



morphle

# MORPHOLENS 240

## the High Throughput Scanner



### Fast Scanning with Batch Loading

100 slides in 90 mins  
240 slides per load

### Robust Hardware & Consistent Quality

Under 0.1 % rescan rate  
LIMS integrated

[www.morphlelabs.com](http://www.morphlelabs.com)



marked under EU Regulation 2017/746 for IVDR

# Designed for **high volume** labs with aggressive TAT goals



**Continuous loading**  
for the busy Histotech



Slide carriers are inserted incrementally as and when the slides are made ready!

**~0% scan rejections**  
Eliminates QC for PAs



AI-powered adaptive scanning algorithms deliver auto-QCed perfect scans, always!

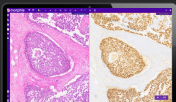
## **LBC based**

Pap smears,  
CSF, Urine



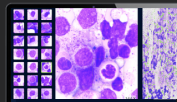
## **FFPE based**

H&E, IHCs,  
Special stains



## **Smear based**

BM Aspirates  
FNACs, Pap



**Versatility means High Returns**

# Technical Specifications

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## Slide Racks

Lock load & walk away

- 240 slide batch at once
- 40 carriers with 6 slides per carrier
- Supports continuous loading

## Slides types

Versatility to the rescue

- Slides with / without coverslips / non-dried
- Slide thickness from 0.8 to 2mm
- Slide shapes 1"x3", 2"x3" & 3"x3"

## Time for 15x15mm

Speed, a logical constraint

- 90 secs with flash mode with 3 focus points
- 150 secs with dense focus map & AI repair
- 7.5 mins with 7 Z-Stacks 1 um apart
- 15 secs fast preview with live mode

## Optics & Camera

Preserving ground truth

- 0.22 microns / pixel @ 40x with primary camera
- Secondary Preview Camera for macro imaging
- High power flash LED with custom condenser

## Barcode support

Traceability is a must

- All types supported including
- Linear type, example: CODE 39, CODE 128
  - Matrix, example : QR code, PDF417

## LIMS Integration

A complete Workflow

Custom development for bi-directional integration is included as part of installation

## Data size

Data is gold & size matters

450 MBs for a WSI of 15x15mm  
For Z-stack data size, it gets multiplied by a factor of the number of stacks

## Image Storage

IT is painful. We solved it.

Local : RAID 6 NAS-based chained storage  
Cloud : Cold storage on Amazon Web Services @ 10 cents per slide per year

## Physical Properties

Compact enough

Base : 31 x 28 inches  
Height : 30 inches  
Weight : 100 Kg (220 lb)

Visit [morphlelabs.com](https://morphlelabs.com) for product videos

## Data storage & Cost

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### Cloud Storage



Stored on a replicated HIPAA compliant cloud from tier 1 providers like Amazon Web Services, Google Cloud Storage, etc

As inexpensive as 10 cents per slide per year with cold storage mode on AWS

Cost scales gracefully with every slide in a fully automated manner

Lag-free uploads with 40 Mbps or nightly upload mechanism works with 12 hour lag but with half the bandwidth

### Local Storage



Storage on Network attached storage (NAS) drives backed by RAID architecture within the premises

Costs ~30% lower than cloud storage but adds IT maintenance

Storage scales in steps of 20-100 TBs and needs intervention from IT team

Internal Network transfer from scanner to NAS irrespective of internet availability

## Image Access & User Management

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### User Management

**Un-limited** user login creations. Our software is free with no strings.

Role Based **Access control** with a self-serve interface for scan level **permission** management.

### Ease of Access

100% **web based** image viewer. No need to download any software.

Works well with google chrome on laptops & **iPads** alike.

### Internet needs for Access

**Lag-free** navigation @ 8Mbps. Works well even with a mobile data

Viewer works in **streaming mode** consuming under 50MB data during 1 min fast browsing

# The Complete Workflow

1

## Scanning

Barcoded samples are scanned by the **lab technician** & auto-ingested into the image management system

2

## Auto-QC

**Pathology assistant** reviews **auto-QCed** scans & flags slides for pre-analytical defects if any

3

## Case Assignment

**Lab manager** assigns QCed okay cases to pathologists & maintains queue for each pathologist

4

## Notifications

Pathologist receives **email notification** with links to cases to be reported at configurable intervals

5

## Diagnosis

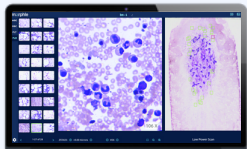
**Remote Pathologist** makes the diagnosis based on scans & integrated **patient data** from LIMS

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## Reporting

Pathologist edits pre-populated **reporting templates** & either signs off the cases or requests extra stains

# Solving Cytology High Speed Speciality Scanning



## BMA with Cell Locating

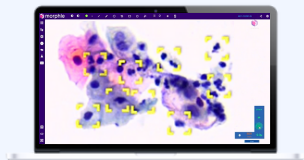
5 min from slide insertion to a ready-to-view scan with bucked viable cells

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Auto-area selection of viable cell trails around particles at low power

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Z-Stack for every field at 40x for thick regions



## Cytology with Z-Stacking

Move across multiple Z-levels at each field using mouse scroll just like a fine focus knob on the microscope

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Under 8 mins for 7+ layers of Z-Stack



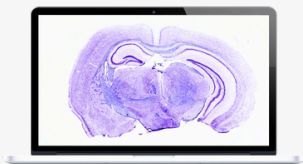
## Screened area tracking

Preview paints the visited region allowing protocol based verification



## Frozen section Rapid On Site Eval

Live mode offer WSI  
Preview in 15 secs +  
live Z-Stack at 40x



## 2"x3" & beyond Large slide formats

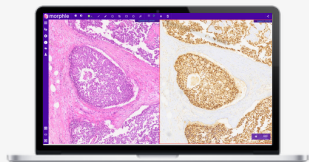
6x8", 4x6", 2x3"  
slide formats supported  
with special trays

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The standard 240 slide  
loader can load 80  
slides of 2x3" at once

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Custom stains can be  
calibrated



## Digital multiplexing

Compare H&E &  
multiple IHC scans side  
by side.

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Upto 12 scans can be  
arranged in grid style  
on larger screens.

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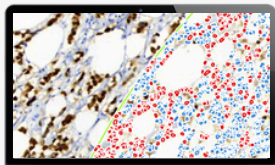
Easy adjustment in  
synchronisation for  
not-so-serial sections

# Special Needs

## Innovative solutions

# Unlock the advantage

## Artificial Intelligence



### IHC Quantification

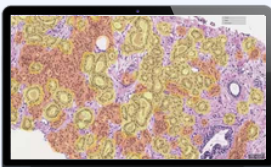
Automated cell counting for nuclear stains spits out positivity ratio in few seconds for the demarcated tumour area

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Tumor region selection interface helps avoid the compounding factors

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Research use only

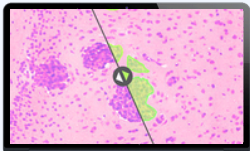


### Auto-demarcated Gleason Scoring

DeepDx® Prostate Pro application analyses Whole Slide Images of H&E stained prostate core needle biopsies and automatically classifies the histological severity of prostate cancer.

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Its fully integrated within the image viewer with instantly switchable overlays.

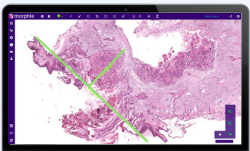


## Pixel flow tool for Smart annotations

One click area tracing with real time smart image analysis

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Allows precise measurement of area & exporting data of boundary as CSV



## Hassle-free Morphometric Analysis

Calculate tumor margins. Allows setting up orthogonal references.

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Precise to micron measurement for nuclear & cytoplasm boundaries

Every research problem is different and often needs efficient software.

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We enjoy building novel research tools in collaboration with promising researchers.

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Email us  
[contact@morphlelabs.com](mailto:contact@morphlelabs.com)

# Tools for Research

**Automation  
and  
Objectivity**



5 Million+ slides digitised as of today  
and counting...

IMPERIAL

UNIVERSITÉ DE  
SHERBROOKE



PA:CON

NHS



HARVARD  
MEDICAL SCHOOL



AP LABS



# Options for every use-case



**Hemolens 1**



**Morpholens 240**



**Morpholens 6**



**Morpholens 1**

Single slide batch	240 Slide batch	6 slide batch	Single slide batch
Dual Obj 100x Oil & 40x	40x / 20x Objective with crisp digital zoom upto 80x		
Meant for digital microscopy for PBS, BMA, CSF, Urine & other applications demanding 100X	Meant for high volumes labs with Histopath, IHCs & Cytopath. Integrated workflows & image storage	All the goodness of packed with a smaller batch size. Optimum for scanning upto 100 slides a day.	Tiny footprint & surprisingly affordable. Perfect for turnkey projects.

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**Plug & Play Hardware | 24x7 Support | 250+ Installations**

*The digital slides - not only are they of superior resolution, but the scanning time is also as short as possible. Working together with my histology team, and the development team at Morphle, we have developed a protocol that allows for routine skin biopsies, such as primary punch and shave biopsies, to be scanned in ~1 minute each.*

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**Dr. Ingerlisa**



**Morphle Labs**

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London,  
EC4M 7JN

*The flexibility and productivity boost via Digital Pathology has been a huge benefit. Without the operational hassles of coordinating across countries and time zones, I can now focus on what truly matters - using my skills for timely diagnosis, irrespective of where I am.*

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**Dr. Hav**

**Give us a call**  
**+44 7456 431430**



**Schedule a demo**  
**[morphlelabs.com](http://morphlelabs.com)**



**Email us**  
**[sales@morphlelabs.com](mailto:sales@morphlelabs.com)**