Rapid Lymphoma Test (RLT)

AI-Assisted Preliminary Lymphoma Screening for Dogs

🔬 Overview

The **Rapid Lymphoma Test (RLT)** is an **AI-enabled preliminary diagnostic tool** designed to help determine whether an **enlarged canine lymph node** is consistent with lymphoma.

RLT is powered by **AIstain™ technology**, jointly developed by the **CityU Veterinary Diagnostic Laboratory (CVDL)** and **ITsci Company Limited**.

Using a **standard cytology slide and microscope image**, RLT provides rapid AI-assisted results through a secure online platform.

🔗 **Launch RLT**
https://www.ai-stain.com.hk/rlt/rlt.html

🧪 What You Need Before Starting

✓ Fine Needle Aspiration (FNA) sample
✓ Clean glass slides
✓ Wright-Giemsa stain (e.g. Diff-Quik)
✓ Light microscope (40× objective, 10× eyepiece)
✓ Smartphone with camera
✓ Internet access and AlipayHK / WeChat Pay HK

📝 RLT Workflow Summary

1. Collect FNA sample from lymph node
2. Prepare a **single-layer cell smear**
3. Stain using Wright-Giemsa
4. Capture a **high-quality microscope image**
5. Upload image to RLT website
6. Accept Terms & Conditions
7. Make payment
8. Receive AI diagnosis

⬇ Detailed instructions below ⬇

Step 1. Fine Needle Aspiration (FNA) Collection

Equipment

- 22G needle
- 2 mL syringe
- Clean microscope slides
- Diff-Quik stain set
- Gloves, alcohol swabs

Patient Preparation

- Position patient comfortably for node access
- Clipping usually unnecessary
- Light alcohol wipe (do **not** overwet)

-

Lymph Node Sampling Technique

Preferred Method: Needle-Only Technique

1. Draw ~1 mL air into syringe (set aside)
2. Insert needle into lymph node
3. Redirect needle several times without exiting skin
4. Withdraw needle
5. Attach syringe and expel material onto slide

⚠️ Avoid excessive pressure — this causes hemodilution

Step 2. Slide Preparation

- Place aspirate onto glass slide
- Spread gently to form a **single layer of intact cells**
- Avoid thick clumps or uneven smears
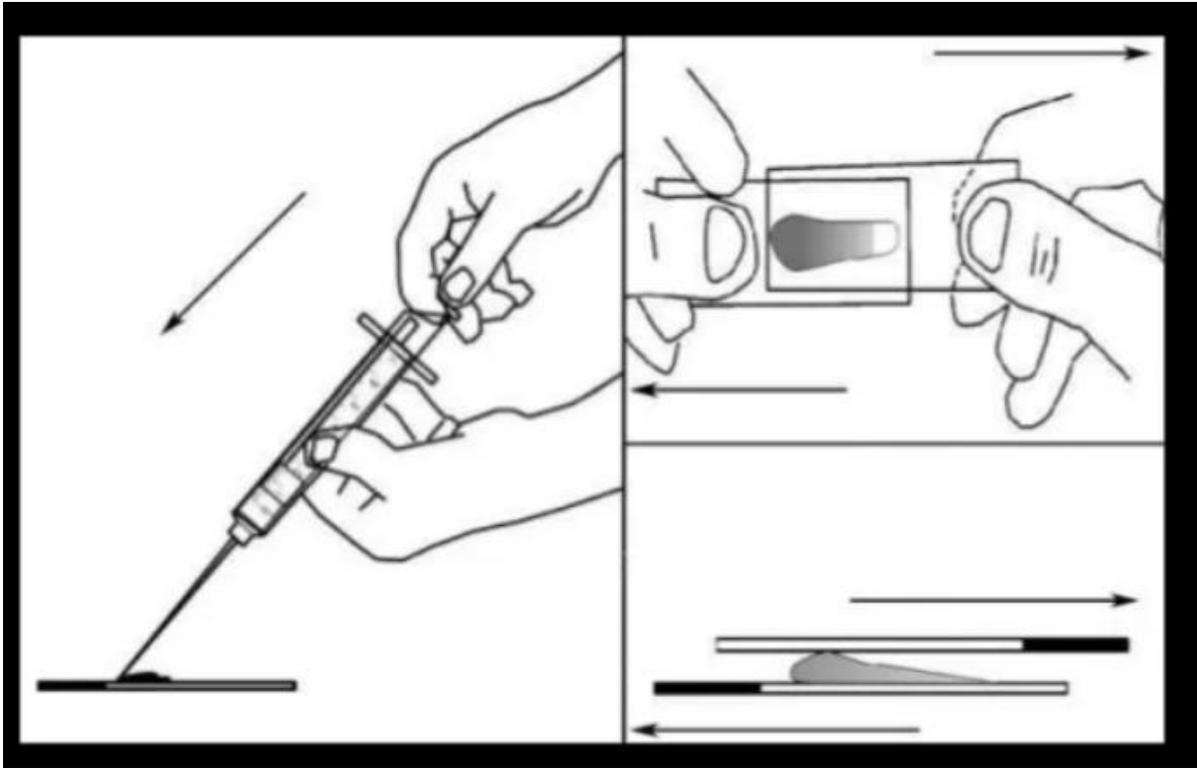
Step 3. Wright-Giemsa (Diff-Quik) Staining

Required Reagents

- Fixative (methanol)
- Solution I (eosinophilic)
- Solution II (basophilic)

Staining Procedure

A. Fixation

- 12 dips (~30 seconds)
- Use fresh fixative only

B. Solution I (Red)

- 8 gentle dips
- Stains cytoplasm and RBCs

C. Solution II (Blue/Purple)

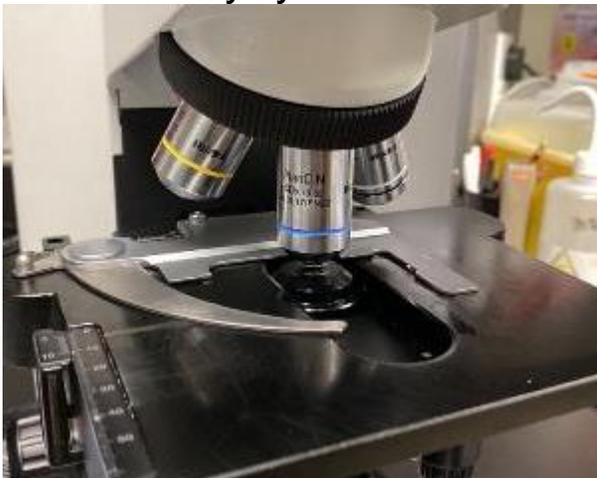- 8 gentle dips
- Stains nuclei and basophilic structures

D. Rinse

- Brief, gentle water rinse
- Do not over-rinse

E. Dry

- Air dry completely before microscopy
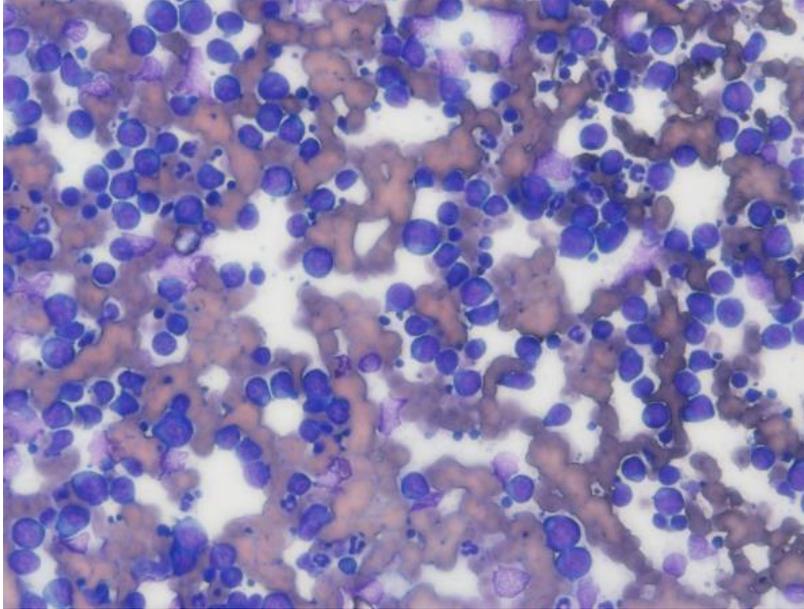

Step 4. Microscope Setup

- Objective: **40×**
- Eyepiece: **10×**
- Ensure slide is **fully dry**

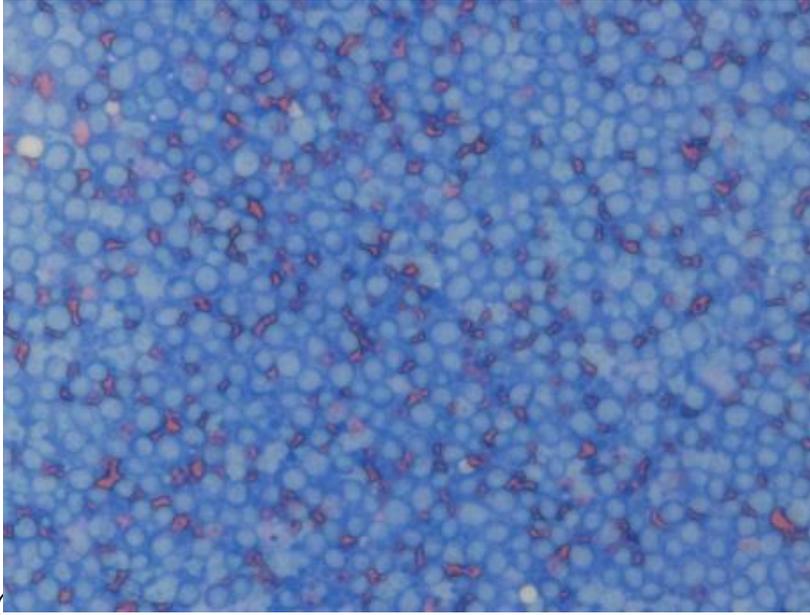
-

Step 5. Selecting the Right Area

✓ **Ideal Area**

- Single layer of cells
- Intact cytoplasm and nuclei
- Well stained

✗ Avoid areas that are:

- Too dense or clumped
- Too sparse
- Dominated by RBCs
- Mechanically damaged

(

Step 6. Focus Adjustment

✓ Cells must be **sharp and well-defined**
✗ Out-of-focus images increase AI error rate

Step 7. Capturing the Image with a Smartphone

Phone Camera Settings

- Magnification: **1×**
- Flash: **Off**
- Filters: **Off**
- Room lights: **Off (recommended)**

Image Acquisition Technique

- Hold phone **8–10 cm** from eyepiece
- Use **right eyepiece preferred**
- Center image carefully
- Adjust distance and angle patiently

📌 **Tip:** A third-party phone-to-microscope adapter significantly improves consistency

---

Final Image Guidelines

✓ Well-centered
✓ In-focus
✓ Minimal black background
✓ ≤ ~4 megapixels (e.g. 2048 × 2048)
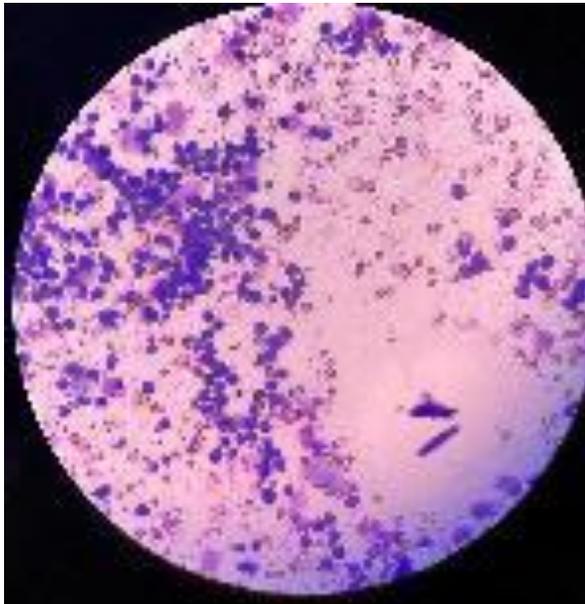
Step 8. Upload & Analysis

1. Visit the RLT website
2. Log in or register
3. Upload image
4. Accept Terms & Conditions
5. Select payment method
6. Scan QR code to complete payment

▬ Accepted Payments

- AlipayHK
- WeChat Pay HK
  (Personal accounts only)

Step 9. Results

- Diagnosis appears below image
- Typical processing time: **~1 minute** after payment
- Possible outcomes:
    - **Lymphoma**
    - **Not lymphoma**
    - **Error**

⚠️ *Errors usually reflect suboptimal image quality and are non-refundable.*

⚠ Important Notes

- RLT is a **preliminary diagnostic aid**, not a definitive diagnosis
- Always interpret results alongside cytology and clinical findings