

Elevating Patient Care and Cost Efficiency through Tissue Standardization

Preserve tissue quality and increase tissue yield on glass slides to ensure the best possible diagnosis for patients by utilizing pre-analytical tissue-handling devices for the clinic and lab.

Meet Lumea, The Leader in Tissue Standardization

Lumea, a forefront innovator in digital pathology, places patients at the core of its approach. Its best-in-class tissue-handling technology and integrated workflow AI ensure standardization and optimal tissue integrity, enhancing overall efficiency and quality. Lumea has been revolutionizing pre-analytical technology since 2015, starting with 16-18g needle-core biopsies to create significant advantages for prostate biopsies.

First, Why Does Standardization Matter?

Prostate cancer is the second leading cause of cancer in men globally, and one in 8 men in the United States will be diagnosed during their lives. Such a common disease affecting so many people worldwide makes it even more paramount that patients get the best data possible from their biopsies.

However, prostate biopsy protocols often lead to false-negative results exceeding 30%. Some reasons for false-negative results include sampling errors in cases with low cancer volume and tissue loss due to poor orientation and fragmentation, which can distort cancer quantification and Gleason scoring, impacting treatment decisions [Murugan et al., 2019; Pelzer, 2008].

Multiple studies have shown that biopsy core length and tissue quality are two of the most important parameters that determine the detection of prostate cancer [Deliktas et al., 2016; Öbek et al., 2012]. One study specified that a **median sample length of 12 mm** is an ideal lower limit for cancer detection, and biopsy procedures that yield shorter biopsy cores should be repeated [Ergun et al., 2016].

So, how can we ensure a prostate biopsy protocol results in the most accurate diagnosis possible? Find a way to standardize tissue collection and preservation to ensure high-quality tissue, maintain core orientation, and give histology labs and pathologists the best quality and quantity of tissue possible for diagnosis.

This is the problem Lumea set out to solve.

Standardization via Pre-Analytical Tissue-Handling Technology

Lumea's cutting-edge pre-analytical technology standardizes tissue handling and enhances tissue yield on glass slides, ensuring the best possible diagnosis for patients. What's more, these remarkable advancements come at no additional cost compared to a typical lab's existing setup.

In the Surgery Center: **The BxBoard[®]**

The conventional method of transporting tissue to a lab involves transferring patient specimens from the biopsy needle into a formalin-filled jar. A lack of common protocols means that it's up to each surgery center to decide how to accomplish this task. Despite best efforts, this lack of standardization can result in tissue orientation loss, core curling or folding, and labs receiving multiple biopsies stuck together in the same jar. Occasionally, jars arrive at labs with cores stuck inside the lid threads, or jars are missing specimens entirely.

The BxBoard, Lumea's tissue collection and transport device, is the ideal replacement for formaldehyde bottles to solve all these issues, make life easier for surgery centers and lab staff, and significantly advance the quality of patient care.

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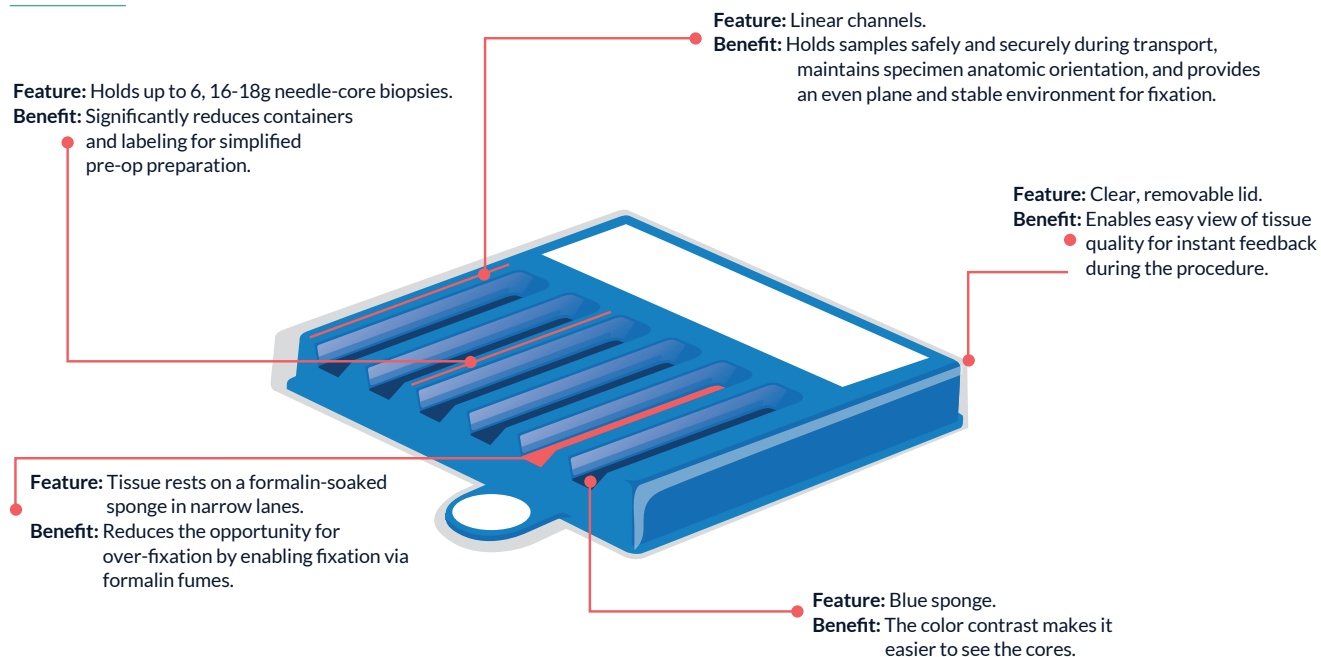
The BxBoard: Key Benefits

Customers* using the BxBoard have reported:

- 12% increase in core length, resulting in a mean sample length longer than the suggested amount for the most accurate diagnosis [Ergun et al., 2016]).
- 89% reduction in containers for surgery centers
- 136% reduction in formalin per prostate case
- 12% reduction in biohazard waste per histology lab
- Less tissue coiling and folding
- Preserved orientation for better treatment planning

*<https://lumeadigital.com/prostate-core-length/>

The BxBoard: Key Features



In the Lab: The BxChip[®]

The BxChip, a biomimetic organic polymer, is specifically designed to securely hold and preserve up to 6, 16-18g needle-core biopsies on a level plane during fixation. The chip ensures consistent orientation throughout lab processing and a better chance of a full face of tissue on the final slide.



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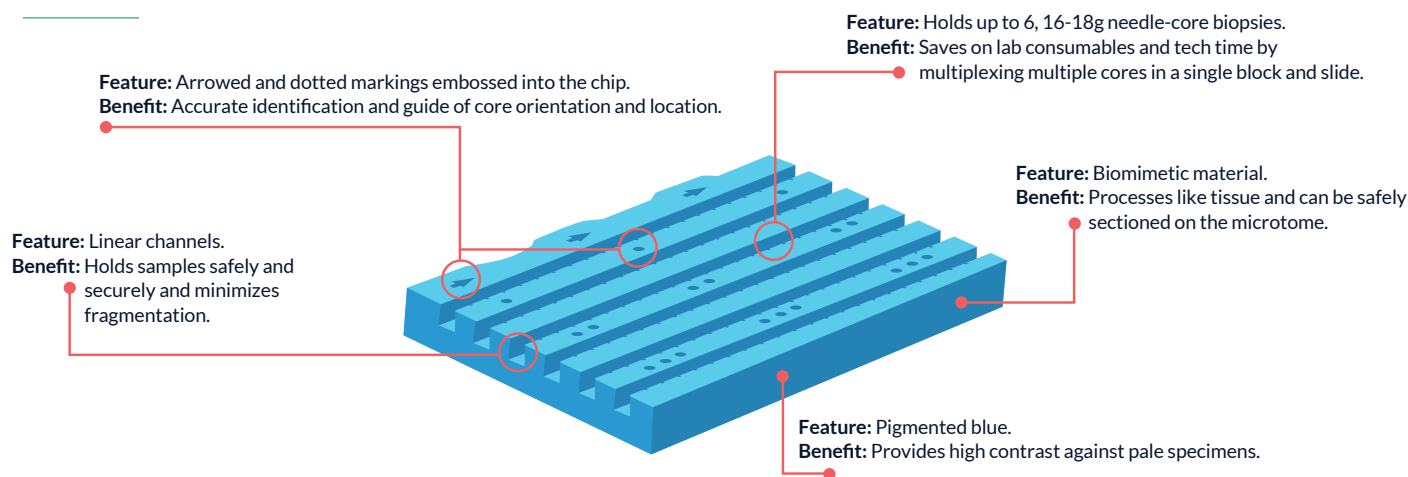
The BxChip: Key Benefits

Research on the BxChip has shown:

- 9.3% increase in cancer detection rate (from 49.5% to 58.5%) [Wojno et al., 2016].
- 14.5% average increase in tissue surface area (mm²) on the glass slide [Wojno et al., 2016].
- 31.8% increase in biopsy core length on the glass slide [Wojno et al., 2016].
- 9.10 mm average increase in total biopsy core length on the glass slide [Murugan et al., 2019].
- Up to an 83% reduction in stain costs and storage space for slides & blocks [Murugan et al., 2019].
- More than a threefold reduction in pre-analytical and analytical time, including grossing, embedding, sectioning, and diagnosis [Wojno et al., 2016; Murugan et al., 2019; Radavoi et al., 2014].

Note: the average increases in tissue surface area and biopsy core length are from only using the BxChip in a lab. The data above does not factor in the average 12% increase in core length from using the BxBoard. The two technologies together result in an even higher-than-suggested average core length on the final glass slide to ensure the best diagnostic accuracy [Ergun et al., 2016].

The BxBoard: Key Features



Skyrocket Tissue Quality at no Additional Cost

Imagine significantly improving tissue quality and lab efficiencies at no additional cost. A recent cost analysis demonstrated that integrating the BxBoard and BxChip incurs no extra expenses compared to traditional operations.

*This cost comparison does not include the average cost of immunostains, which is \$45,380 per 1,000 cases [Mit 2017]. Lumea's 6x reduction in slide and block count means labs can stain 12 cores for the cost and effort of staining two. This cost comparison also does not include the cost reductions associated with fewer recuts and other potential gains from time savings.

| Traditional | | LUMEA | |
|--|-----------------------|---------------------|-----------------------|
| Unit | price per 1,000 cases | Unit | price per 1,000 cases |
| Standard 12-14 formalin jar collection kit | \$10,000 | 12 Site BxBoard Kit | \$10,000 |
| 12 Cassettes | \$4,800 | 2 Cassettes | \$800 |
| 24 Slides | \$8,160 | 4 Slides | \$1,360 |
| - | \$0 | 2 BxChips | \$14,000 |
| Staining Reagents | \$4,800 | Staining Reagents | \$800 |
| Total | \$27,760 | Total | \$26,960 |

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Improve Tissue Quality & Patient Care Today

Lumea's BxBoard and BxChip technologies are transforming pathology by introducing a groundbreaking approach to tissue standardization at the point of care. These innovations, with their time and cost-saving features and improved diagnostic accuracy, are reshaping pathology techniques for greater efficiency.

Adopting Lumea's pre-analytical tech promises enhanced outcomes and significant advancements in overall process efficiency, aligning with the pursuit of excellence in diagnostic procedures by surgery centers and laboratories.

Are you ready to see what it would take to implement the BxBoard and BxChip in your workflow and increase your ability to provide better patient care today?



Scan the QR code or visit
LumeaDigital.com/Tissue-Tech/
to learn more.



Scan the QR code
to request more info

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