Frozen Island

VII Curso de Patología Digital

Hospital Puerta del Mar, Cádiz

15-17 Octubre 2018

A.MENARINI diagnostics

Frozen Island

Un sistema integral para la estandarización en el entorno de urgencias Intraoperatorias y Trasplantes

El procedimiento de las Intras requiere experiencia, conocimiento clínico y patológico y la capacidad de tomar decisiones rápidas bajo presión con buen criterio y clara consciencia de las limitaciones del método**.**

Frozen Island, espacios implicados

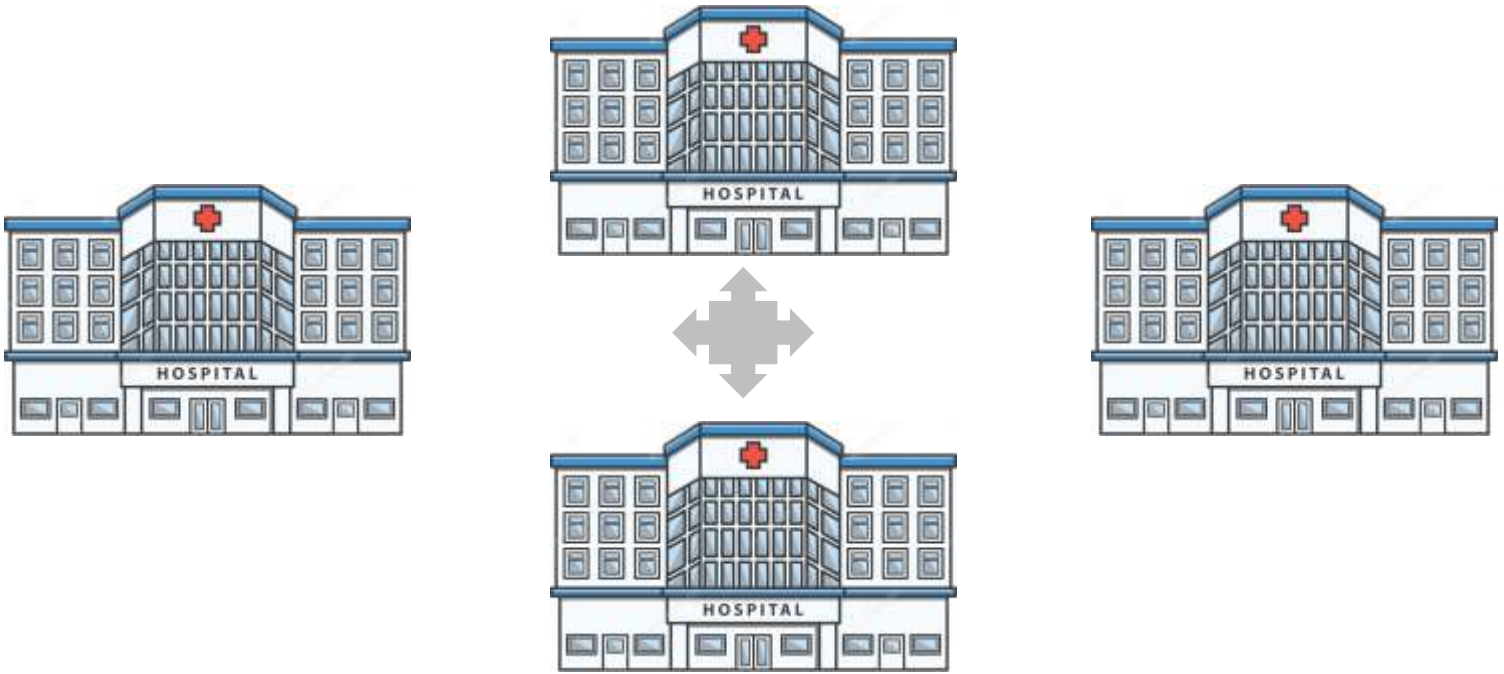
Un sistema integral para la estandarización en el entorno de urgencias Intraoperatorias y Trasplantes

Quirófano

Anatomía Patológica

Frozen Island, espacios implicados

Un sistema integral para la estandarización en el entorno de urgencias Intraoperatorias y Trasplantes



Frozen Island, elementos que componen el sistema

(BIOPSIA – MACRO – MICRO – TELECONSULTA)

CONGELACIÓN, FIJACIÓN Y TINCIÓN DE MUESTRA INTRAOPERATORIA;
PrestoCHILL Y PRESTO

DOCUMENTACIÓN DIGITAL MACROSCÓPICA;
MacroPATH, WorkSTATION, eGROSS

MICROSCOPIA DIGITAL , ESCANEADO Y TELECONSULTA;
NAVIGO

Frozen Island, elementos que componen el sistema

(BIOPSIA – MACRO – MICRO – TELECONSULTA)

1) CONGELACIÓN, FIJACIÓN Y TINCIÓN DE MUESTRA INTRAOPERATORIA;

PrestoCHILL Y PRESTO

DOCUMENTACIÓN DIGITAL MACROSCÓPICA;

MacroPATH, WorkSTATION, eGROSS

MICROSCOPIA DIGITAL , ESCANEADO Y TELECONSULTA;

NAVIGO

Los sistemas PRESTO

Tecnología de procesado rápido con una alta calidad en muestras intraoperatorias

✓**6 muestras en menos de 10 minutos**

✓**Morfología equivalente a las secciones de parafina**

✓**Fácil manejo y con resultados consistentes**

✓**Estandarización y documentación de la intra**

✓ **Abordaje del MOHS y tejido graso con excelentes resultados**

PrestoCHILL

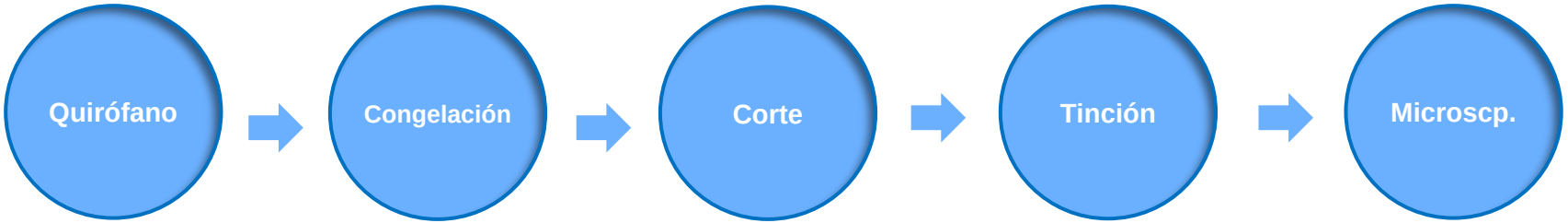
Sistemas de congelación ultrarápida

PRESTO

Fijación y Tinción automática

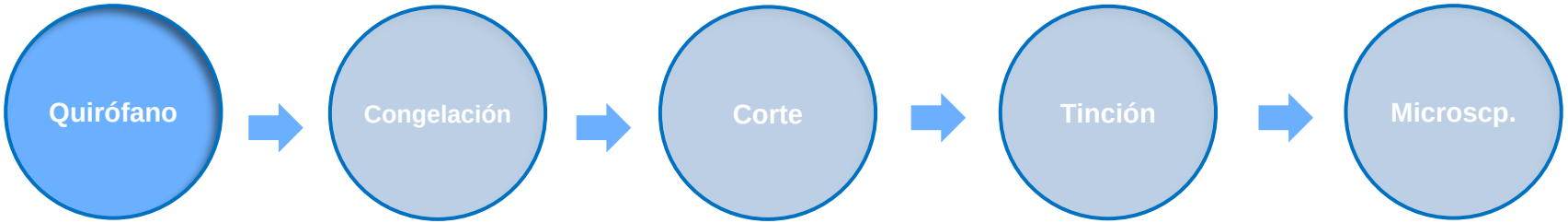
Workflow

Desde la obtención de la muestra hasta secciones teñidas de alta calidad en tan sólo 10 minutos



Workflow

Desde la obtención de la muestra hasta secciones teñidas de alta calidad en tan sólo 10 minutos

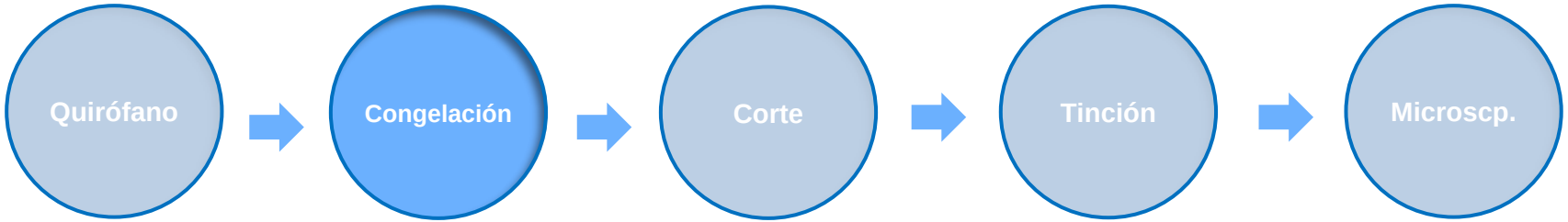


*TissueSafe

Obtención de muestras frescas en quirófano y traslado a Anatomía Patológica

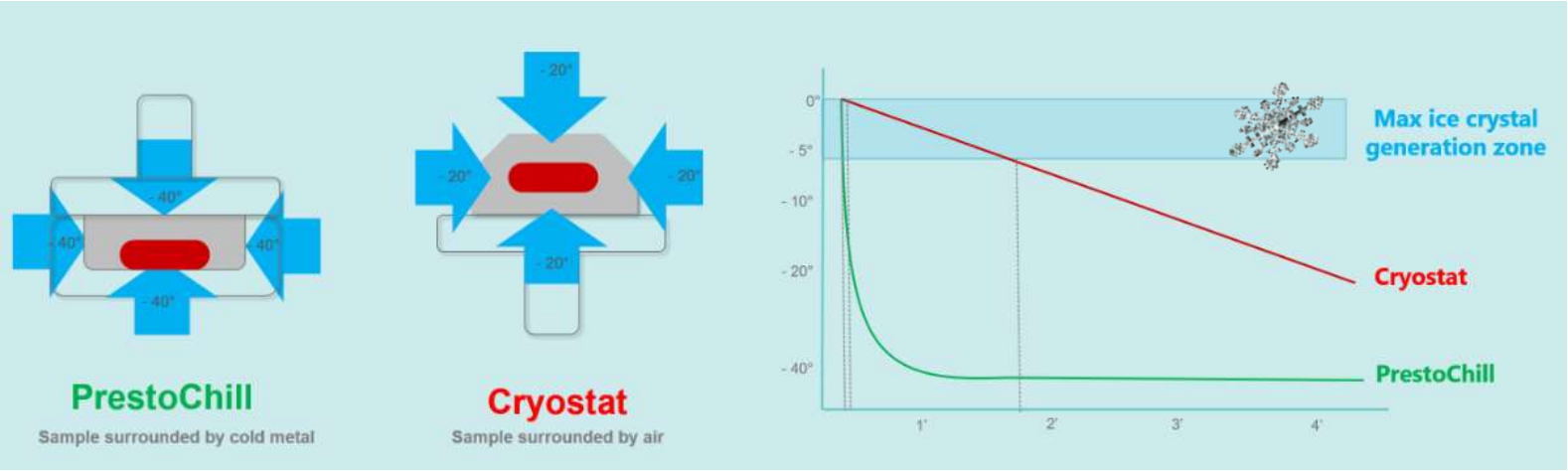
Workflow

Desde la obtención de la muestra hasta secciones teñidas de alta calidad en tan sólo 10 minutos



Congelación en el Laboratorio de Anatomía Patológica
60 seg de congelación con **PrestoCHILL**

Nuestra tecnología patentada *“Face Down”*



Nuestra tecnología patentada *"Face Down"*

1 Coloque una gota del medio de crioinclusión en la punta de la espátula.

2 Oriente la muestra.

3 Transfiera la muestra a la parte inferior del molde.

4 Añada medio de crioinclusión hasta llenar el molde.

5 Coloque el cabezal portamuestras sobre el molde.

6 Añada el disipador de calor y cierre la tapa.

7 Inicie el temporizador. Al cabo de 60 segundos...

8 ... se obtiene un bloque congelado con una superficie completamente plana lista para cortar

Sin artefactos de cristales, compresión o retracción tisular

Seguro

PrestoCHILL

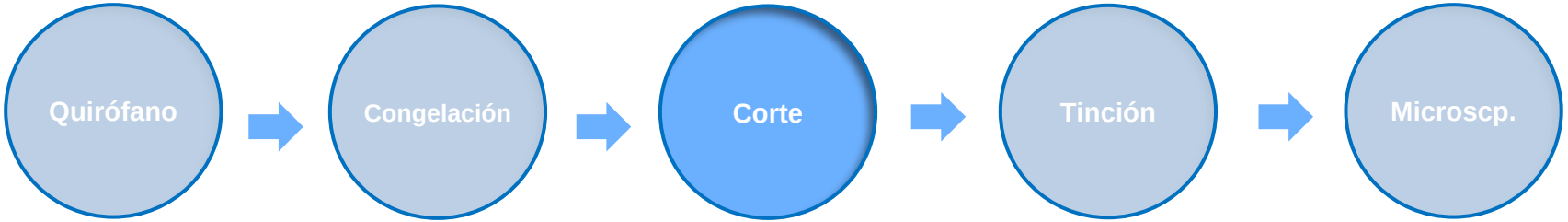
✓OPERADOR: NO productos peligrosos / químicos inflamables (N_2 Líquido, CO_2, Isopentano)

✓ MUESTRA: Superficie plana, no artefactos y desbastado optimizado

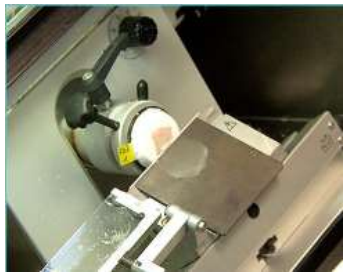
✓ MEDIOAMBIENTE. No necesita recargas de mantenimiento. No utiliza compresor (no usa CFC)

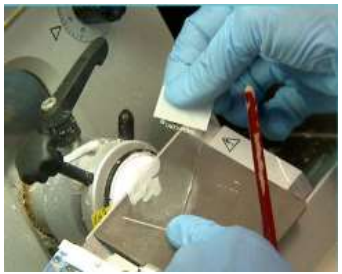
Workflow

Desde la obtención de la muestra hasta secciones teñidas de alta calidad en tan sólo 10 minutos



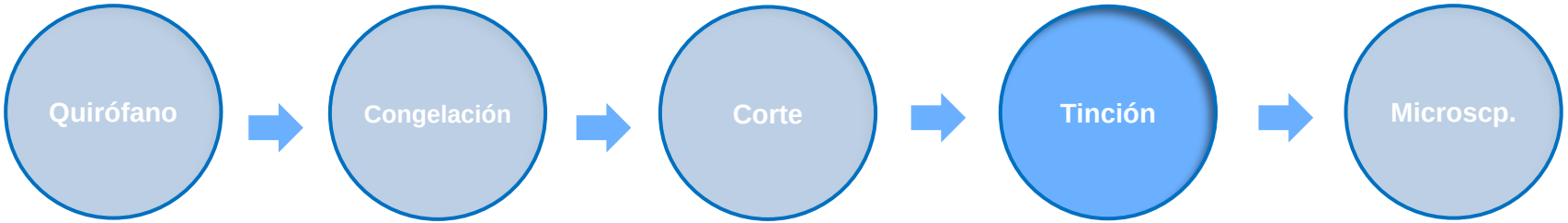
Corte en el Criostato y comienzo de la fijación con
FineFIX

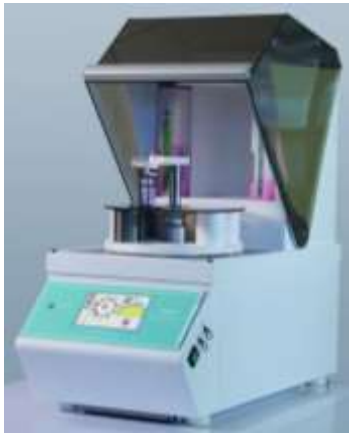




Workflow

Desde la obtención de la muestra hasta secciones teñidas de alta calidad en tan sólo 10 minutos





AUTOMÁTICA

PRESTO/PRESTO PRO

Procesador/teñidor automático

PRESTO PRO

✓**Procesado y tinción automática**

✓**Mejora la morfología tisular. Similar a una parafina**

✓**Hasta 6 cristales en 4 minutos.**

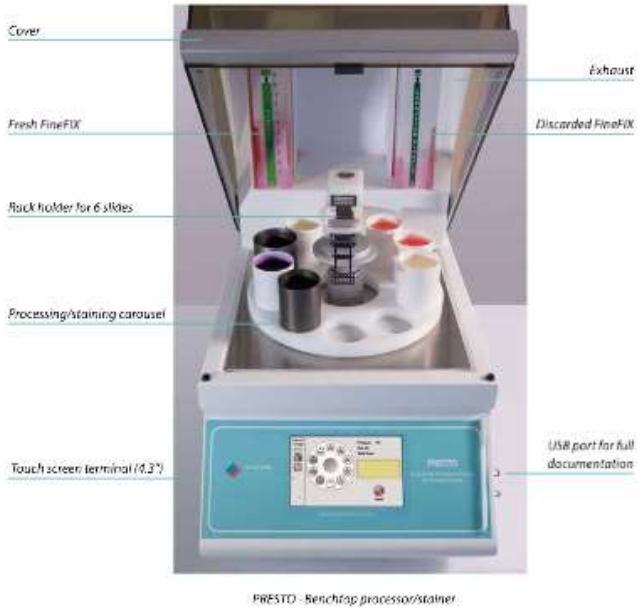
✓**Estandarización de la tinción.**

✓**Flexible. Protocolos customizables. Abierto a los reactivos de tinción.**

✓**Trazabilidad y documentación de la intra**

✓**Seguro para el usuario. Sistema de ventilación. Protocolos libres de formol y xilol.**

✓**Sistema simple, cómodo y reproducible**

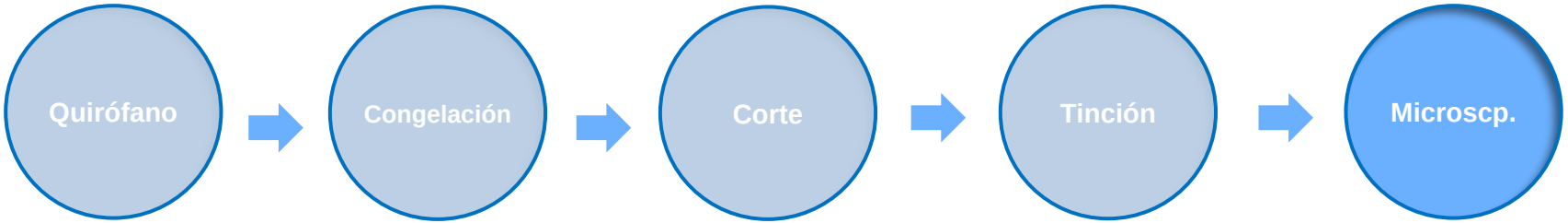


PRESTO - Benchtop processor/stainer

Mejora en la morfología tisular en 4 minutos

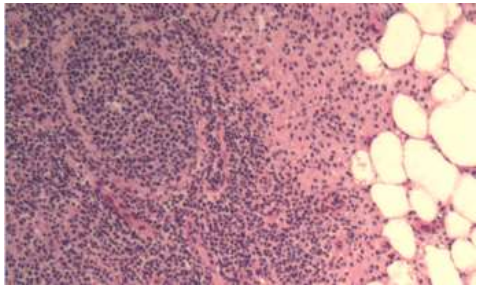
Workflow

Desde la obtención de la muestra hasta secciones teñidas de alta calidad en tan sólo 10 minutos

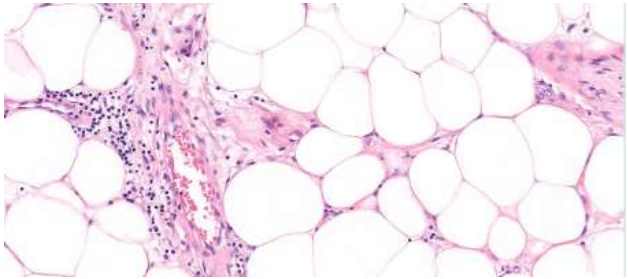


….y 10 min más tarde…preparaciones de muestras en congelación con una alta calidad
¡¡ listas para ser diagnosticadas !!

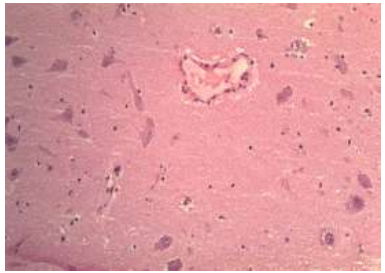
Resultados



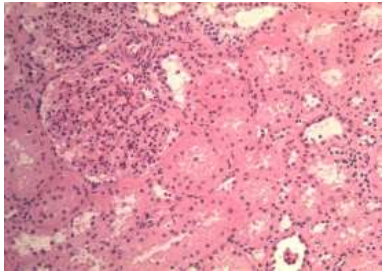
Nódulo linfático



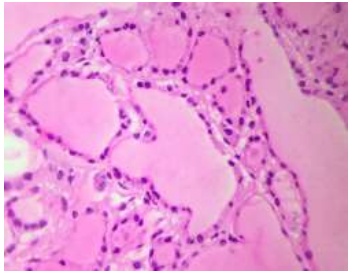
Tejido graso



Cerebro



Riñon



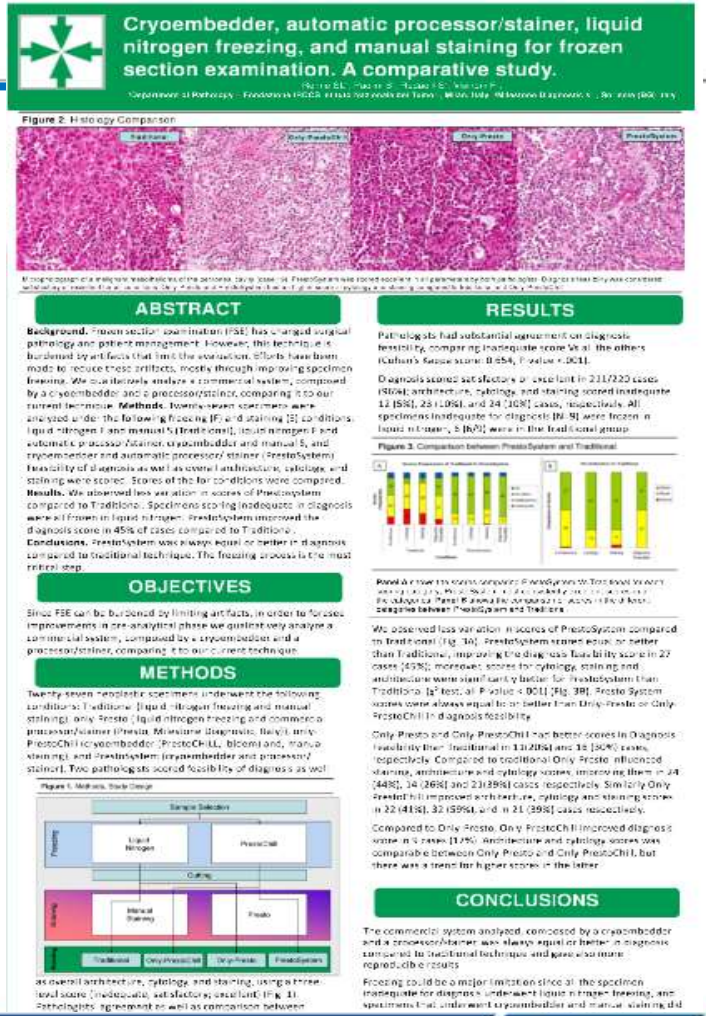
Tiroides

Publicaciones

Soporte científico:

- ✓ Congelación y tinción tradicional *vs* Sistema PRESTO
- ✓ Cirugía de MOHS. Mejores resultados y más rápido.
- ✓ Valoración histológica de riñón de donante previa al transplante.

PrestoCHILL mejora la calidad morfológica para valoración de injertos.



Cryoembedder, automatic processor/stainer, liquid nitrogen freezing, and manual staining for frozen section examination. A comparative study.

Figure 2: Histology Comparison

ABSTRACT

Background. Frozen section examination (FSE) has changed surgical pathology and patient management. However, this technique is burdened by artifacts that limit the examination. Efforts have been made to reduce these artifacts, mostly through improving specimen freezing. We qualitatively analyze a commercial system, composed by a cryoembedder and a processor/stainer, comparing it to our current technique. **Methods.** Twenty-seven specimens were analyzed under the following freezing (F) and staining (S) conditions: liquid nitrogen F and manual S (Traditional), liquid nitrogen F and automatic processor/stainer, cryoembedder and manual S, and cryoembedder and automatic processor/ stainer (PrestoSystem). Feasibility of diagnosis as well as overall architecture, cytology, and staining were scored. Scores of the four conditions were compared. **Results.** We observed less variation in scores of PrestoSystem compared to Traditional. Specimens scoring inadequate in diagnosis were all frozen in liquid nitrogen. PrestoSystem improved the diagnosis score in 45% of cases compared to Traditional. **Conclusions.** PrestoSystem was always equal or better in diagnosis compared to traditional technique. The freezing process is the most critical step.

OBJECTIVES

Since FSE can be burdened by limiting artifacts, in order to foresee improvements in pre-analytical phase we qualitat vely analyse a commercial system, composed by a cryoembedder and a processor/stainer, comparing it to our current technique.

METHODS

Twenty-seven neoplastic specimens underwent the following conditions: Traditional (liquid nitrogen freezing and manual staining), only Presto (liquid nitrogen freezing and commercial processor/stainer (Presto, Milestone Diagnostic, Italy)), only PrestoChill (cryoembedder (PrestoCHILL, Bicemi) and, manual staining), and PrestoSystem (cryoembedder and processor/ stainer). Two pathologists scored feasibility of diagnosis as well as overall architecture, cytology, and staining, using a three-level score (inadequate, satisfactory, excellent) (Fig. 1). Pathologists' agreement as well as comparison between

RESULTS

Pathologists had substantial agreement on diagnosis feasibility, comparing inadequate score vs all the others (Cohen's Kappa score: 0.654, P value < .001).

Diagnosis scored satisfactory or excellent in 221/225 cases (98%); architecture, cytology, and staining scored inadequate 11 (5%), 23 (10%), and 24 (10%) cases, respectively. All specimens inadequate for diagnosis (N. 9) were frozen in liquid nitrogen, 5 (N.9) were in the traditional group.

Figure 3: Comparison between PrestoSystem and Traditional

We observed less variation in scores of PrestoSystem compared to Traditional (Fig. 3a). PrestoSystem scored equal or better than Traditional, improving the diagnosis feasibility score in 22 cases (45%); moreover, scores for cytology, staining and architecture were significantly better for PrestoSystem than Traditional (χ^2 test, all P value < .001) (Fig. 3b). Presto System scores were always equal to or better than Only-Presto or Only-PrestoChill in diagnosis feasibility.

Only-Presto and Only-PrestoChill had better scores in Diagnosis Feasibility than Traditional in 13 (26%) and 36 (80%) cases, respectively. Compared to traditional Only Presto influenced staining, architecture and cytology scores, improving them in 24 (48%), 14 (28%) and 23 (39%) cases respectively. Similarly Only Presto influenced architecture, cytology and staining scores in 22 (41%), 32 (59%), and in 21 (39%) cases respectively.

Compared to Only Presto, Only PrestoChill improved diagnosis score in 6 cases (13%). Architecture and cytology scores was comparable between Only Presto and Only PrestoChill, but there was a trend for higher scores in the latter.

CONCLUSIONS

The commercial system analyzed, composed by a cryoembedder and a processor/stainer, was always equal or better in diagnosis compared to traditional technique and gave us more reproducible results.

Freezing could be a major limitation since all the specimen inadequate for diagnosis underwent liquid nitrogen freezing, and specimens that underwent cryoembedder and manual staining did

Publicaciones

Mohs and the benefits of new embedding and staining systems

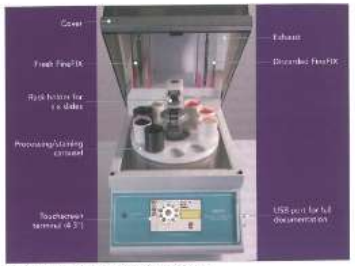


Fig 4. Key features of the Presto automated processor/stainer.

Fig 5. Presto automated processor/stainer slide rack showing a six-slide capacity.

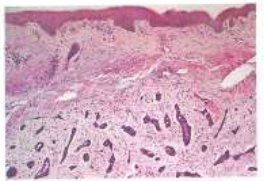


Fig 6. Micrometre basal cell carcinoma pattern in tissue embedded on the PrestoChill Cryoembedding System and stained on the Presto automated processor/stainer devices (H&E stain, original magnification x40).

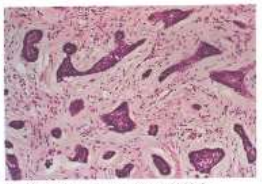


Fig 7. Islands of basal cell carcinoma in tissue embedded on the PrestoChill Cryoembedding System and stained on the Presto automated processor/stainer devices (H&E stain, original magnification x40).

Publicaciones

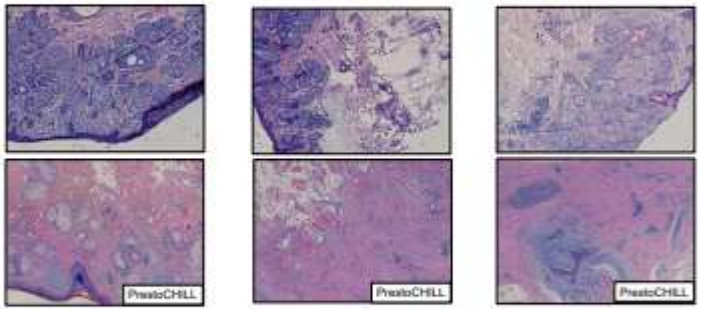
Freezing skin tissue in Mohs Micrographic Surgery using PrestoCHILL®.

Veronica Caamaño Villaverde (1), Veronica Velasco Benito (1), Irati Allende Martixana (2), Izaskun Ocerin (2), Marta Mendieta Eckert (2). Cruces University Hospital; Department of pathology. Department of dermathology.

Background: Mohs micrographic surgery is distinguished by histologic examination of the complete surgical margin prepared from fresh frozen tissue. The purpose is to achieve the examination in one section of the undersurface, the sidewall, and the epidermal margin. To do so, the specimen must be manipulated before freezing, flattening it.

Design: We compare 34 cases frozen by traditional method over a year, with 9 cases frozen by PrestoCHILL® over 3 months.

Results: Traditional method required a mean of 15 slides while the new one only 10. Also the number of frozen blocks needed downgraded from 1.9 to 1. Freezing quality was also improved, and holes and tears seen in fat were also reduced.



Conclusions:The manipulation of the skin while freezing is one of the pitfalls of this technique, since the flattening of tissue is done against gravity, and epidermal margins usually "fall". The solution to this particular problem requires several serial sections or cutting the specimen in more than 1 frozen block to solve. We tested PrestoCHILL® device to freeze the tissue, since the freezing is made faster and in contact of a flat metal surface, facing the margin (favored by gravity).

"**Histologic Pitfalls in the Mohs Technique**" Navid Bouzari, MD, Suzanne Olbricht, MD. Dermatol Clin 29 (2011) 261–272

"**Hematoxylin and Eosin Tissue Stain in Mohs Micrographic Surgery: A Review**" Kassandra Larson, Pooja L. Anumula and Mineue Chen. Dermatol Surg 2011; 37:1–11

"**Setting up the Mohs Surgery Laboratory**". Sharon L. Thornton, Barbara Beck HT. Dermatol Clin 29 (2011) 331–340

veronica.caamano.villaverde@osakidetza.eus

Osakidetza


Mohs and the benefits of new embedding and staining systems

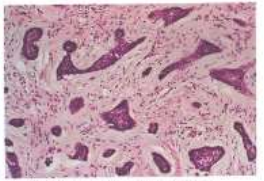


Fig 7. stands of basal cell carcinoma in tissue embedded on the PrestoCHILL Cryoembedding System and stained on the Prisma automated processor(x-ray devices (H&E stain, original magnification x40).

achieved using conventional tissue staining. Only minor staining artefacts were evident, some of which included tissue squeezes. Once again, this compared favourably with the results of the conventional staining methods employed. There was no evidence of inadequate dehydration or inadequate clearing of the tissue sections. The key benefit was a staining time approximately three to four times faster than existing semi-automated staining techniques, and time-saving improvements were evident in all steps of the staining procedure on the Presto processor/stainer device.

Exciting developments

The innovative, complementary devices described here represent very exciting developments in the field of fresh frozen section preparation and staining. They offer a comprehensive approach to tackling the whole range of technical challenges faced in producing good-quality, well-stained frozen sections in a rapid-response format. The careful attention to detail and design, with improved consideration of options to advance efficiency, mark both devices out as being of some merit. Clearly designed to be used together to ensure optimal time-saving performance, these devices are also highly automated, which brings benefits to any frozen section laboratory.

Within the UK, the fastest growing cellular pathology specialty in which such devices are likely to gain exposure has to be within the field of Mohs procedures, mainly because of the evident improvements in speed and efficiency. It should, however, be pointed out that this does not restrict application of the devices to other areas of frozen section work.

The clean and compact nature of both devices also embraces benefits in the Lean environment of laboratory design. Relatively speaking, the footprints of both devices are small, compared to conventional staining and tissue embedding equipment. Maintenance requirements are also minor, and the reagent management process is simple, fast and efficient. The ability to download tracking logs also lends use of the devices to equipment management initiatives that are increasingly being required from UKAS ISO 15189 standards of equipment management and performance in all laboratories across the UK.

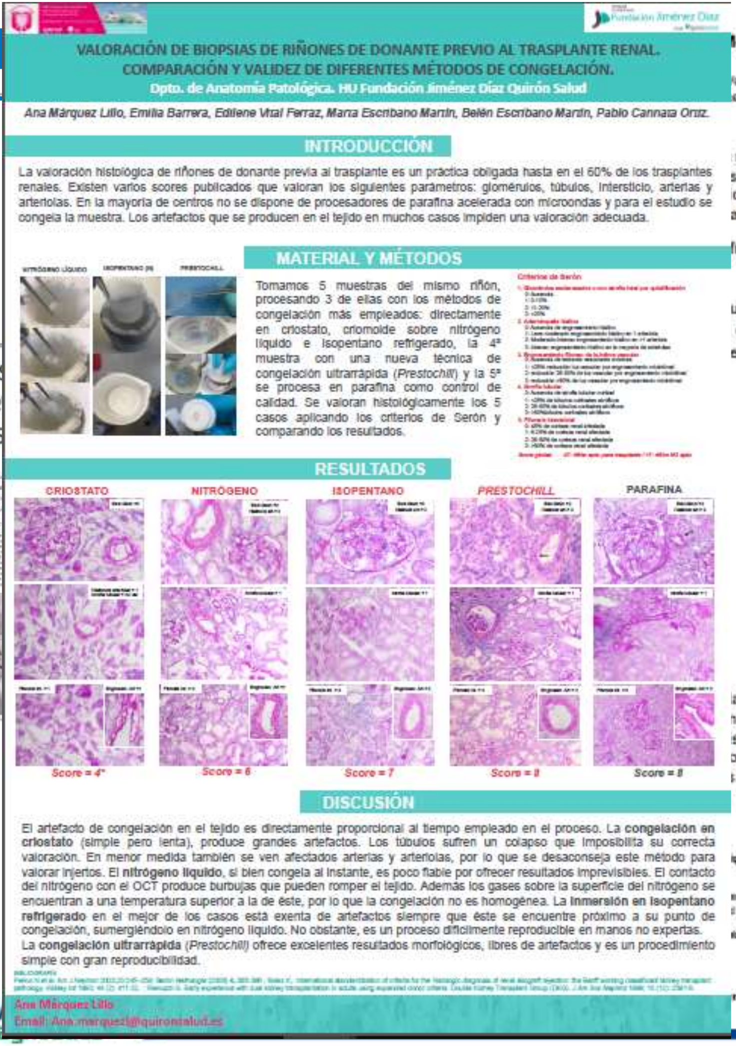
The benefits of an almost fully automated process improve standardisation of practice and ultimately will improve overall quality of performance. The options to adjust staining times swiftly and easily and thus enable a more tailored approach to staining gives the Presto processor/stainer some added advantages.

Finally, currently there are no clearly defined UK NCAS standards of quality performance in Mohs procedures, or indeed in fresh frozen section production. This situation is under review and as current practice of performing frozen sections is highly variable, with application of a wide assortment of manual and semi-automated procedures, it follows that devices that can standardise these steps will be positive.

A brief glance over the past 20–30 years within the field of tissue and cellular science has shown us how automated platforms have been introduced and have standardised practices generally for the better, particularly fully automated platforms. Perhaps it is now time to review this in the light of our frozen section work, too.

Dr Guy Orchard, Consultant Grade Biomedical Scientist and Laboratory Manager, Viapath, St John's Institute of Dermatology, St Thomas' Hospital, London.

Pu


VALORACIÓN DE BIOPSIAS DE RIÑONES DE DONANTE PREVIO AL TRASPLANTE RENAL. COMPARACIÓN Y VALIDEZ DE DIFERENTES MÉTODOS DE CONGELACIÓN.

Dpto. de Anatomía Patológica. HU Fundación Jiménez Díaz Quirón Salud

Ana Márquez Lillo, Emilia Barrera, Edilene Vital Ferraz, Marta Escribano Martín, Belén Escribano Martín, Pablo Cannata Ortiz.

INTRODUCCIÓN

La valoración histológica de riñones de donante previa al trasplante es un práctica obligada hasta en el 60% de los trasplantes renales. Existen varios scores publicados que valoran los siguientes parámetros: glomérulos, túbulos, intersticio, arterias y arteriolas. En la mayoría de centros no se dispone de procesadores de parafina acelerada con microondas y para el estudio se congela la muestra. Los artefactos que se producen en el tejido en muchos casos impiden una valoración adecuada.

MATERIAL Y MÉTODOS

Tomamos 5 muestras del mismo riñón, procesando 3 de ellas con los métodos de congelación más empleados: directamente en criostato, criomolde sobre nitrógeno líquido e isopentano refrigerado, la 4ª muestra con una nueva técnica de congelación ultrarrápida (*Prestochill*) y la 5ª se procesa en parafina como control de calidad. Se valoran histológicamente los 5 casos aplicando los criterios de Serón y comparando los resultados.

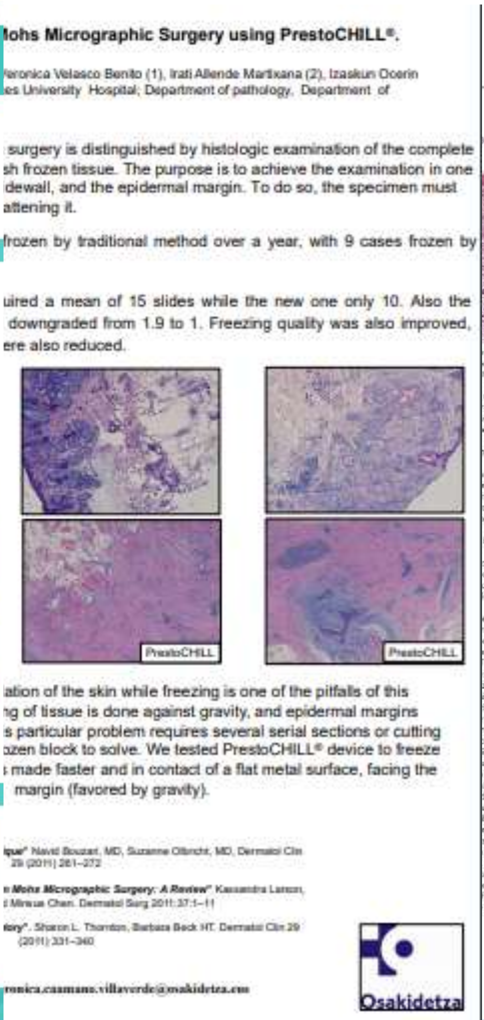
RESULTADOS

CRIOSTATO — Score = 4*
NITRÓGENO — Score = 6
ISOPENTANO — Score = 7
PRESTOCHILL — Score = 8
PARAFINA — Score = 8

DISCUSIÓN

El artefacto de congelación en el tejido es directamente proporcional al tiempo empleado en el proceso. La **congelación en criostato** (simple pero lenta), produce grandes artefactos. Los túbulos sufren un colapso que imposibilita su correcta valoración. En menor medida también se ven afectados arterias y arteriolas, por lo que se desaconseja este método para valorar injertos. El **nitrógeno líquido**, si bien congela al instante, es poco fiable por ofrecer resultados imprevisibles. El contacto del nitrógeno con el OCT produce burbujas que pueden romper el tejido. Además los gases sobre la superficie del nitrógeno se encuentran a una temperatura superior a la de éste, por lo que la congelación no es homogénea. La **inmersión en isopentano refrigerado** es el mejor de los casos está exenta de artefactos siempre que éste se encuentre próximo a su punto de congelación, sumergiéndolo en nitrógeno líquido. No obstante, es un proceso difícilmente reproducible en manos no expertas.
La **congelación ultrarrápida** (*Prestochill*) ofrece excelentes resultados morfológicos, libres de artefactos y es un procedimiento simple con gran reproducibilidad.

Ana Márquez Lillo
Email: Ana.marquezl@quironsalud.es


Mohs Micrographic Surgery using PrestoCHILL®.

Veronica Velasco Benito (1), Irati Allende Martxana (2), Izaskun Ocerin
es University Hospital; Department of pathology, Department of

surgery is distinguished by histologic examination of the complete
sh frozen tissue. The purpose is to achieve the examination in one
dewall, and the epidermal margin. To do so, the specimen must
attening it.

frozen by traditional method over a year, with 9 cases frozen by

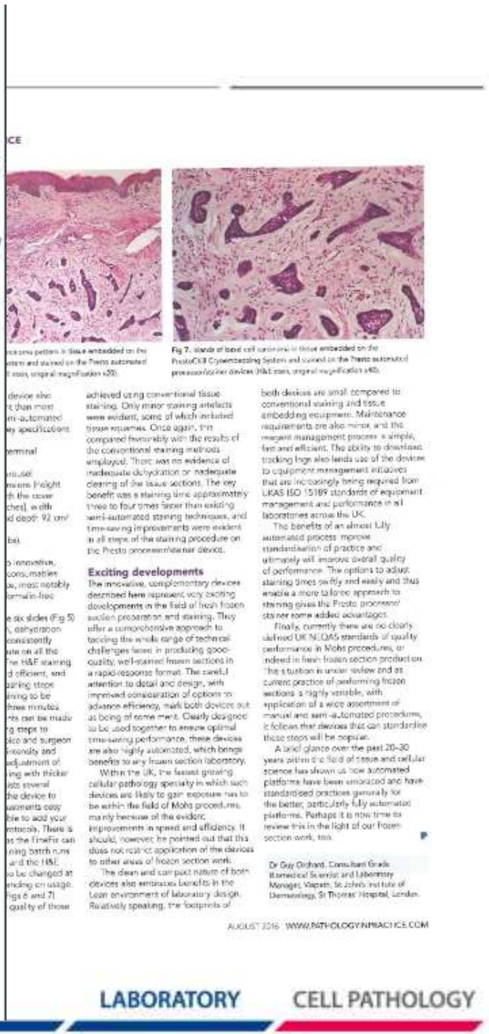
uired a mean of 15 slides while the new one only 10. Also the
downgraded from 1.9 to 1. Freezing quality was also improved,
ere also reduced.

PrestoCHILL
PrestoCHILL

ation of the skin while freezing is one of the pitfalls of this
ng of tissue is done against gravity, and epidermal margins
s particular problem requires several serial sections or cutting
ozen block to solve. We tested PrestoCHILL® device to freeze
made faster and in contact of a flat metal surface, facing the
margin (favored by gravity).

ique" Navid Bouzari, MD, Suzanne Olbricht, MD, Dermatol Clin 29 (2011) 261–272
n Mohs Micrographic Surgery: A Review" Kassandra Larson, Mireus Chen. Dermatol Surg 2011;37:1–11
tory". Sharon L. Thornton, Barbara Beck HT. Dermatol Clin 29 (2011) 331–340

Osakidetza

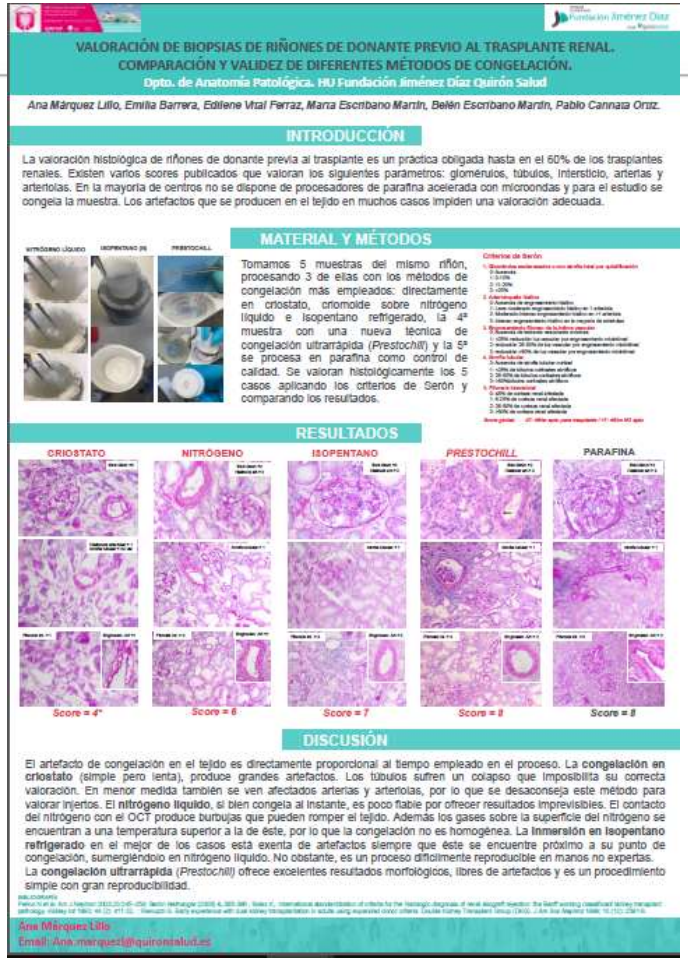

Exciting developments

AUGUST 2016 WWW.PATHOLOGYINPRACTICE.COM

LABORATORY CELL PATHOLOGY


Mohs
of ne
and s

A.M
dia



VALORACIÓN DE BIOPSIAS DE RIÑONES DE DONANTE PREVIO AL TRASPLANTE RENAL. COMPARACIÓN Y VALIDEZ DE DIFERENTES MÉTODOS DE CONGELACIÓN.

Dpto. de Anatomía Patológica. HU Fundación Jiménez Díaz Quirón Salud

Ana Márquez Lillo, Emilia Barrera, Edilene Vital Ferraz, María Escribano Martín, Belén Escribano Martín, Pablo Cannata Ortiz.

INTRODUCCIÓN

La valoración histológica de riñones de donante previa al trasplante es un práctica obligada hasta en el 60% de los trasplantes renales. Existen varios scores publicados que valoran los siguientes parámetros: glomérulos, túbulos, intersticio, arterias y arteriolas. En la mayoría de centros no se dispone de procesadores de parafina acelerada con microondas y para el estudio se congela la muestra. Los artefactos que se producen en el tejido en muchos casos impiden una valoración adecuada.

MATERIAL Y MÉTODOS

Tomamos 5 muestras del mismo riñón, procesando 3 de ellas con los métodos de congelación más empleados: directamente en criostato, criomolde sobre nitrógeno líquido e Isopentano refrigerado, la 4ª muestra con una nueva técnica de congelación ultrarrápida (*Prestochill*) y la 5ª se procesa en parafina como control de calidad. Se valoran histológicamente los 5 casos aplicando los criterios de Serón y comparando los resultados.

RESULTADOS

CRIOSTATO | NITRÓGENO | ISOPENTANO | PRESTOCHILL | PARAFINA

Score = 4* | Score = 6 | Score = 7 | Score = 8 | Score = 8

DISCUSIÓN

El artefacto de congelación en el tejido es directamente proporcional al tiempo empleado en el proceso. La **congelación en criostato** (simple pero lenta), produce grandes artefactos. Los túbulos sufren un colapso que imposibilita su correcta valoración. En menor medida también se ven afectados arterias y arteriolas, por lo que se desaconseja este método para valorar injertos. El **nitrógeno líquido**, si bien congela al instante, es poco fiable por ofrecer resultados imprevisibles. El contacto del nitrógeno con el OCT produce burbujas que pueden romper el tejido. Además los gases sobre la superficie del nitrógeno se encuentran a una temperatura superior a la de éste, por lo que la congelación no es homogénea. La **inmersión en isopentano refrigerado** en el mejor de los casos está exenta de artefactos siempre que éste se encuentre próximo a su punto de congelación, sumergiéndolo en nitrógeno líquido. No obstante, es un proceso difícilmente reproducible en manos no expertas.
La **congelación ultrarrápida** (*Prestochill*) ofrece excelentes resultados morfológicos, libres de artefactos y es un procedimiento simple con gran reproducibilidad.

Ana Márquez Lillo
Email: Ana.marquezl@quironsalud.es

d) Congelación mediante aparatos de refrigeración de isopentano tipo Histobath™

La ventaja del Histobath™ es que mantiene constantemente refrigerado el isopentano, no obstante en algunos aparatos la temperatura que alcanza no es lo suficientemente baja para evitar artefactos de congelación. Aunque ha dejado de comercializarse, actualmente existen otros productos con un funcionamiento similar.

e) Congelación con dióxido de carbono (CO_2).

Es una técnica que se ha utilizado mucho en el pasado para hacer cortes de congelación cuando surgieron las biopsias intraoperatorias. Se consigue mediante la circulación del gas a gran velocidad para expulsarlo sobre el tejido y congelarlo. También se puede utilizar la forma sólida del CO_2, la nieve carbónica (hielo seco), pero no ofrece buenos resultados.

f) Congelación mediante aparatos de congelación ultrarrápida tipo Presto-Chill™.

Se congela el tejido a -40ºC de manera rápida (<1 min) extrayendo a presión el vapor de agua para evitar artefactos.

Las principales ventajas de este método son una congelación rápida sin producir artefactos en el tejido y de una manera relativamente simple pudiendo ser realizada por personal no especializado y que nivela toda la muestra en el mismo plano de corte.

Frozen Island, elementos que componen el sistema

(BIOPSIA – MACRO – MICRO – TELECONSULTA)

1) CONGELACIÓN, FIJACIÓN Y TINCIÓN DE MUESTRA INTRAOPERATORIA;

PrestoCHILL Y PRESTO

2) DOCUMENTACIÓN DIGITAL MACROSCÓPICA;

MacroPATH, WorkSTATION, eGROSS

MICROSCOPIA DIGITAL , ESCANEADO Y TELECONSULTA;

NAVIGO

Frozen Island, DOCUMENTACIÓ DIGITAL DE LA MACRO

MacroPATH PRO-X

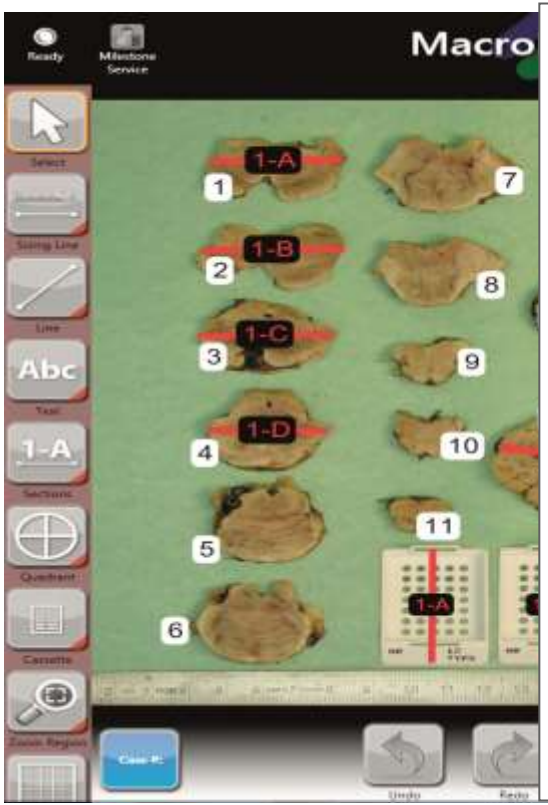
WorkSTATION PRO-X

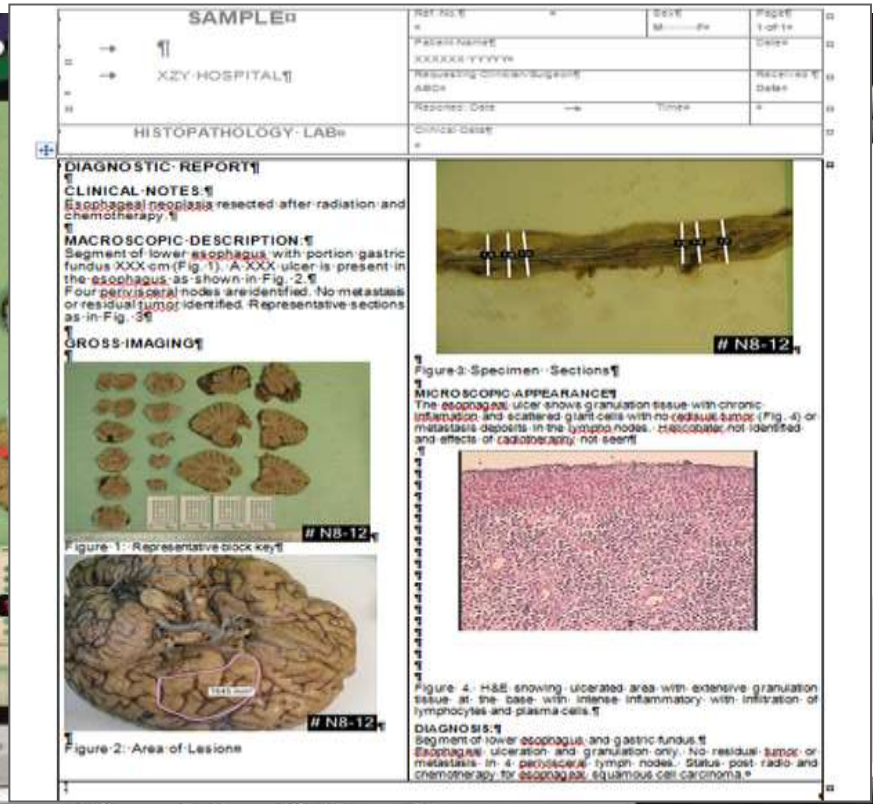
eGROSS PRO-X

Frozen Island, DOCUMENTACIÓ DIGITAL DE LA MACRO

- ✓ Soporte a las descripciones visuales de la pieza extirpada
- ✓ Elimina la imprecisión del lenguaje a la hora de **describir la forma, el tamaño y el color de las muestras**
- ✓ Permite observación y documentación detalladas mediante **el aumento óptico de 10x**
- ✓ Determinación rápida y exacta del **tamaño/área** de la muestra
- ✓ Etiquetado preciso de las **ubicaciones de los bloques** de tejido
- ✓ Documentación de la muestra **“tal y como se recibió”**
- ✓ **Imágenes compartidas** entre los facultativos de un mismo equipo (control de usuarios)
- ✓**Soporte remoto** por conexión entre quirófano y AP

Frozen Island, DOCUMENTACIÓ DIGITAL DE LA MACRO





SAMPLE

XZY HOSPITAL

HISTOPATHOLOGY LAB

DIAGNOSTIC REPORT

CLINICAL NOTES:
Esophageal neoplasia resected after radiation and chemotherapy.

MACROSCOPIC DESCRIPTION:
Segment of lower esophagus with portion gastric fundus XXX cm (Fig. 1). A XXX ulcer is present in the esophagus as shown in Fig. 2.
Four perivisceral nodes are identified. No metastasis or residual tumor identified. Representative sections as in Fig. 3.

GROSS IMAGING

N8-12

Figure 1: Representative block key

N8-12

Figure 2: Area of Lesions

N8-12

Figure 3: Specimen Sections

MICROSCOPIC APPEARANCE
The esophageal ulcer shows granulation tissue with chronic inflammation and scattered giant cells with no residual tumor (Fig. 4) or metastasis deposits in the lympho nodes. Intercostal not identified and effects of radiotherapy not seen.

Figure 4: H&E showing ulcerated area with extensive granulation tissue at the base with intense inflammatory with infiltration of lymphocytes and plasma cells.

DIAGNOSIS:
Segment of lower esophagus and gastric fundus.
Esophagus: ulceration and granulation only. No residual tumor or metastasis in 4 perivisceral lympn nodes. Status post radio and chemotherapy for esophageal squamous cell carcinoma.

Frozen Island, elementos que componen el sistema

(BIOPSIA – MACRO – MICRO – TELECONSULTA)

1) CONGELACIÓN, FIJACIÓN Y TINCIÓN DE MUESTRA INTRAOPERATORIA;

PrestoCHILL Y PRESTO

2) DOCUMENTACIÓN DIGITAL MACROSCÓPICA;

MacroPATH, WorkSTATION, eGROSS

3) MICROSCOPIA DIGITAL, ESCANEADO Y TELECONSULTA;

NAVIGO

Frozen Island, NAVIGO

NAVIGO

- ✓ Diseño compacto
- ✓ Plug & Play (Rápida instalación)
- ✓ Pantalla táctil full HD
- ✓ Windows 10 (Cybersecurity)

Frozen Island, NAVIGO

NAVIGO

- ✓ Diseño compacto
- ✓ Plug & Play (Rápida instalación)
- ✓ Pantalla táctil full HD
- ✓ Windows 10 (Cybersecurity)
- ✓ Rápido preview (1 seg)
- ✓ Monitorización de hasta 4 objetivos
- ✓ Trazabilidad (Lector de códigos 1D/2D)

Frozen Island, NAVIGO

NAVIGO

- ✓ Diseño compacto
- ✓ Plug & Play (Rápida instalación)
- ✓ Pantalla táctil full HD
- ✓ Windows 10 (Cybersecurity)
- ✓ Rápido preview (1 seg)
- ✓ Monitorización de hasta 4 objetivos
- ✓ Trazabilidad (Lector de códigos 1D/2D)
- ✓ Módulos de análisis dedicados a IHQ (núcleos & membranas)

ENTORNOS DEL NAVIGO

RDM (client)

Open JP2000

Disconnect

Settings

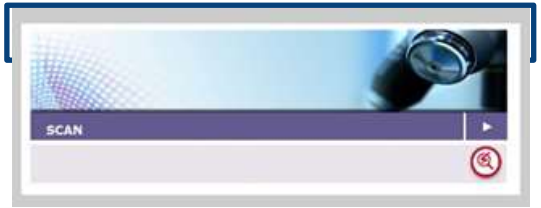
Turn off

ESCÁNER

Send email

Quick preview

Step 1 - Quick preview start



Insert slides holder in the Quick preview slot [1].

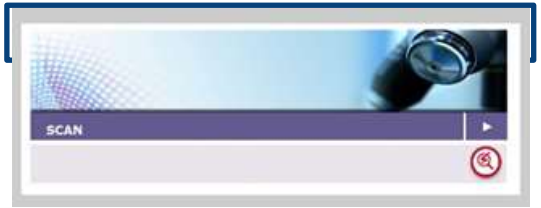
Hardware:

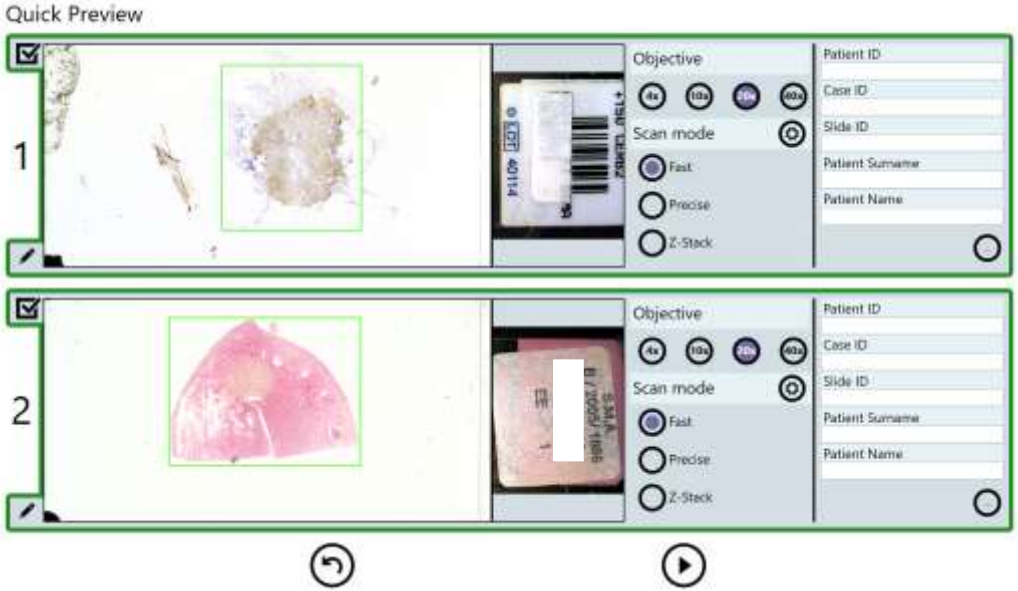
→Slide holder sensor

→Led

→Camera

Step 2 - Quick Preview Acquisition

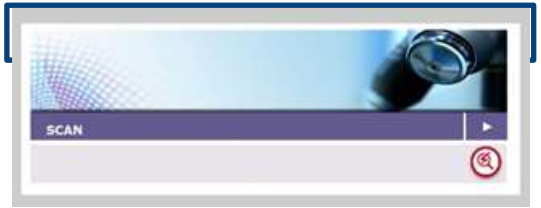


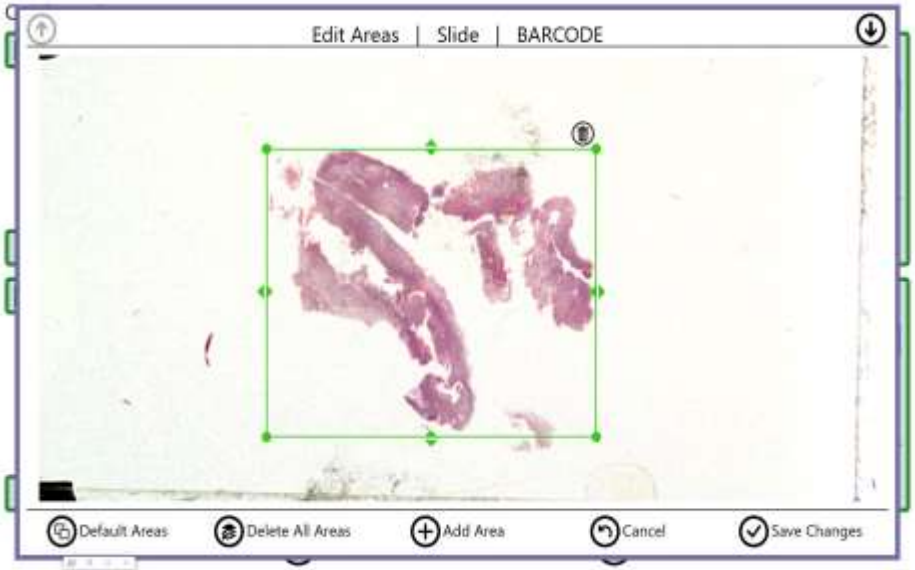


→Check slides presence
→Find specimen
→Read Barcode

→Lens selection
→Scan mode selection
→Patient data editing

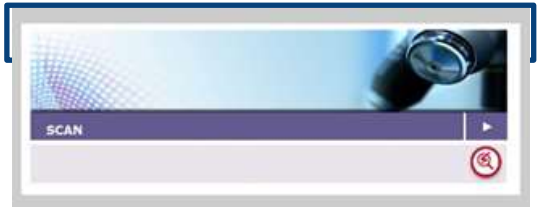
Step 3 – Scan region editing





- Modify area
- Restore Default Area
- Add Area
- Delete Area
- Delete All Areas

Step 4 – Quick preview end



→ Remove slides from QuickPreview slot [1]
→ Load slides on microscope stage [2]

Specifications

SPECIFICATIONS			
Scan speed (20x lens - 1 cm^2)	FAST < 2min	PRECISE < 3min	Z-STACK < 6min
Resolution	0.5 µm/pixel at 20x 0.25 µm/pixel at 40x		
Compression format	JPEG 2000		
Image compression ratio	1 cm^2 at 20x ≈ 80MB (not compressed ≈ 1GB) 1 cm^2 at 40x ≈ 140MB (not compressed ≈ 4GB)		

MICROSCOPIO DIGITAL*

RDM (server)

Auto focus

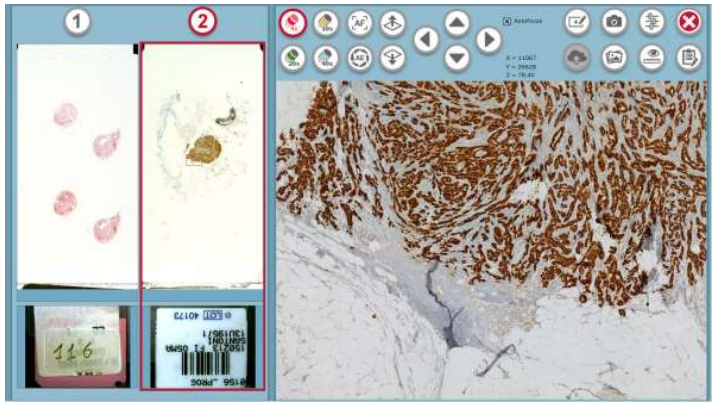
Quick preview

MICROSCOPE

MICROSCOPIO DIGITAL*

- ✓ Visualización en tiempo real del porta
- ✓ Control de la monitorización del microscopio
- ✓ Navigación por el porta siempre en foco
- ✓ Posibilidad de escanear el porta y guardar en archivo

NAVIGO



Step 1 - Quick Preview start

Insert slides holder in the Quick preview slot [1].

Hardware:

→ Slide holder sensor
→ Led
→ Camera

Software:

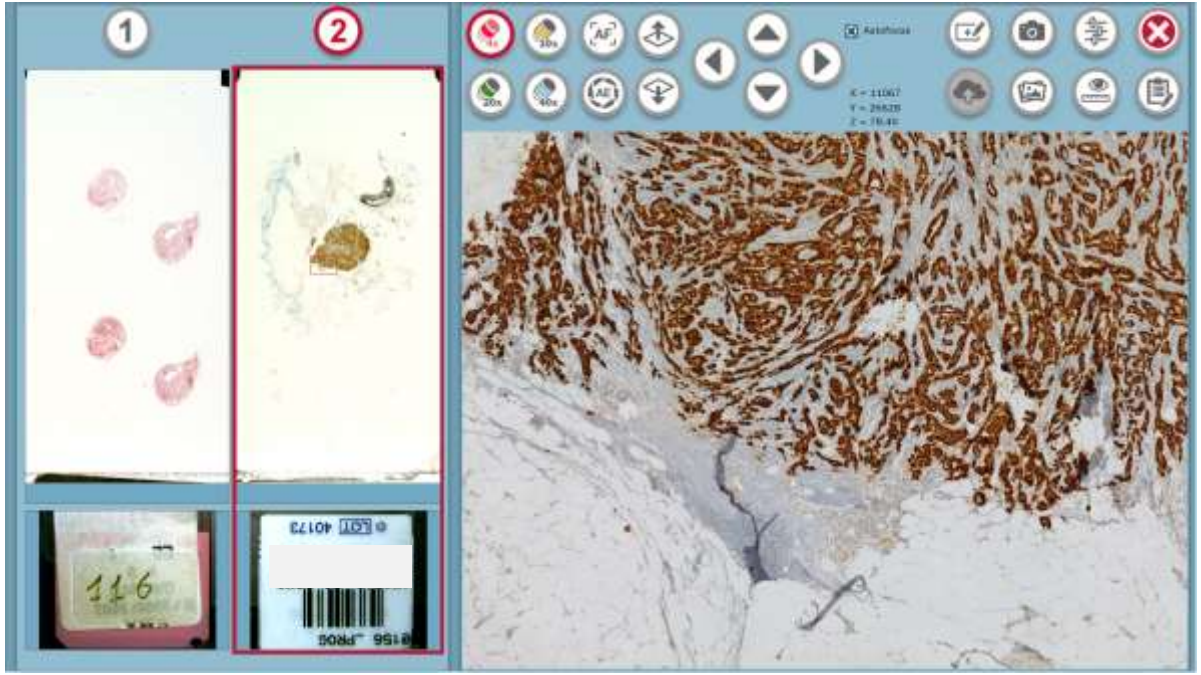
→ Check slides presence
→ Find specimen
→ Read Barcode
→ Patient data editing

Step 2 – Quick preview end

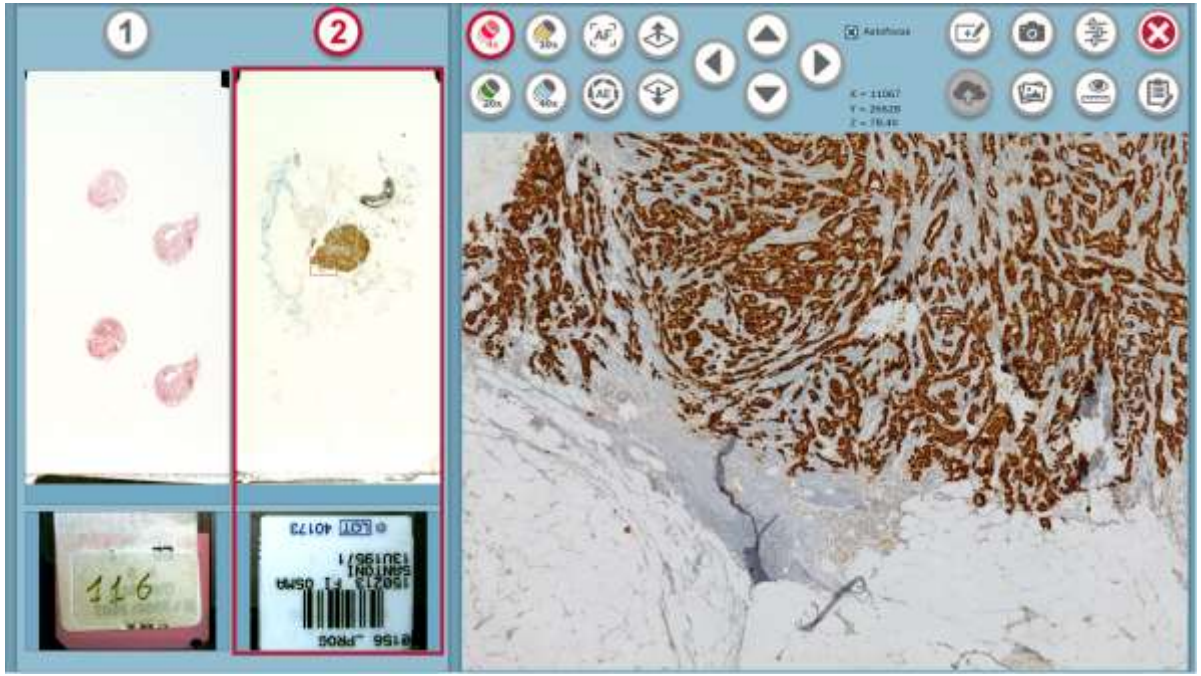
→ Remove slides from Quick preview slot [1]
→ Load slides on microscope stage [2]

Live session: system controls

- Slide selection
- Lens selection
- XYZ axis control
- Auto expose
- Auto focus



Live session: tools



- Scan areas edit
- Upload
- Photo
- Gallery
- Camera settings
- Ruler
- Diagnosis
- Close

ARCHIVO – MICROSCOPIO VIRTUAL

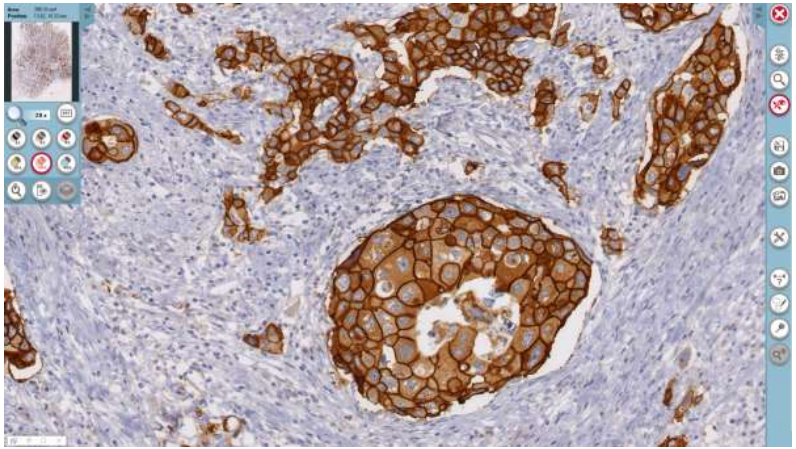
Last session Upload

Delete

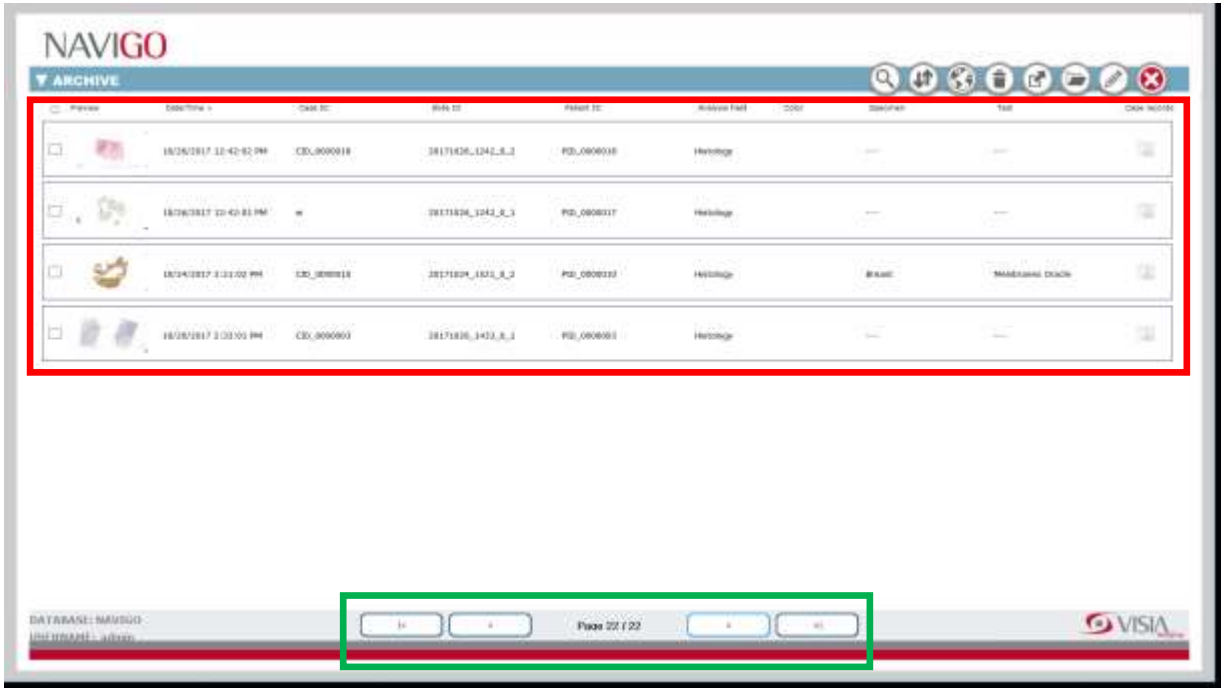
ARCHIVO – MICROSCOPIO VIRTUAL

- ✓ Acceso a los portas digitalizados
- ✓ Navegación por los portas escaneados
- ✓ Herramientas: Zoom digital (1x-160x), medidas, dibujos, notas, análisis de resultados

NAVIGO



Cases list



- → Case list
- → Pages
- Search
- Sort
- Upload
- Delete
- Export
- Open JP2000
- Edit

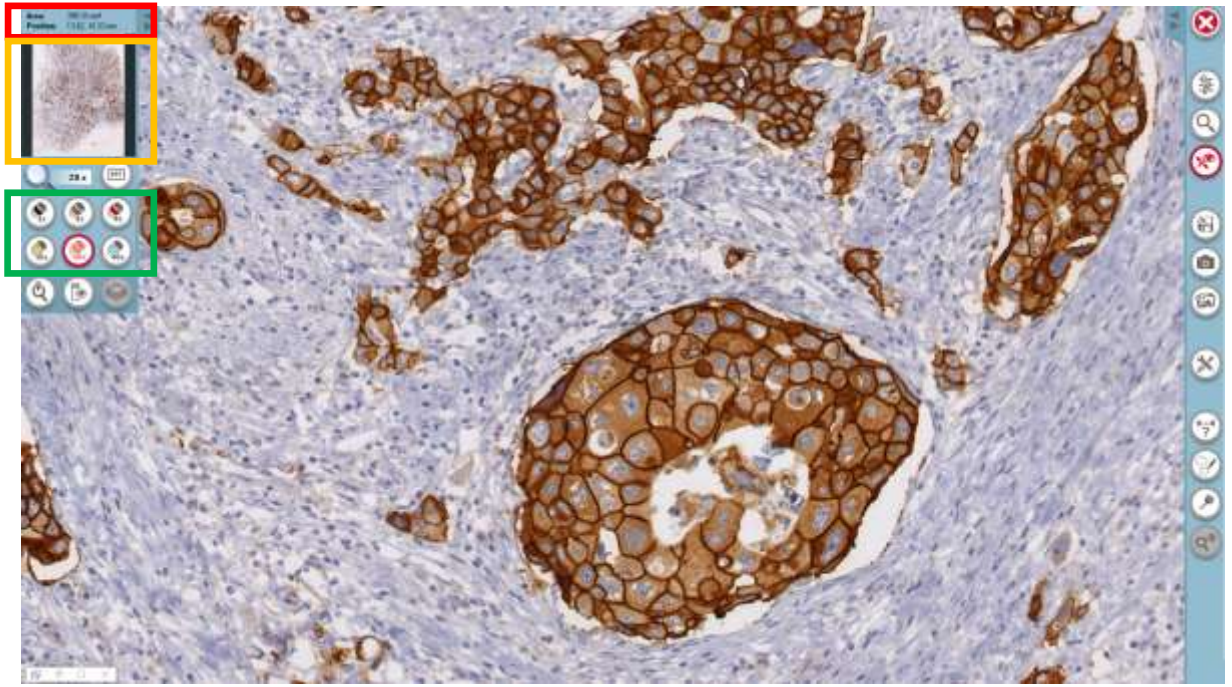
Case edit

Case data
- Date/Time
- Case ID
- Slide ID
- Patient ID
- Analysis field
- Specimen
- Test

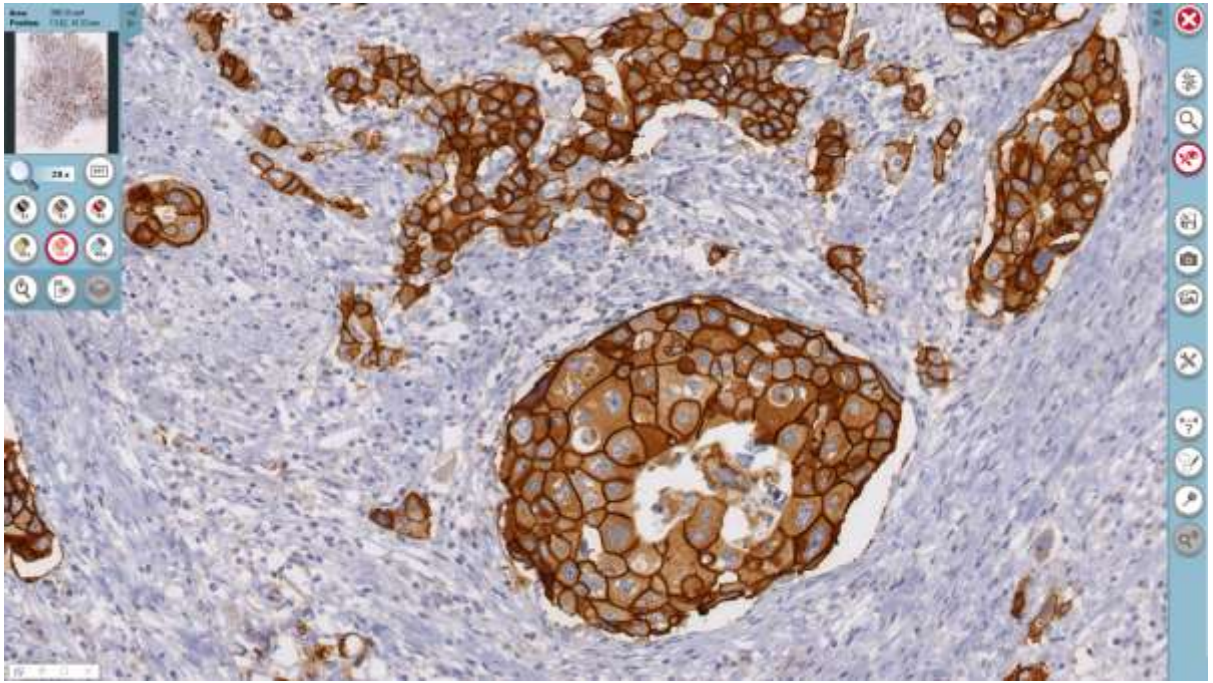
Additional data
- Patient
- Custom fields
- Diagnosis
- Note
- Attachments

Virtual microscope – Image navigation

- Area, position
- Scan preview
- Fit
- Zoom
- Scan regions
- Slide preview
- Z-Stack

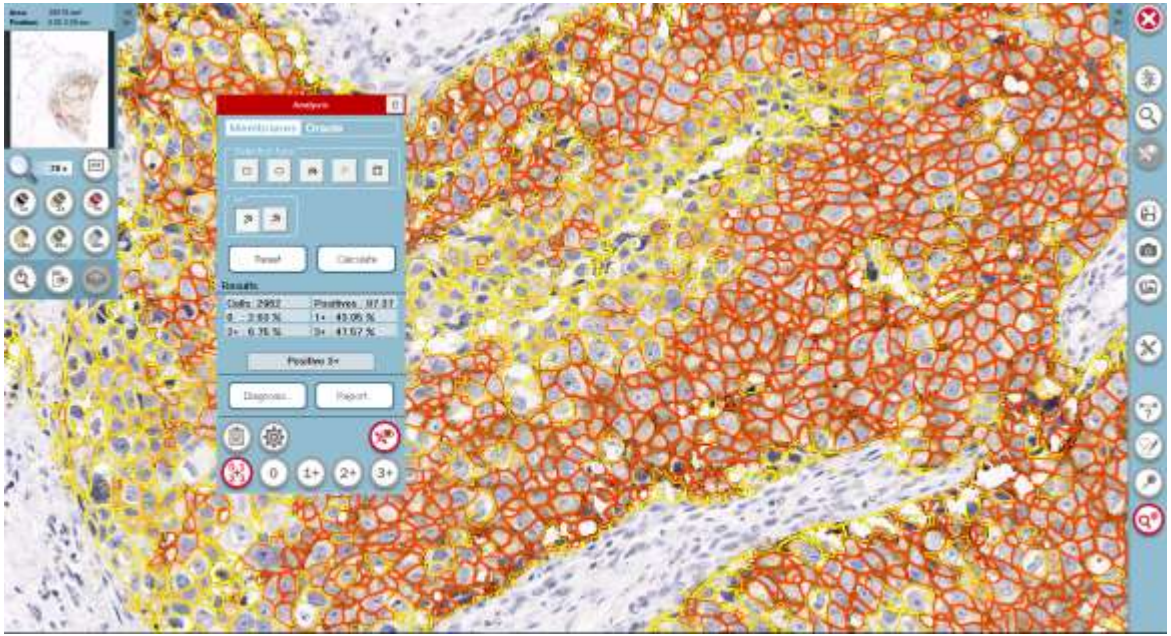


Virtual microscope - Tools



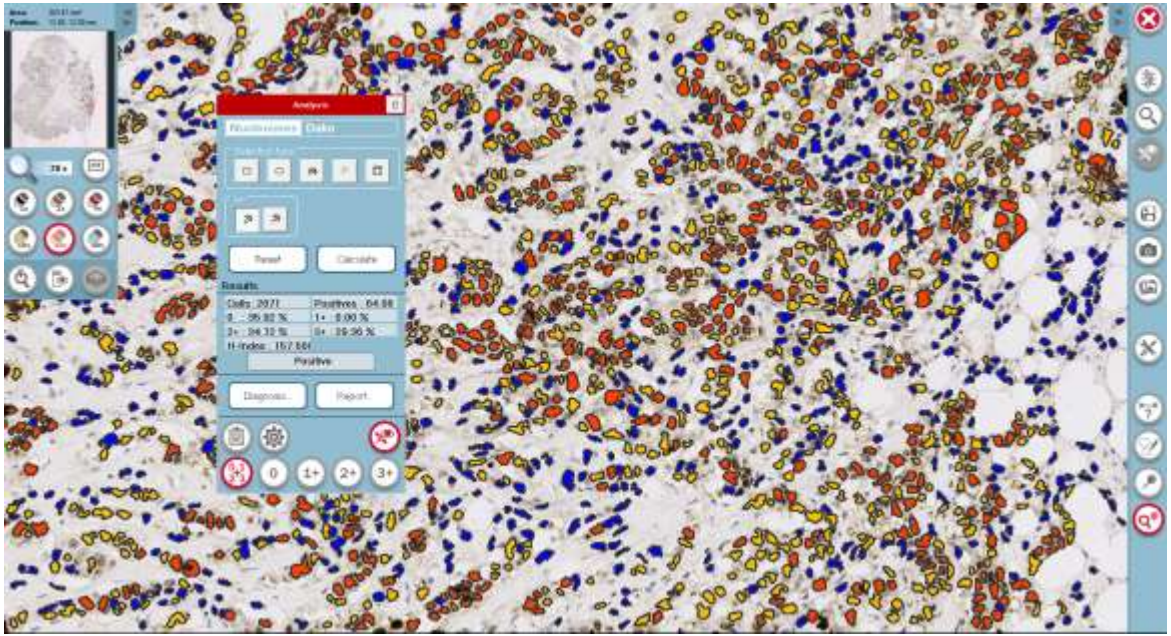
- Close
- Adjustments
- Lens
- Editing visible
- Save JP2000
- Shot
- Gallery
- Tools:
  - Diagnosis
  - Report
- Measures
- Editing
- Bookmarks
- Analysis

Analysis: IHC membrane



- Additional software module
- Research purpose only
- Aid to the pathologist
- **HER2/neu** reagent kit
- Identify, count and classify cells
  - Colour
  - Intensity
  - Dimension
  - Shape
- Membranes staining:
  - Intensity
  - Completeness
- Score: 0, 1+, 2+, 3+
- Personalized analysis profile

Analysis: IHC nuclei

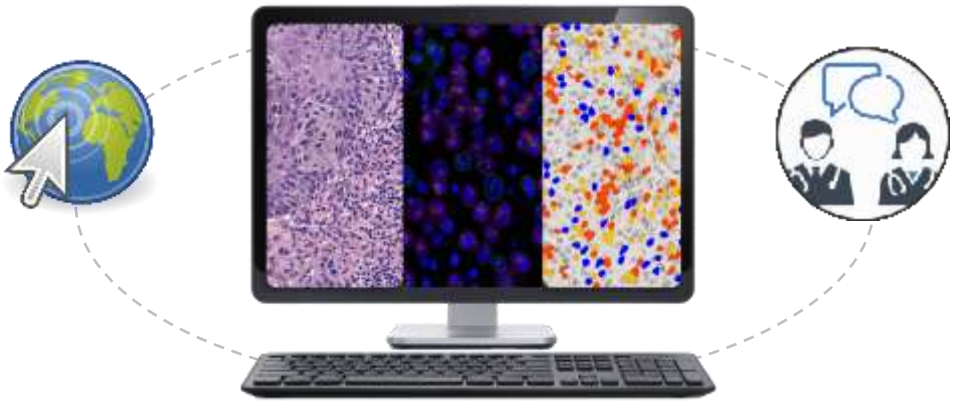


- Additional software module
- Research purpose only
- Aid to the pathologist
- **ER**, **PR**, **Ki-67** markers
- Identify, count and classify cells
  - Colour
  - Intensity
  - Dimension
  - Shape
- Nuclei staining:
  - Color
  - Intensity
- Score: 0, 1+, 2+, 3+
- Personalized analysis profile

FROZEN ISLAND; NETWORKING & APPLICATIONS

Telepathology is the practice of pathology at a distance.

“It uses telecommunications technology to facilitate the transfer of image-rich pathology data between distant locations for the purposes of diagnosis, education, and research”.



FROZEN ISLAND; NETWORKING & APPLICATIONS

INTRAOPERATIVE CONSULTATION

The purpose of the intraoperative consultation is to provide the surgeon with immediate information concerning the health status of the patient.

SECOND OPINION

The purpose of the second opinion is to benefit from the expertise of another pathologist in order to compare, confirm or re-evaluate a first diagnosis.

INTRAOPERATIVE CONSULTATION: **REMOTE** DIGITAL MICROSCOPE (RDM)

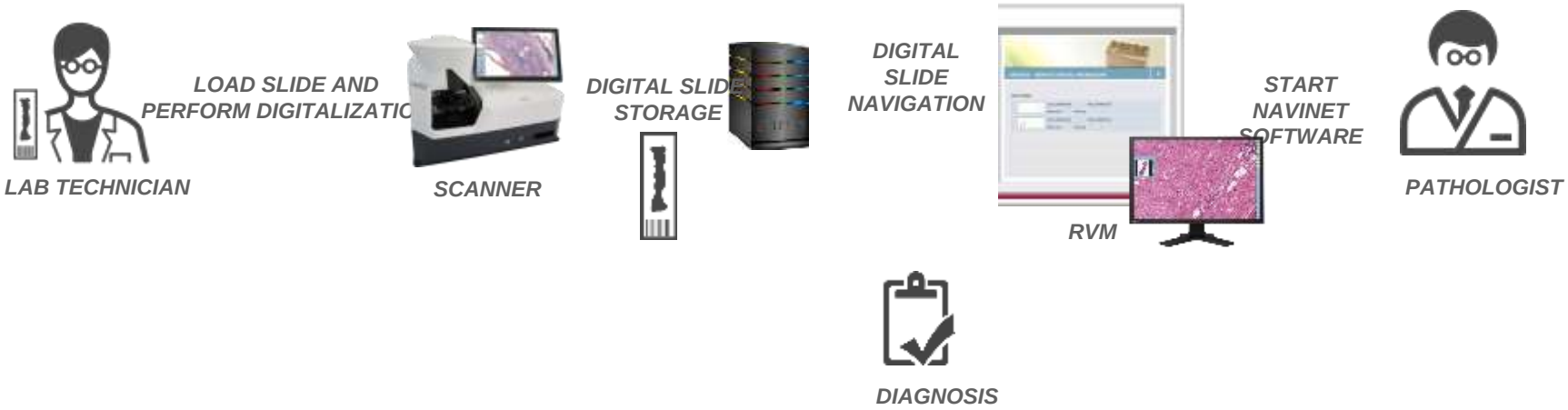
Use of the digital microscope on a **client machine** connected to the scanning system via remote connection (intranet/internet):

- ✓ **Live** (online) slide viewing from remote
- ✓ Areas can be scanned at the end of the LIVE view
- ✓ Perfect solution for intraoperative frozen section **real-time** consultation

SECOND OPINION: REMOTE VIRTUAL MICROSCOPE

Use of the virtual microscope on a **client machine** connected to an archive via remote connection (intranet/internet):

- ✓ Navigation of a **digitized slide** from remote
- ✓ Digital zooming (1x-160x), measurements, drawings, bookmarks, analysis results
- ✓ Perfect solution for **second opinion diagnosis**



DIGITAL SLIDE TELEPATHOLOGY: NAVIWEB APPLICATION

Remote Image viewing and sharing

- ✓ Request for a Second Opinion (instant link, email)
- ✓ Organization of WEB seminars
- ✓ Meeting on-line
- ✓ Synchronized navigation of slides
- ✓ No software installation by the user

LAB TECHNICIAN

LOAD SLIDE AND PERFORM DIGITALIZATIO

SCANNER

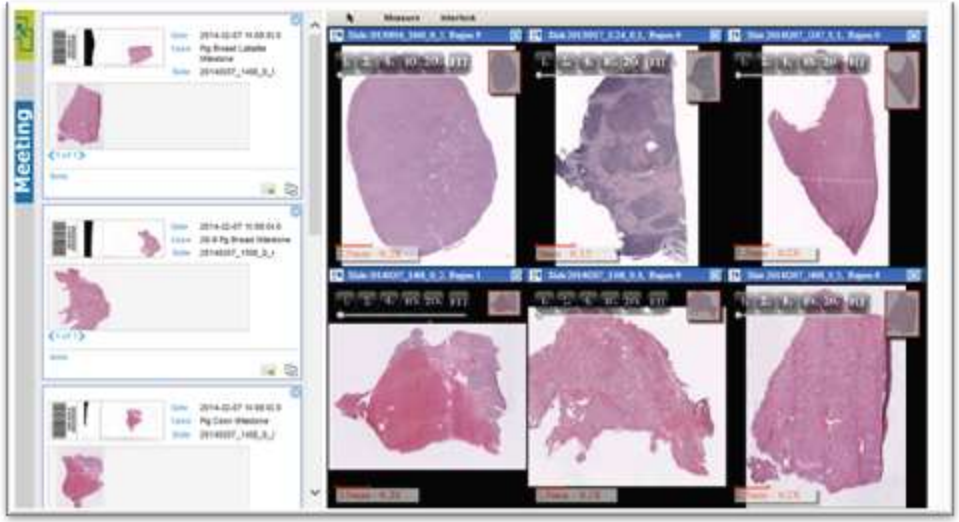
DIGITAL SLIDE SEND

NAVIWEB

TELEPATHOLOGY SERVICES

PATHOLOGIST

DIGITAL SLIDE TELEPATHOLOGY: NAVIWEB APPLICATION

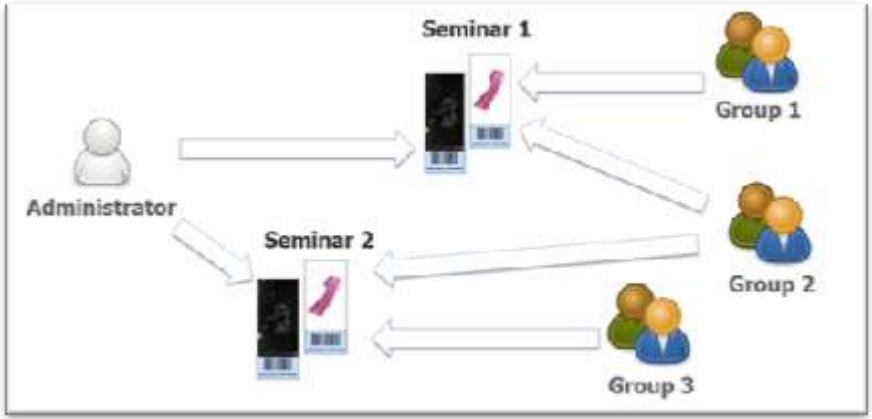


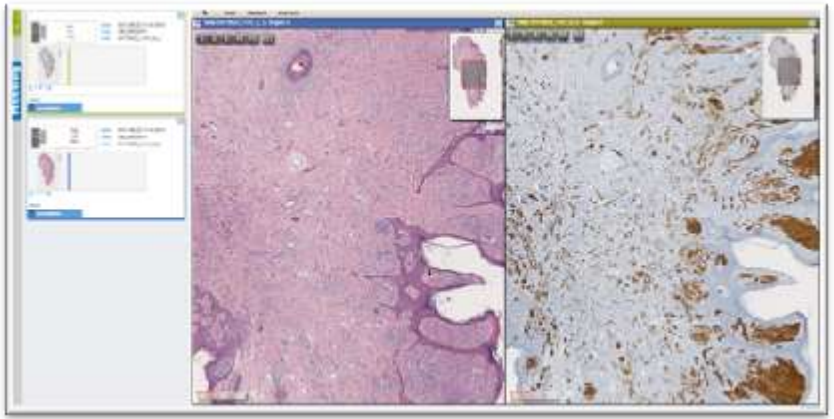
- ✓ Online archive where to upload high-resolution digital images from any system connected to the server machine.
- ✓ Access from any internet browser.
- ✓ Efficient image compression to get smooth streaming view of HR digital images.

DIGITAL SLIDE TELEPATHOLOGY: NAVIWEB APPLICATION

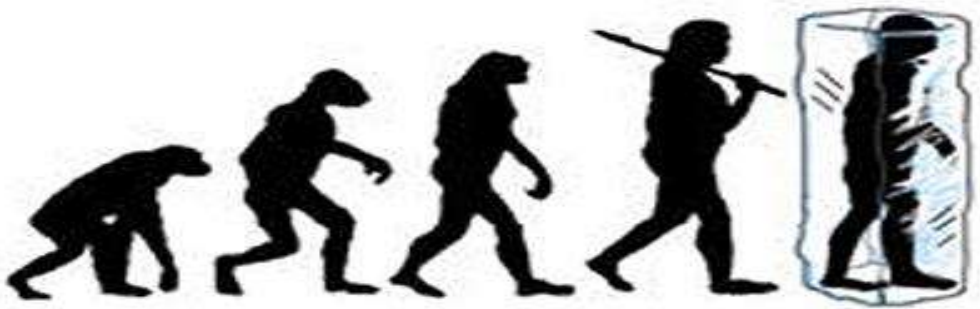
Integrated services:

- creation of projects and meeting sessions;
- customized definition of users' permissions;
- streaming navigation of digital slides;
- synchronized view o multiple digital images;
- creation of an instant web link to share images with remote users.





Muchas gracias por su atención.



A.MENARINI diagnostics