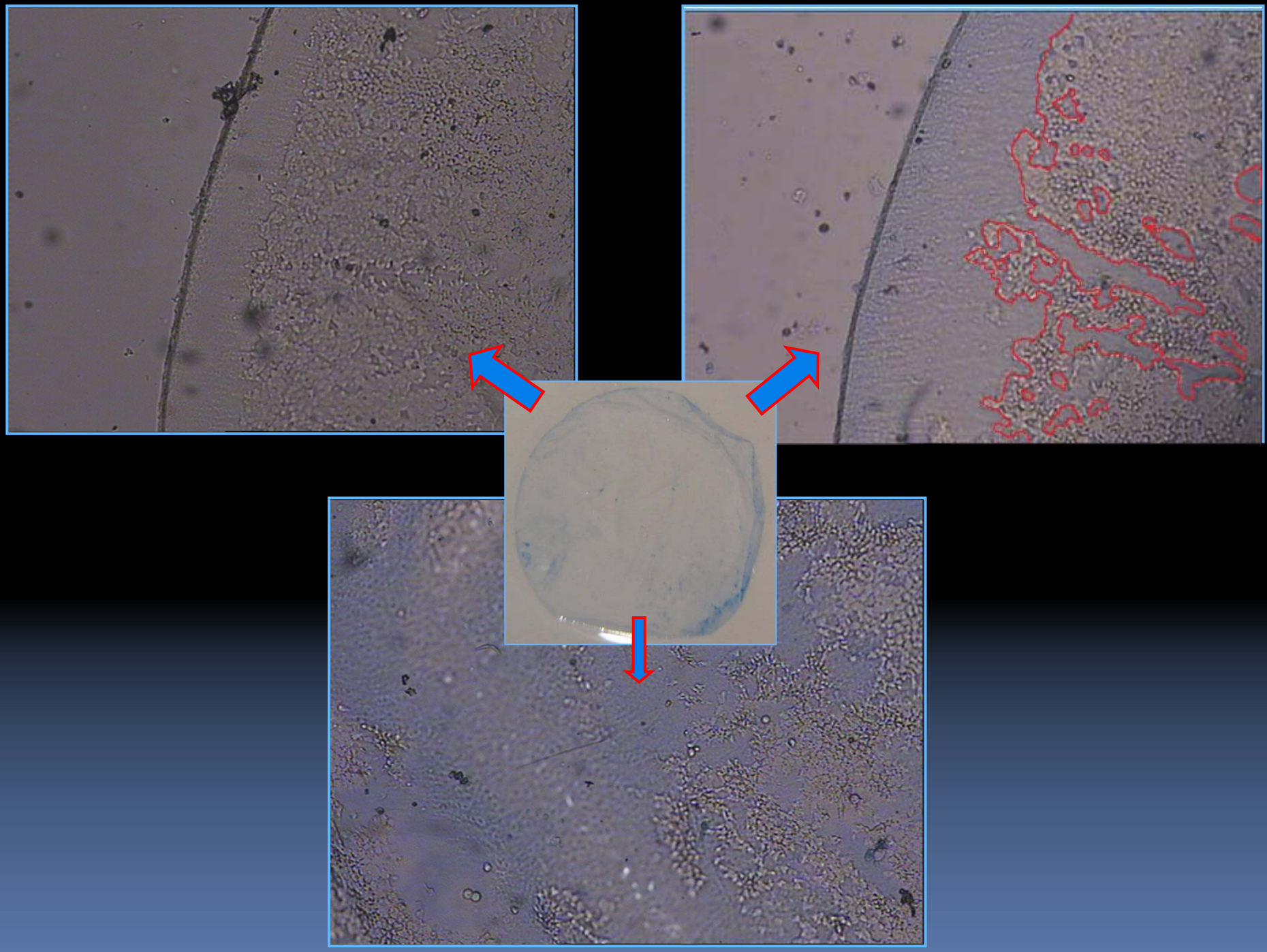






stroma

Descemet + endotelio



Risultati

1. **Possibilità di *tissue storage***
2. **6 tessuti scartati (“*scoppio*”)**
3. **Fondamentale la posizione dell’ago – stroma anteriore / posteriore**
4. **Tessuti conservati a 31°C *vs* a 4°C**
5. **Tessuti *giovani* vs anziani (*deposizione di collagene/ incremento del cross-linking naturale*)**
6. **Mortalità endoteliale (estese aree trypan blue positive)**

CONCLUSIONI

ultra -thin DSAEK

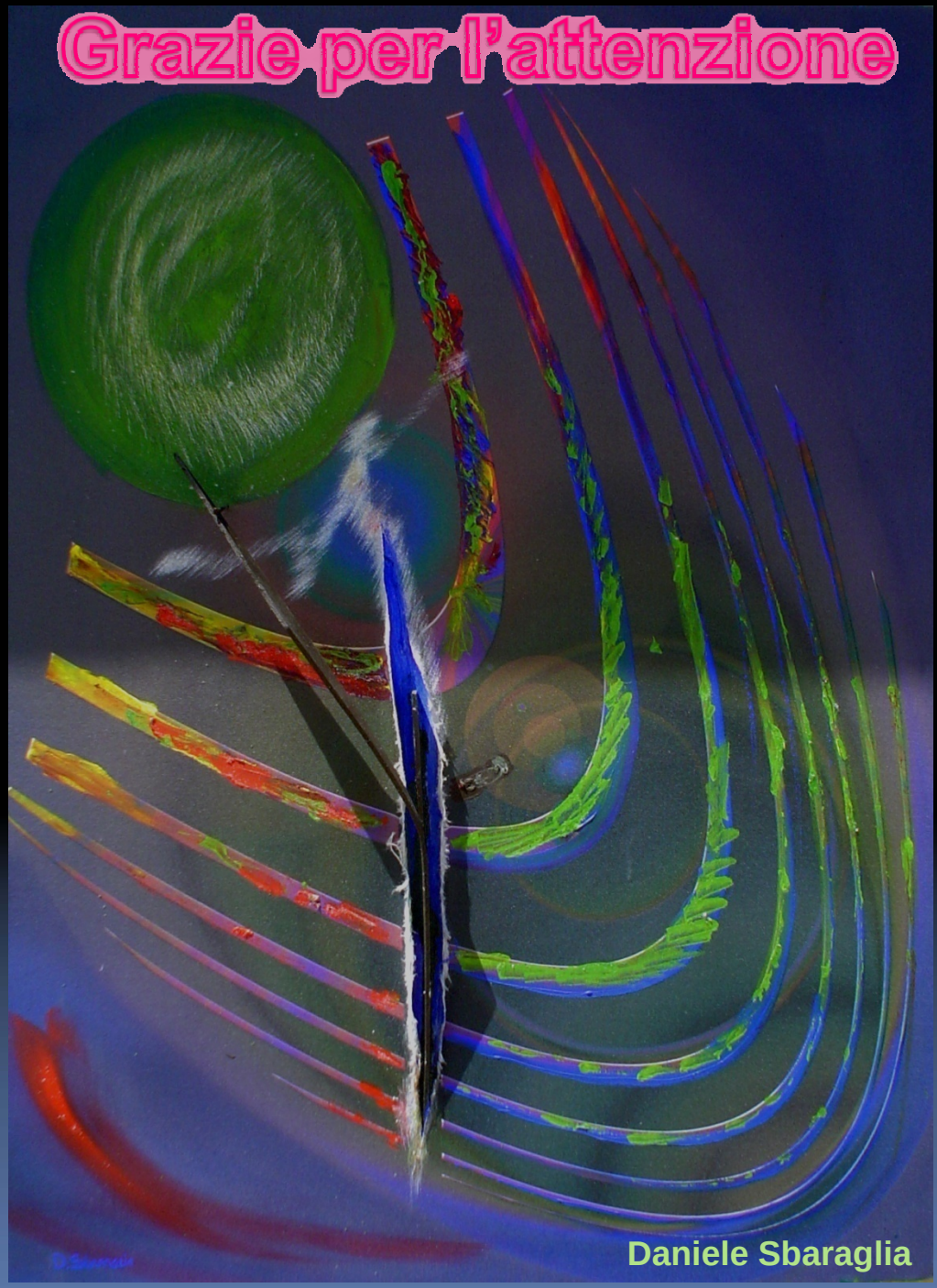
- Tecnica DSAEK *–like*
- *“wastage” molto basso*
- *“ready to use”* per il chirurgo
- conservazione a freddo
- tessuti “ *freschi*” (4°C)

DMEK

- Spessore borderline
- Conservazione a caldo
- “ready to use” per il chirurgo

Curva di apprendimento

- Bassa ripetibilità
- Mortalità diffusa
- “*wastage*” alto
- inserimento in AC ?


Grazie per l'attenzione
Daniele Sbaraglia