AWR

TIGR® matrix

Improving Patient Care

Novus Scientific®


TIGR® Matrix Surgical Mesh

STRONG WHEN YOU NEED IT
GONE WHEN YOU DON´T

Dynamic reconstruction with TIGR® Matrix
the world's first long-term resorbable surgical mesh

TIGR® matrix


Long-term
Resorbable
100%
Synthetic
Untwisted
Multifilament
OUR SOLUTION
TIGR® Matrix

The Design

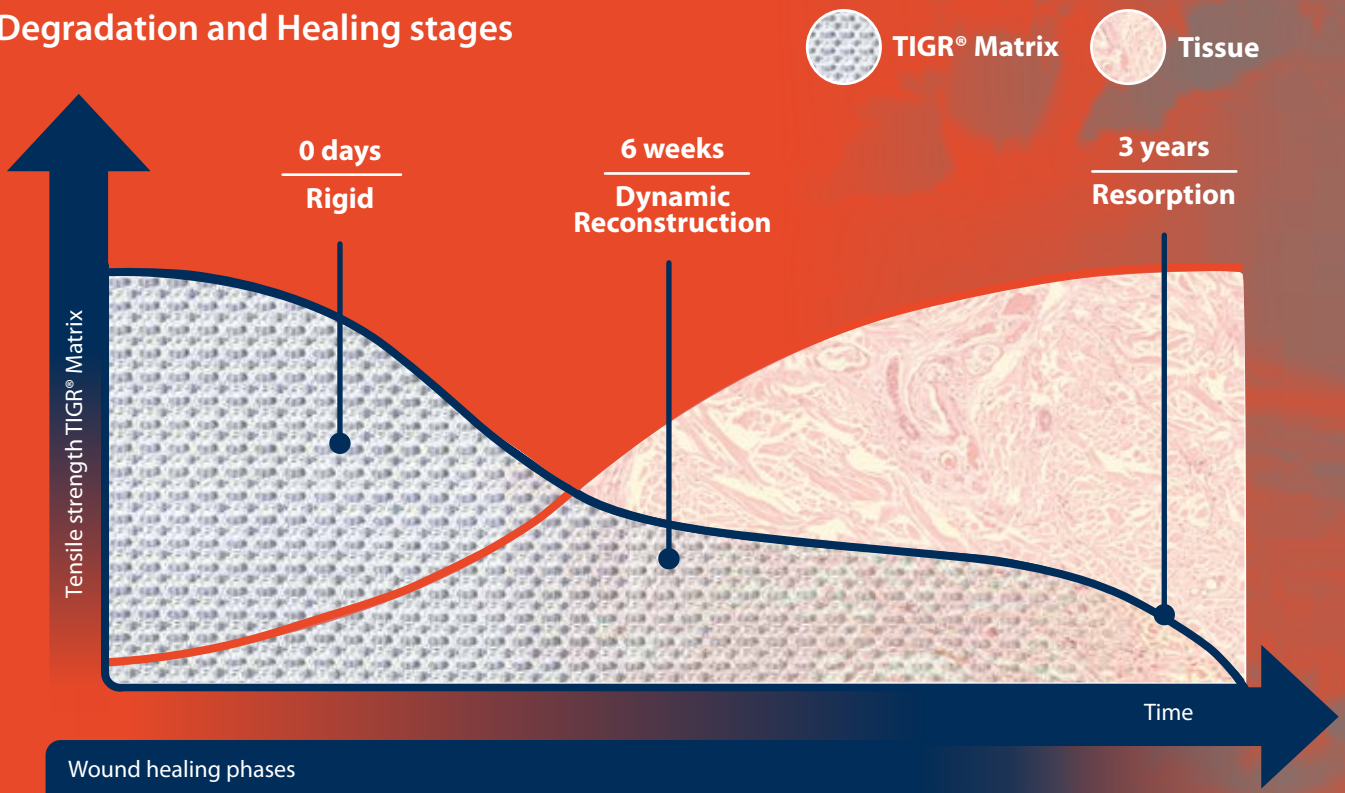
TIGR® Matrix Surgical Mesh is a resorbable surgical implant. It is made from two different synthetic polymer fibers that are knitted together to form a matrix.

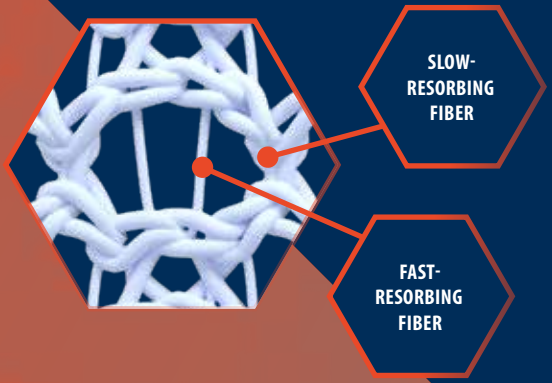
TIGR Matrix is characterized by long-term resorption and a dual stage degradation design that follows the natural wound healing and remodeling stages. Designed to allow the body to withstand the stresses after the matrix has been absorbed. The new connective tissue can then offer a long-term support.

The result is a surgical mesh that is easy to use for a variety of reconstructive surgery applications where a balance between mechanical support and degradation time is needed.

TIGR Matrix is made from materials that have been in clinical use since the 1970's and the product is supported by a growing body of peer-reviewed clinical evidence.

Degradation and Healing stages





THE MECHANISM

TIGR® Matrix

Dynamic Reconstruction

TIGR Matrix is designed with a multistage resorbable mechanism, defined by two fibers having different degradation characteristics.

The warp-knitted untwisted multifilaments give a unique structure which together with a macro-porosity design allow for good tissue integration. As the different fibers degrade, a gradual transfer of loads, from the mesh to the remodeling tissue occurs.

The result of this dynamic reconstruction is a more structured and hence stronger, connective tissue.

The fast-resorbing fiber, making up approximately 40% of the matrix by weight, is a copolymer of glycolide, lactide, and trimethylene carbonate. It loses its mechanical strength after 2 weeks and is fully absorbed after 4 months.

The slow-resorbing fiber, making up approximately 60% of the matrix by weight, is a copolymer of lactide and trimethylene carbonate. This fiber maintains its mechanical strength for 6 months and is absorbed after approximately 36 months.

Why Multifilament

TIGR Matrix is a multifilament mesh making it more pliable and flexible with a greater tensile strength when compared with monofilament meshes, which have a less complex fabric structure.

These multifilament properties are transferred to TIGR Matrix giving it superior handling characteristics enabling it to adapt willingly to underlying structures.

Non-twisted Multifilament and integration

Untwisted allow integration of tissue not only through the open pores in the mesh but also in-between each fiber of the matrix.

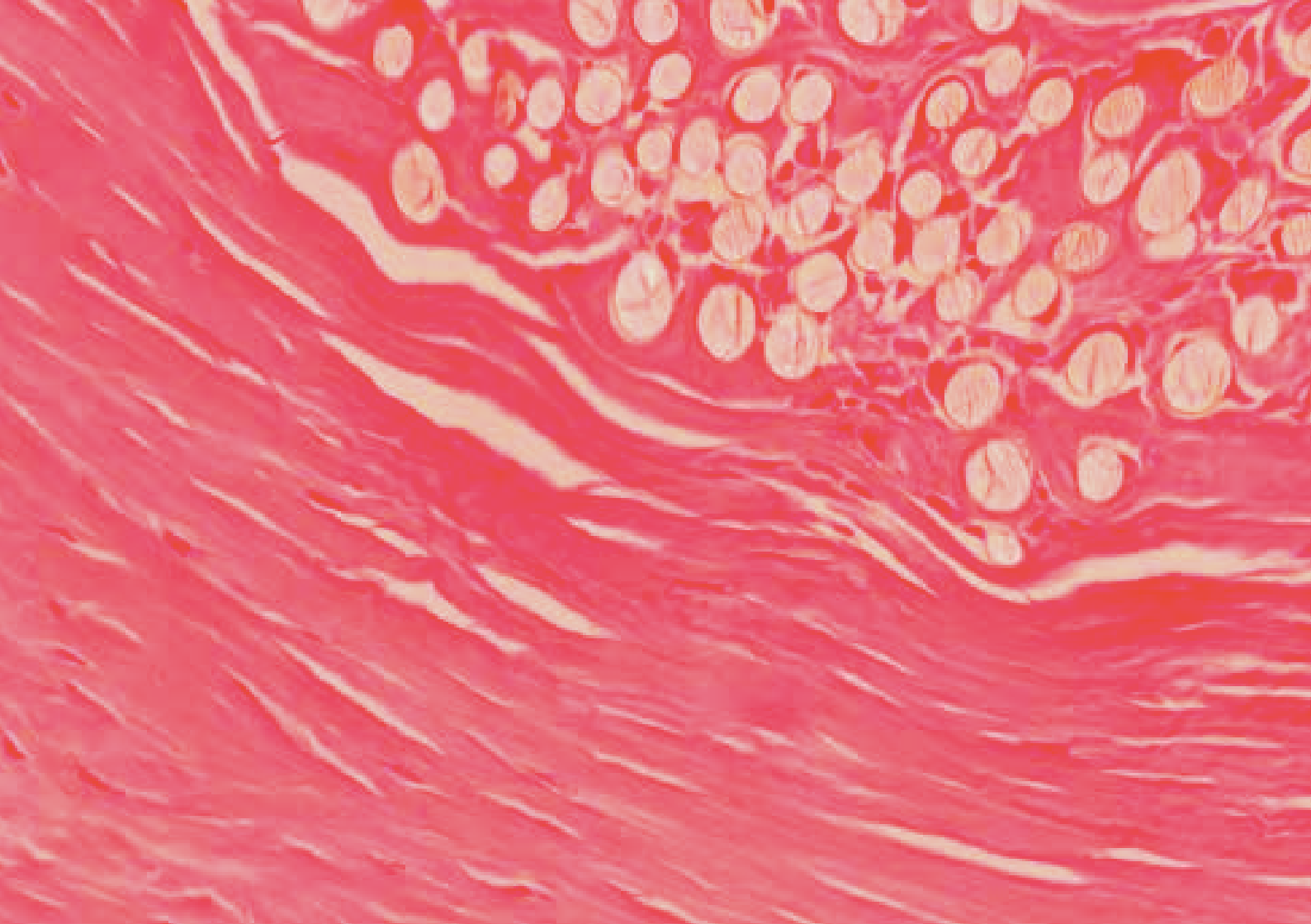
Porosity in warp-knitted fabrics

TIGR Matrix is made of warp-knitted multifilament fibers giving it its unique structure. The small space between fibers will rapidly absorb blood due to capillary forces and later widen to give place to new tissue and blood vessels.

WARP-KNITTED

TIGR® Matrix

Photo: ANDREAS LINDAHL, MD & PhD Caroviva clinic, Sweden



THE ALTERNATIVE

TIGR® Matrix

TIGR Matrix is a versatile alternative to other biosynthetic or biological materials.
It comes with long-term follow-up data and a low complication rate documented in peer reviewed literature.

CLINICAL DATA USING

TIGR® Matrix

Deposition of Collagen

Three-year results from a preclinical implantation study of a long-term resorbable surgical mesh with time-dependent mechanical characteristics

HJORT, H., MATHISEN, T., ALVES, A., CLERMONT, G., BOUTRAND, J. P.
HERNIA. APR;16(2):191-197, 2012

Deposition of new collagen is stimulated when cells integrate with the mesh during wound healing. Cells attach easily in and around the individual fibers gradually building type I collagen over time.

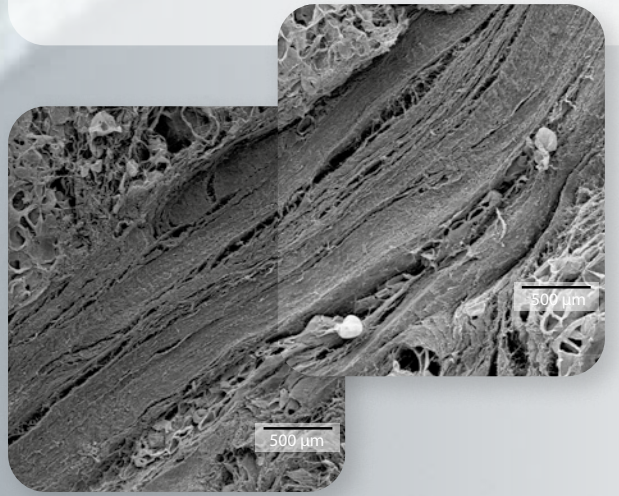
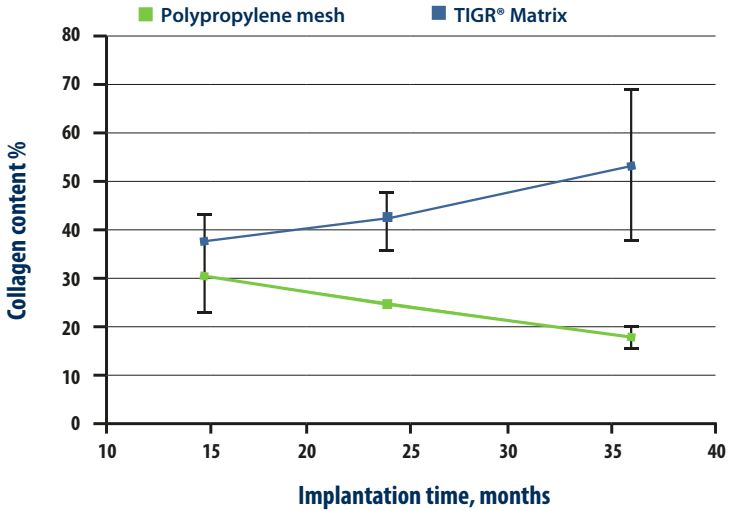


Photo: Thicker, healthy connective tissue.



Hernia Prevention

After open abdomen

SCHAAF, S., ET.AL.; 2020

Material and Methods: Ten patients were prospectively enrolled, and prophylactic onlay mesh (long-term absorbable or non-absorbable) was implanted at the definitive fascial closure operation.

Results: OAT duration was 21.0 ± 12.6 days (95% CI: 16.9–25.1). Definitive fascial closure was achieved in all cases. No incisional hernias were present during a follow-up interval of 12.4 ± 10.8 months (range 1–30 months).

Conclusion: The prophylactic onlay mesh implantation of alloplastic, long-term absorbable, or non-absorbable meshes in OAT showed promising results and only a few complications that were of minor concern. Incisional hernias did not occur during follow-up. To validate the feasibility and safety of prophylactic onlay mesh implantation long-term data and large-scaled prospective trials are needed to give recommendations on prophylactic onlay mesh implantation after OAT.

In potentially contaminated setting

LYKKE, A., ET.AL.; 2017

Material and Methods: 2-year period, 109 patients undergoing emergency surgery with formation of ileostomy or colostomy. All patients received a retromuscular slowly resorbable synthetic mesh, TIGR Matrix at the stoma site. The reference group included 117 patient (receiving no mesh).

Results: The operative field was contaminated or dirty in 48% of the procedures. Operative time was significantly longer in the mesh group. The cumulative incidences of parastomal hernia at 1 year for the control and the mesh group were 8 and 7% (p = 0.424), respectively. The postoperative 30-day and 1-year rate of complications, reoperations and mortality were not different between the two groups. No patients underwent removal of the mesh and no clinical mesh infections were seen.

Conclusion: Use of a resorbable synthetic mesh during emergency ostomy formation showed no significant preventive effect on formation of parastomal hernia after 1 year. Although surgery was often conducted in a severely contaminated field, the procedure was without significantly increased complication rate.

Prophylactic onlay mesh at emergency laparotomy

SUGRUE, M., ET.AL.; 2022

Method: A retrospective, ethically approved review of 24 consecutive patients undergoing prophylactic TIGR® mesh placement during emergency laparotomies by a single surgeon between January 2017 and June 2021 at a University Hospital. A standardized approach included onlay positioning of the mesh, small-bite fascial closure, and a wound bundle. We recorded patient demographics, operative indications, findings, degree of peritonitis, postoperative complications, and mortality.

Results: The study included 24 patients; 16/24 (66.6%) were female and median age was 72.5 (range 31–86); 14/24 patients were ASA grade III or greater; 4/24 patients (16.6%) developed six complications and 3/6 occurred in a single patient. Complications included subphrenic abscess, seroma, intrabdominal hematoma, enterocutaneous fistula leading to deep wound infection and small bowel perforation. Five (20.8%) patients died in hospital; central venous catheter sepsis (n = 1), fungal septicaemia (n = 1) and multiorgan failure (n = 3). Surgical site infection and seroma rates were low, occurring in 2/24 patients (4% each).

Conclusion: This study has identified that prophylactic onlay mesh in patients undergoing an emergency laparotomy is not associated with significant wound infection or seroma when used with an active wound bundle. The wider use of TIGR® to prevent fascial dehiscence and potential long-term IH prevention should be considered.

The use of a novel synthetic resorbable scaffold (TIGR® Matrix) in a clinical quality improvement (CQI) effort for abdominal wall reconstruction (AWR)

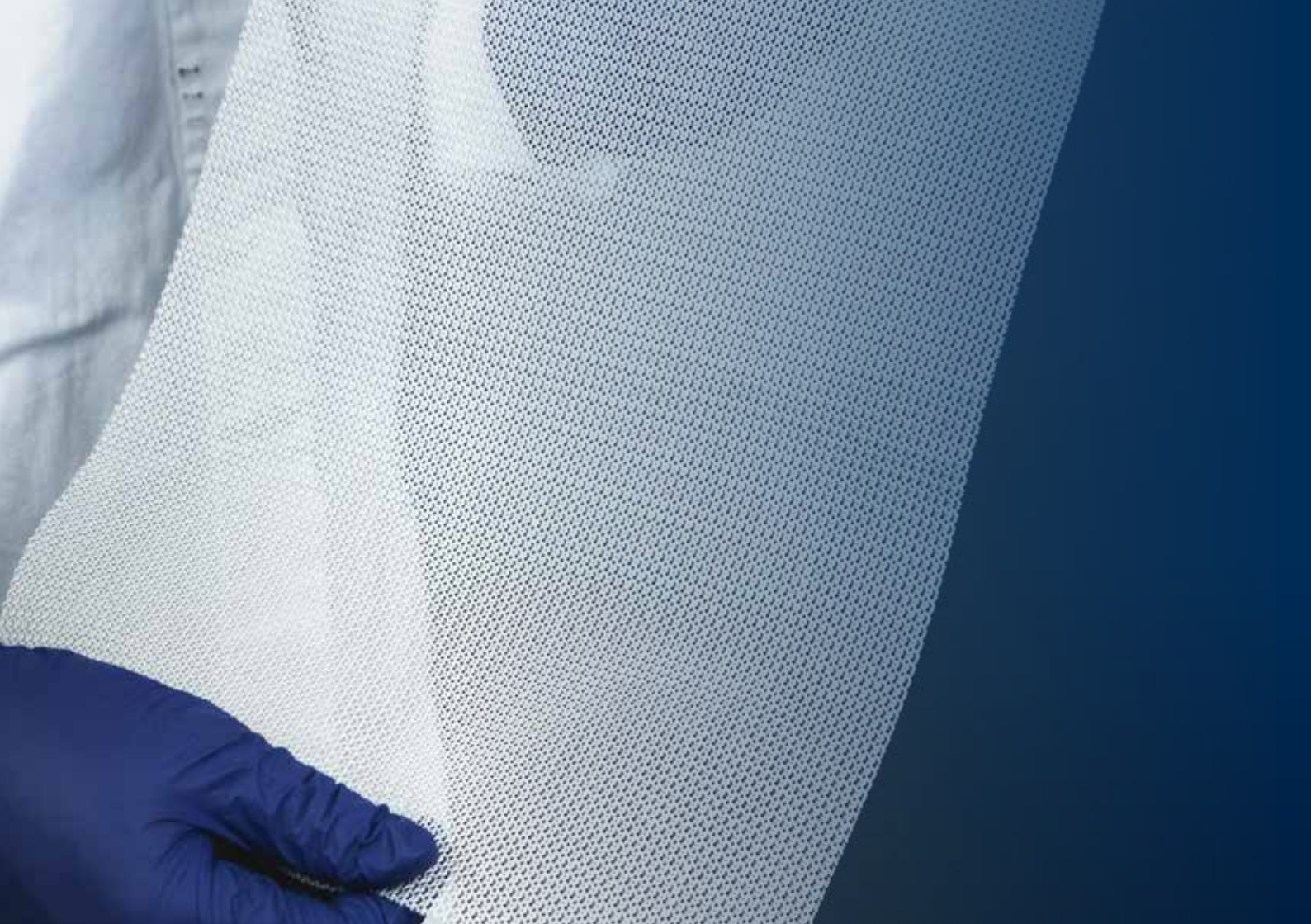
LEWIS, R., FORMAN, B., PRESTON, M., HEIDEL, E., ALVOID-PRESTON, B., RAMSHAW, B. 2020

Inclusion:
91 patients with average BMI of 34. Recurrent hernia in 52 patients with average number of recurrences 3.4. Active wound infection in 21 patients (27%).

Results:
36 months follow-up time on all patients, average follow-up 42 months. Using TAR*) technique further decreases the recurrence rate (4.5%) and wound infection (4.5%).

Name	TIGR® Matrix	Phasix		Strattice
Month	36 months	18 months[1]	36 months[2]	24 months[3]
Seroma	3%	6%	6%	29%
Infection	10%/4.5%*)	9%	9%	38%
Recurrence	12%/4.5%*)	9%	15.7 %	28%

[1] Roth JS, et.al.; Surg Endosc. 32, 1929-1936, 2018
[2] Roth JS, et.al.; Presented at SAGES 2019 (Baltimore, MD), 2019
[3] Itani KMF, et.al.; Surgery 152, 498-505, 2012



REASONS TO USE

TIGR® Matrix

- 100% synthetic
- Non animal based
- Long-term resorbable
- Biocompatible
- Dual stage degradation
- Strong
- Multifilament
- Warp-knitted
- Untwisted fibers
- Macro-porosity design
- No preparation needed, no rinsing
- Low risk of recurrence
- Pliable and easy to cut
- Cost effective

Today TIGR® Matrix is a clinically proven medical device used by surgeons around the world, with long-term outcomes and experience demonstrating long-term durability.

Developed and produced in Sweden

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TO ORDER

SIZE	REF. NO.
10 x 15 cm	NSTM1015E
15 x 20 cm	NSTM1520E
20 x 30 cm	NSTM2030E

CE 2797

Caution: Read instructions for use which accompany the product for indications, contraindications, warnings and precautions.
TIGR® Matrix Surgical Mesh received 510(k) clearance by the FDA in 2010, carries the CE-mark since 2011,
and is MDR approved under the new Medical Device Regulation EU 2017/745 (MDR) since 2021.