Introducing ULTRAPRO ADVANCED™ Macroporous Partially Absorbable Mesh for inguinal and ventral hernia repair

Designed to help advance patient outcomes and ease of use

- Reduce potential for mesh bulging
- Deliver a lasting repair
- Make handling and placing the mesh easier

Color sticky notes represent customer insights.
ULTRAPRO ADVANCED™ Macroporous Partially Absorbable Mesh

Inspired by your needs... designed with advanced features to benefit you and your patients

Advanced features of ULTRAPRO ADVANCED Mesh

- **Physiologically designed for comfortable healing**
  - Flexible in a way that approximates the natural movement of the abdominal wall, with 2:1 stretch\(^1,3^{*}\)^†
  - Unique knitted mesh construction promotes good tissue ingrowth/tissue integration\(^4^{‡}\)

- **Balanced strength for strong and lasting repair**
  - High suture pullout strength\(^3\)
  - High tensile strength\(^3\)
  - Withstands ~2x maximum intraabdominal pressure in healthy adults\(^3,5,6\)
  - No bulge visible in a preclinical study at 28 days and 91 days\(^4^{‡}\)

\(^*\)The abdominal wall stretches 2:1 at the linea alba (longitudinal to transversal).
\(^†\)Compared with ULTRAPRO® Macroporous Partially Absorbable Mesh, which has 4:1 stretch.
\(^‡\)Evidence shown in an animal model.
\(^\ddagger\)34% stiffer in transverse direction and 144% stiffer in longitudinal direction.
• Designed for exceptional intraoperative handling
  – Increased initial stiffness for easier handling\(^3\)
  – Springs open for easier deployment in laparoscopic repairs
  – Packaged flat, without folds, for easier positioning
  – Blue stripes facilitate orienting and positioning the mesh\(^8\)
  – Trimmable based on surgeon’s discretion, while leaving sufficient overlap to help prevent recurrence\(^8\)

**ULTRAPRO ADVANCED** Mesh is designed to achieve the appropriate balance between flexibility and strength to help optimize patient outcomes and ease of use.\(^3\)
ULTRAPRO ADVANCED™ Macroporous Partially Absorbable Mesh

Designed for exceptional intraoperative handling

• Springs open when passed through a trocar in laparoscopic repairs for easier handling and placement

• Blue orientation stripes facilitate orientation and placement and provide clear visualization of the underlying anatomy

Surgeons rated ULTRAPRO ADVANCED Mesh highest in overall handling in open and laparoscopic repairs versus other meshes studied.9

*After performing an open and laparoscopic handling evaluation (n=10). Study compared ULTRAPRO ADVANCED Mesh, ULTRAPRO® Macroporous Partially Absorbable Mesh, and Bard® Soft Mesh.
†Compared with ULTRAPRO Mesh, which has 4:1 stretch. The abdominal wall stretches 2:1 at the linea alba.
‡"As received" mesh (mesh with absorbable component).
§"Naked" mesh (mesh after absorption).
|| Evidence shown in an animal model.
Balanced strength for strong and lasting repair

ULTRAPRO ADVANCED Mesh versus ULTRAPRO Mesh

ULTRAPRO ADVANCED Mesh has 2:1 stretch to approximate the natural movement of the abdominal wall and withstands ≈2x maximum intraabdominal pressure in healthy adults.\(^1\,3\,5,6\text{†}\)

**Tensile strength**

Ratio of transverse to longitudinal is more evenly balanced (ie, 2:1 versus 5:1)\(^3\text{†}\)

**Suture pullout strength**

Transverse: **24%** stronger \(^3\text{†}\)

Longitudinal: **9%** stronger \(^3\text{†}\)

**Density**

Increased density of **14%**\(^5\text{†}\)

ULTRAPRO ADVANCED Mesh is designed to reduce the potential for mesh bulging

No bulge visible in a preclinical study at 28 days and 91 days\(^4\text{†}\)
ULTRAPRO ADVANCED™ Macroporous Partially Absorbable Mesh

Good tissue ingrowth with low foreign body mass

Demonstrated results from a study of ULTRAPRO ADVANCED Mesh* at 28 days and 91 days†

- Good tissue ingrowth/tissue integration
- No evidence of mesh migration/compression, based on absence of wrinkling and folding at necropsy

ULTRAPRO ADVANCED Mesh has low foreign body mass for a potentially more comfortable repair

- ULTRAPRO ADVANCED Mesh is designed to leave behind low foreign body mass after partial absorption³
  - Macroporous design promotes host tissue penetration and fibrin fixation of the mesh to the tissue, helping to eliminate dead space and reduce the risk of seroma formation¹⁰
- Macroporous thin-filament design helps prevent bridging fibrosis²

Low surface area may help reduce bacterial colonization

- Microporous meshes and multifilament meshes may pose a higher risk of infection¹¹

ULTRAPRO ADVANCED Mesh has a macroporous, thin-filament design that is partially absorbable, for low foreign body mass and comfortable healing.²¹²

*Approximately equal parts absorbable MONOCRYL® (poliglecaprone-25) monofilament fiber to stiffen the mesh structure and nonabsorbable PROLENE® (polypropylene) monofilament fiber for permanent support.

†Evidence shown in an animal model.
Built on the proven technology of ULTRAPRO® Macroporous Partially Absorbable Mesh\textsuperscript{13,14}

In a study of 5 meshes, which included ULTRAPRO Mesh

**ULTRAPRO Mesh showed the highest biocompatibility at the implant site versus competitor meshes tested\textsuperscript{15‡}**

<table>
<thead>
<tr>
<th>Mesh</th>
<th>4 weeks</th>
<th>12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parietex™</td>
<td>3.00</td>
<td>2.50</td>
</tr>
<tr>
<td>DualMesh™</td>
<td>2.50</td>
<td>2.00</td>
</tr>
<tr>
<td>Trelex®</td>
<td>2.00</td>
<td>1.50</td>
</tr>
<tr>
<td>ProLite™</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>ULTRAPRO Mesh</td>
<td>1.00</td>
<td>0.50</td>
</tr>
</tbody>
</table>

- Medium-density polyester mesh with pore size of 1.8 x 1.5 (Parietex™) induced the most pronounced foreign body reaction and most severe fibrosis
- Low-density polypropylene with poliglecaprone-25 mesh with pore size of 2 to 4 mm (ULTRAPRO Mesh) induced the least foreign body reaction and low fibrosis

- Low-density macroporous ULTRAPRO Mesh showed the highest biocompatibility at the implant site versus competitor meshes tested, based on foreign body response and fibrosis parameters
- Histology score: 0=none, 1= minimal/mild, 2=moderate, 3=severe

\textsuperscript{1}Parietex™ (polyester), DualMesh™ (ePTFE), Trelex® (polypropylene), ProLite™ (polypropylene), and ULTRAPRO Mesh (polypropylene with poliglecaprone).
\textsuperscript{2}Foreign body response based on quantity of infiltrating foreign body giant cells.

The third-party trademarks mentioned herein are trademarks of their respective owners.
ULTRAPRO® Macroporous Partially Absorbable Mesh

Physiologically designed to get patients back to their prehernia lives

Real-world, ongoing results since 2007

The Ethicon-sponsored International Hernia Mesh Registry (IHMR) is the largest international data registry with a vision to advance hernia repair. The IHMR provides prospective, longitudinal, patient-reported data on ventral, incisional, and inguinal hernia repairs for more than 4000 patients and reflects patient outcomes as seen in clinical practice.16

- The IHMR includes Ethicon products and non-Ethicon products
- IHMR data are independently collected and managed by a third party

Proven to reduce patients’ pain and improve movement limitation

In 2 studies from the IHMR13,14†‡

- Patients receiving hernia repair with ULTRAPRO Mesh reported a statistically significant improvement in pain and movement limitation scores at 12 months postsurgery versus presurgery ($P<0.001$)13,14†‡

---

*Data from a prospective, longitudinal study of 151 patients receiving open hernia repair with ULTRAPRO® Partially Absorbable Lightweight Mesh from the International Hernia Mesh Registry (IHMR). Hernia types: 53.0% incisional/ventral, 39.7% inguinal, 4.0% epigastric, 26% umbilical and 0.7% femoral. Common techniques utilized: 34.4% Lichtenstein, 29.8% Retro-rectus and 23.8% Preperitoneal. Fixation methods: 90.1% sutures, 6.0% sutures + glue, 2.0% glue, 1.3% tackers + sutures and 0.7% no fixation

†Data from a prospective, longitudinal study of 2792 patients receiving hernia repair with ULTRAPRO® Hernia System from the IHMR. Mostly large size direct or combined groin hernias. 91.76% were primary cases and 8.24% were recurrent cases.

‡Data from a prospective, longitudinal study of 71 patients receiving open hernia repair with ULTRAPRO® Plug from the IHMR. Two additional patient-reported recurrences could not be medically confirmed by a clinician. Hernia types: 90.2% inguinal, 8.7% umbilical, 11% femoral, 94.6% were primary repairs. Fixation methods: 97.8% sutures, 11% sutures and glue, 11% none
**Significant reduction in pain score at 1 year postsurgery versus presurgery**

*Data from a prospective, longitudinal study of 470 patients receiving laparoscopic hernia repair with ULTRAPRO flat mesh from the IHMR (96.6% inguinal, 3.4% other).*

- The IHMR uses the Carolinas Comfort Scale (CCS), a validated, hernia-specific quality-of-life tool for assessing early and long-term symptoms following hernia repair.¹⁷
- The CCS uses a 6-point scale from 0 (no symptoms) to 5 (disabling symptoms).¹⁷

The increased call for registries worldwide shows a growing focus on the value of utilizing patient outcome measurements in hernia repair.¹⁷-¹⁹

*Data from a prospective, longitudinal study of 470 patients receiving laparoscopic hernia repair with ULTRAPRO flat mesh from the IHMR (96.6% inguinal, 3.4% other).*
ULTRAPRO® Macroporous Partially Absorbable Mesh

Low rates of recurrence and complications

Low rate of recurrence demonstrates strong and lasting repair\textsuperscript{13,14}

In 2 studies from the IHMR

- Patients demonstrated a rate of recurrence of <1% with ULTRAPRO Mesh\textsuperscript{13,14†}

**Recurrence rate of <1% at 1 year postsurgery\textsuperscript{13,14}**

In the same 2 studies

Low rates of complications, including infections, hematomas, and seromas\textsuperscript{13,14}

<table>
<thead>
<tr>
<th>Most common adverse events</th>
<th>Tollens et al.</th>
<th>Berrevoet et al.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection</td>
<td>NA</td>
<td>4.6%</td>
</tr>
<tr>
<td>Hematoma</td>
<td>1.3%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Seroma</td>
<td>3.6%</td>
<td>9.9%</td>
</tr>
</tbody>
</table>

\*Data from a prospective, longitudinal study of 470 patients receiving laparoscopic hernia repair with ULTRAPRO flat mesh from the IHMR (96.6% inguinal, 3.4% other).

\*Data from a prospective, longitudinal study of 151 patients receiving open hernia repair with ULTRAPRO flat mesh from the IHMR (39.7% inguinal, 53.0% ventral/incisional, 7.3% other).
ULTRAPRO ADVANCED™ Macroporous Partially Absorbable Mesh is available in a range of sizes.

<table>
<thead>
<tr>
<th>Ordering code</th>
<th>Mesh size</th>
<th>How supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPA3612</td>
<td>6 x 12 cm</td>
<td>Sterile, 3 per box</td>
</tr>
<tr>
<td>UPA37615</td>
<td>7.6 x 15 cm</td>
<td>Sterile, 3 per box</td>
</tr>
<tr>
<td>UPA31015</td>
<td>10 x 15 cm</td>
<td>Sterile, 3 per box</td>
</tr>
<tr>
<td>UPA31515</td>
<td>15 x 15 cm</td>
<td>Sterile, 3 per box</td>
</tr>
<tr>
<td>UPA1530</td>
<td>15 x 30 cm</td>
<td>Sterile, 1 per box</td>
</tr>
<tr>
<td>UPA3030</td>
<td>30 x 30 cm</td>
<td>Sterile, 1 per box</td>
</tr>
</tbody>
</table>
ULTRAPRO ADVANCED™ Macroporous Partially Absorbable Mesh—an advanced solution to meet your inguinal and ventral hernia repair needs

• Physiologically designed for comfortable healing1-3
• Balanced strength for strong and lasting repair3,5,6
• Designed for exceptional intraoperative handling3,8,9
• Patient outcomes based on the proven technology of ULTRAPRO Mesh13,14

For more product information, go to www.ethicon.com.