COUSIN SURGERY

Visceral surgery solutions

LESS IS BETTER

From repair to regeneration

UK DISTRIBUTOR

ideal Medical Solutions

INNOVATIVE EXCELLENCE

MADE IN FRANCE

Less implanted material in the long term
Less need for fixation*
Less operative time**
Less use of fossil energies

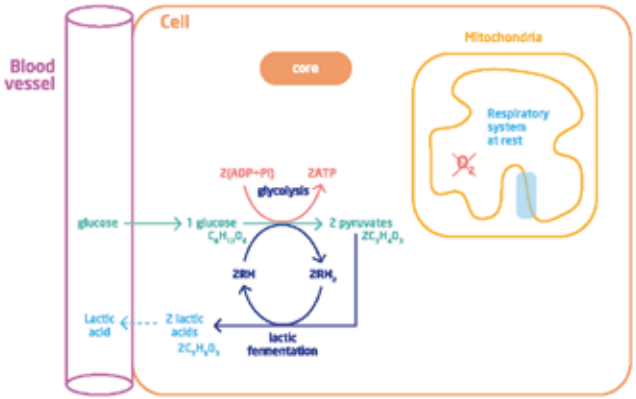
LESS IS BETTER

From repair to regeneration

Better comfort for the patient**
Better handling, repositionable**
Better cost-effectiveness
Better choice for the environment

*Club Hernie Register
**Early results of comparison of polypropylene mesh and 75% resorbable mesh (monofilament polypropylene and poly-L-lactic acid (PLLA) mesh) for laparoscopic total extraperitoneal (TEP) inguinal hernia repair ; Birol Agca, Yalin Iscan, Kemal Memisoglu - General Surgery 2019;6(4):388-392

“ PLLA: an absorbable biosynthetic material ”



WHAT IS PLLA?

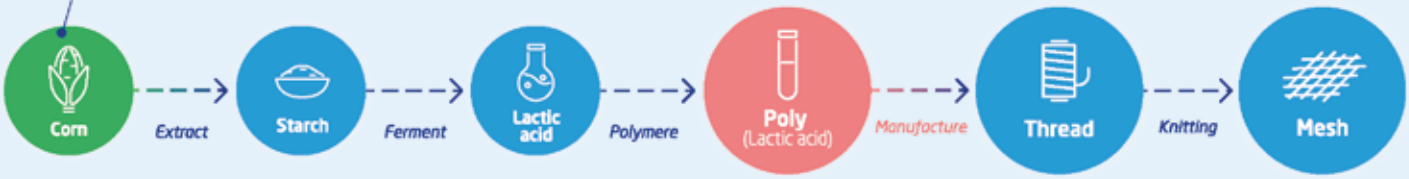
PLLA means Poly L Lactic Acid

It’s a biocompatible biobased and **slowly absorbable** polymer. It’s half life is estimated at 24 months.*
The product resulting from PLLA degradation is **Lactic Acid** which is a **natural energetic metabolite.**
The lactate metabolism is highly regulated by kidney clearance to maintain a circulating concentration of 5-6mmol/L.

[Zhang SY. et al. Nat Mater. 2015]

WHERE DOES OUR PLLA COME FROM?

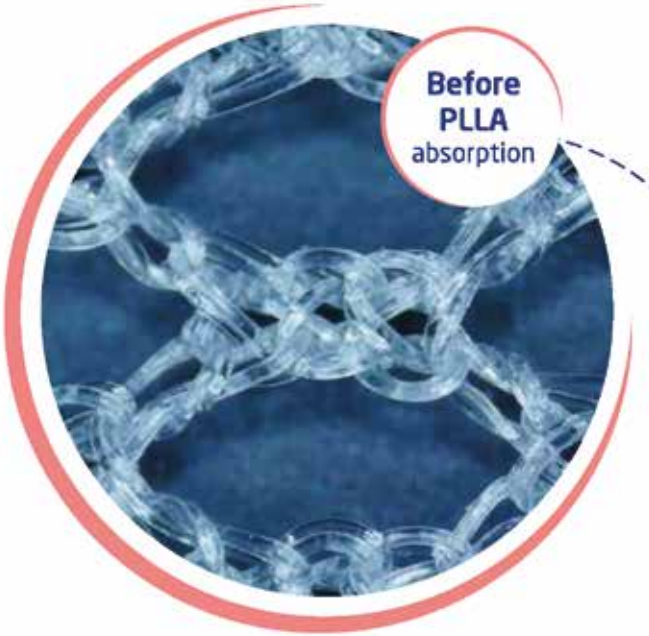
It is derived from **renewable** organic biomass of plant **origin** (corn)

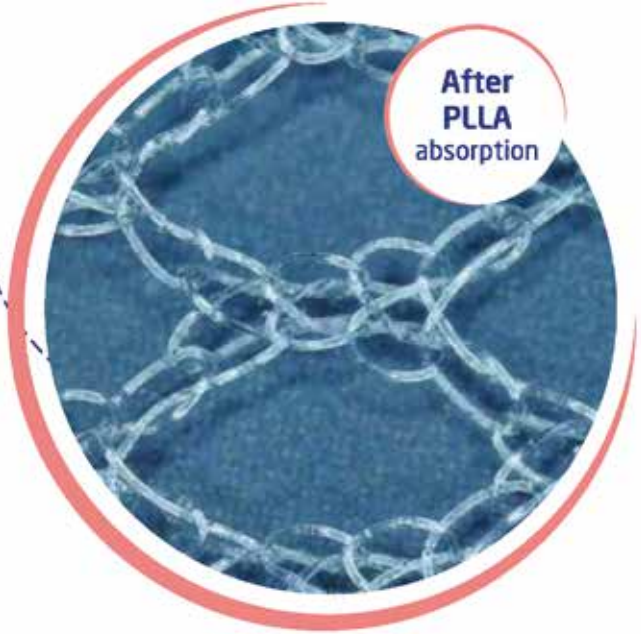


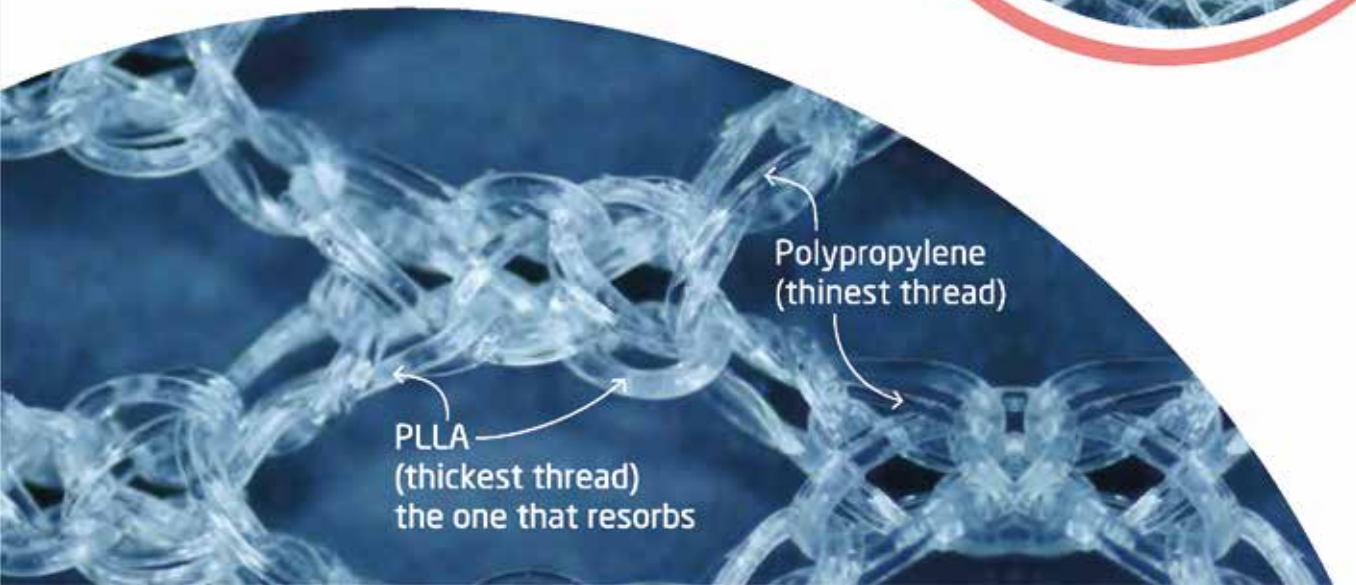
Adapted from - Evangelia Balla et al. Polymers 2021

OUR TECHNOLOGY

A pattented knitt of composite PLLA/PP (polypropylene) monofilaments leading to **partially** and **slowly absorbable** macroporous meshes with two **long term goals: EFFICACY** of the repair and outstanding patient **COMFORT**







WHAT DOES PLLA BRING TO THE MESH?

Initial stiffness

PLLA gives the mesh the requested **shape memory** for easy per-operative placement. Once the PLLA materail absorbs, the remaining lightweight PP knitt is very **thin** yet **resistant**, and conformable to patient's abdominal wall so that no stiffness nor discomfort is perceived in the long term.*

Early Hydrophilic property

PLLA monofilaments are hydrophilic and therefore provide a gentle **gripping effect** to the mesh. Once in place, the mesh holds to the abdominal wall and if needed, the mesh can be **repositionned** without any trauma to the tissues or difficulties in handeling.*

Late absorbable property

PLLA is **slowly degraded** over time into well-tolerated and safe degradation products, which are then cleared from the body by kidneys. This way, a large part of the mesh naturally resorbs leaving the patient with very little amount of lightweight non resorbable PP material.

** Early results of comparison of polypropylene mesh and 75% resorbable mesh (monofilament polypropylene and poly-L-lactic acid (PLLA) mesh) for laparoscopic total extraperitoneal (TEP) inguinal hernia repair ; Birol Agca, Yalin Iscan, Kemal Memisoglu - General Surgery 2019;6(4):388-392*

WHAT DOES PLLA BRING TO THE PATIENT?

After a mesh hernia repair, patients hope for two things:

- **Efficacy** of the repair (no recurrence)
- No **mesh feeling**, as if no mesh had been implanted

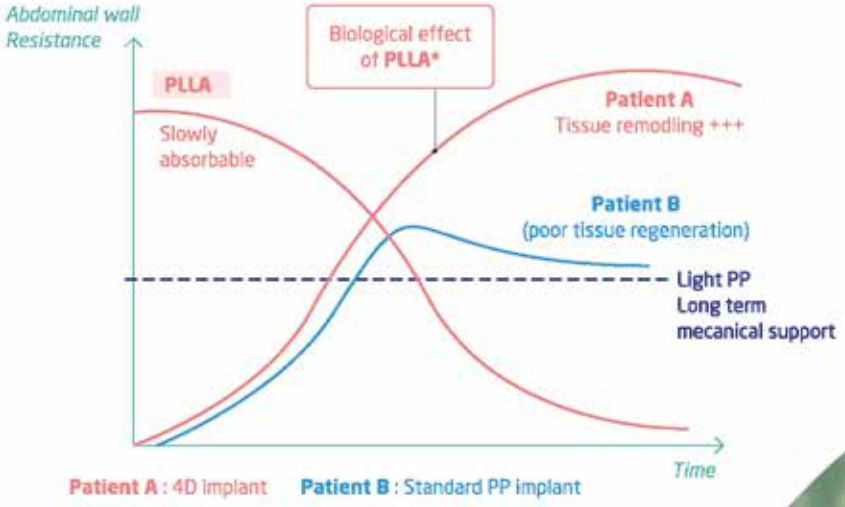
How does PLLA answer to these two expectations?

EFFICACY

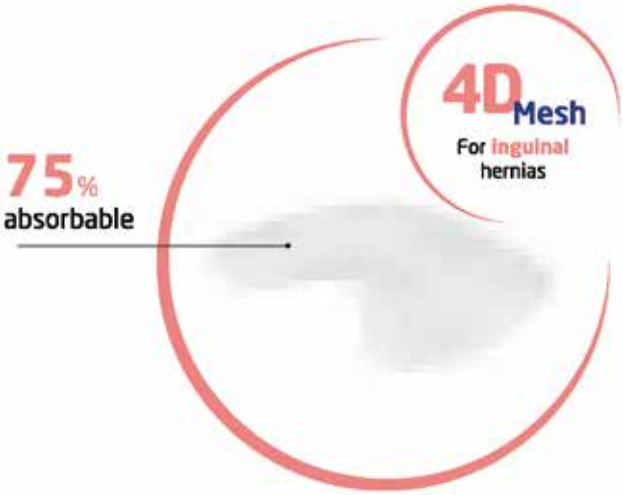
- PLLA promotes **tissue repair*** PLLA plays a biological role and has a **pro-regenerative** effect.*
- PLLA absorbs and leaves room to a lightweight yet very strong polypropylene « safety net » that will **limit recurrence**** in the long term.

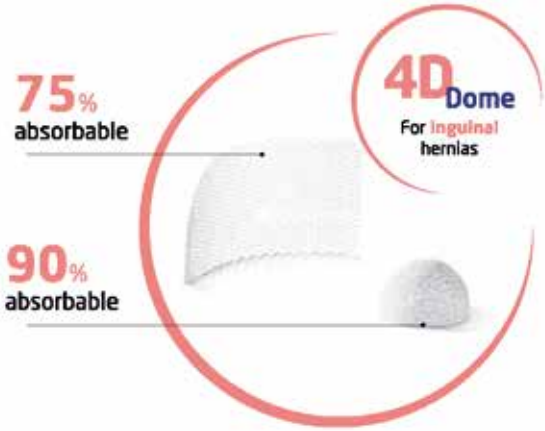
NO MESH FEELING

- 60 to 90% of the mesh (depending on product range) will slowly **absorb**.
- Remaining polypropylene net is highly **compliant** to the abdominal wall. This carefully designed knitting, leads to a very **soft and flexible** mesh that aims to ensure a «no mesh» feeling.**



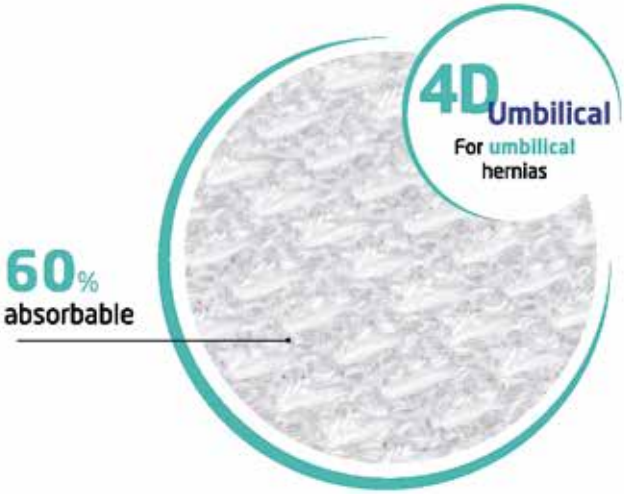
** Ongoing In vitro study - Composite PP/PLLA Monofilament 4DVentral® Promotes an Anti-Inflammatory Response From Human Macrophages In Vitro.*
*** Early results of comparison of polypropylene mesh and 75% resorbable mesh (monofilament polypropylene and poly-L-lactic acid (PLLA) mesh) for laparoscopic total extraperitoneal (TEP) inguinal hernia repair.*

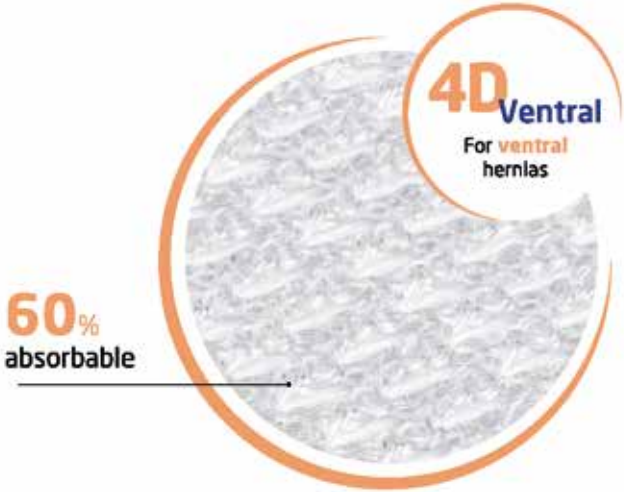




4D EXTRAPERITONEAL PRODUCT RANGE

OUR **PLLA SOLUTIONS** TO ALL **ABDOMINAL WALL HERNIAS**





BENEFITS OF 4D PRODUCT RANGE

"SAFETY & EFFICACY OF THE REPAIR"

Mesh holds to the wall thanks to hydrophilic properties of PLLA
less risk of mesh migration

75% PLLA

Very thin yet resistant permanent "safety net" to avoid recurrence in the long term

Residual PP net (non absorbable)

Better tissue integration
better wall regeneration

Macroporosity (1,6 x 4,2mm)

"EASE OF USE FOR THE SURGEON"

Mesh stays in place thanks to hydrophilic properties of PLLA

75% PLLA

Repositionnable

Mesh PP+PLLA with soft knitt (no hooks)

Patient's anatomy is easily seen through the mesh

See-through mesh (large pores)

Covers all needs of hernia repair by extraperitoneal approach

Large range of shapes and sizes

"IMPROVING PATIENT'S COMFORT"

Less material in the body in the long term

75% PLLA (partially absorbable)

Remaining PP mesh is very soft and compliant to patient's abdominal wall for better comfort

Soft residual PP net

"TIME SAVING FOR THE SURGEON"

Repositionnable

Mesh PP+PLLA with soft knitt (no hooks)

By chosing PLLA you are an active player of an eco-responsible economy

COMPLETE PRODUCT RANGE

“ Extraperitoneal
Fitting with guidelines ”

Ventral

4D Ventral® Midweight PP+PLLA - Weight after resorption 65 (+/- 5) g/m²

Ref.	Size (cm)
4DVENT1515	15 x 15
4DVENT1530	15 x 30
4DVENT2025	20 x 25
4DVENT3030	30 x 30

Umbilical

4D Umbilical® Midweight PP+PLLA - Weight after resorption 65 (+/- 5) g/m²

Ref.	Size (cm)
4DVENT05R0	Ø 5
4DVENT07R0	Ø 7
4DVENT09R0	Ø 9
4DVENT12R0	Ø 12

Inguinal

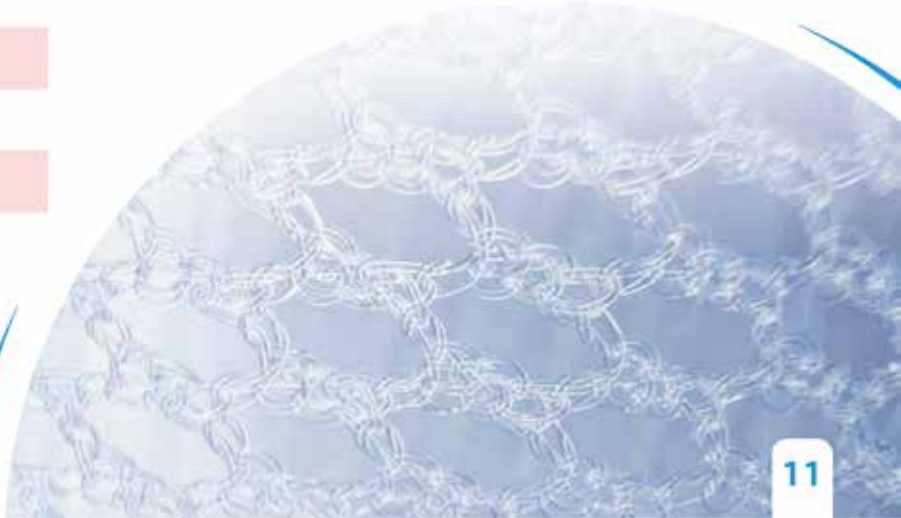
4D Mesh® Midweight PP+PLLA - Weight after resorption 30 (+/- 10) g/m²

	Ref.	Size (cm)
LICHTENSTEIN		
Flap	FB10 SR F12B	12 x 8
Precut	4DMESH M613	6 x 13,5
	4DMESH FB12	8,5 x 12,5
	4DMESH MBES	12 x 5
	4DMESH MBEL	7 x 13
TAPP/TEP		
Flap	4DMESH RABA	11 x 14
Precut	4DMESH 1215	12 x 15
	4DMESH 1317	13 x 17
	4DMESH 1216	12 x 16,5
	4DMESH 1717	17 x 17
Anatomical	4DMESH PRSR	right 10,5 x 14
	4DMESH PRSL	left 10,5 x 14
	4DMESH PRLR	right 12 x 15
	4DMESH PRLL	left 12 x 15
	4DMESH PRXR	right 12 x 17
	4DMESH PRXL	left 12 x 17

Inguinal

4D Dome® Midweight PP+PLLA - Weight after resorption 30 (+/- 5) g/m²

Ref.	Size (cm)
4D DOME 24 SR	4DDOME Ø 2,4 (small) + mesh 9 x 5,2
4D DOME 30 SR	4DDOME Ø 3 (medium) + mesh 9 x 5,2
4D DOME 38 SR	4DDOME Ø 3,8 (large) + mesh 9 x 5,2
4D DOME 24 GSR	4DDOME Ø 2,4 (small) + mesh 13,5 x 6
4D DOME 30 GSR	4DDOME Ø 3 (medium) + mesh 13,5 x 6
4D DOME 38 GSR	4DDOME Ø 3,8 (large) + mesh 13,5 x 6



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