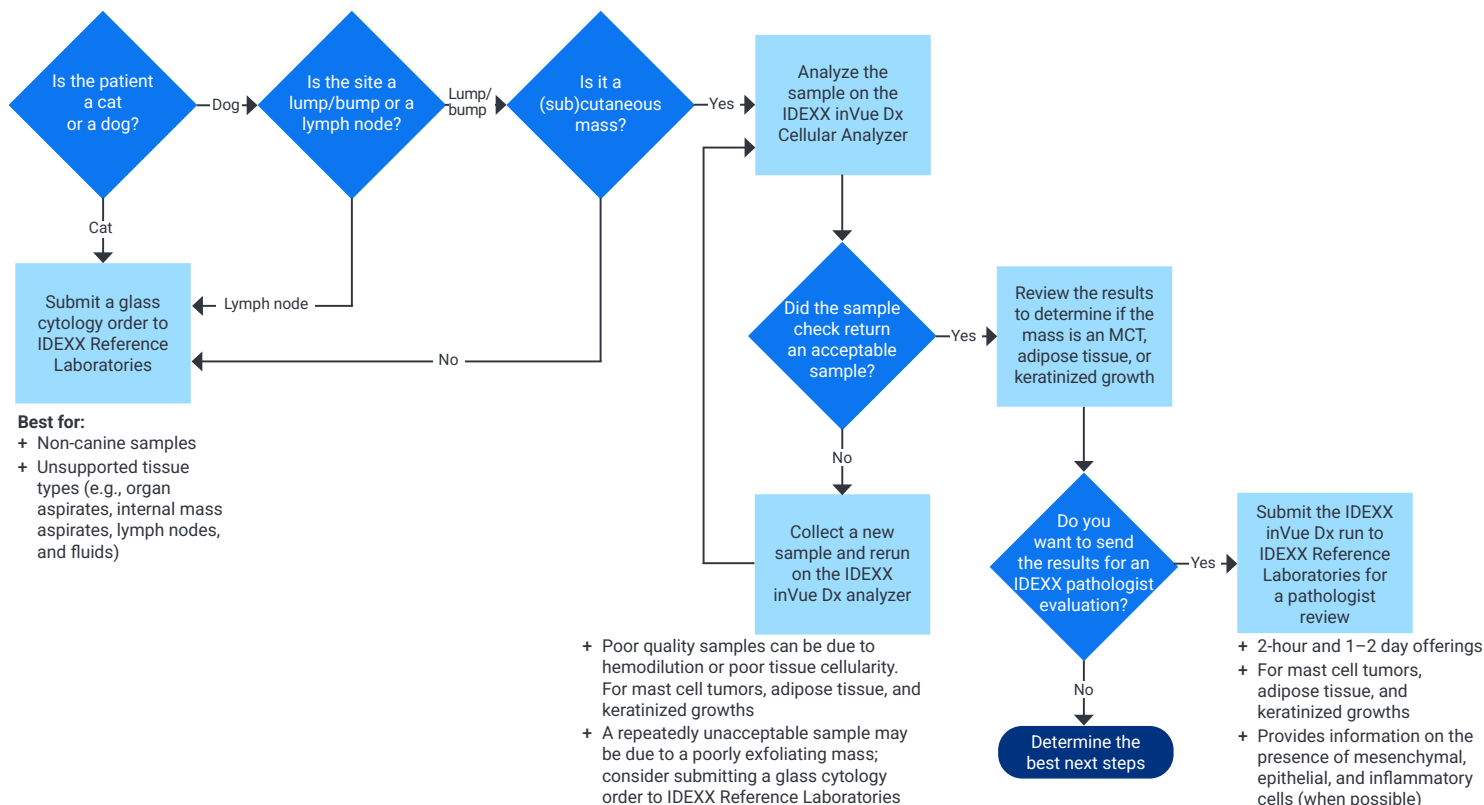


A veterinarian's guide to IDEXX inVue Dx fine needle aspirate (FNA) cytology

Choosing the best path for your FNA sample

The IDEXX inVue Dx™ Cellular Analyzer helps you move from detecting a mass to making a diagnosis during the same visit with automated cytology results for three common canine skin and subcutaneous lesion types: keratinized growths, mast cell tumors, and adipose (fatty) masses. And we're just getting started. As part of our Technology for Life promise, we'll continue expanding the IDEXX inVue Dx FNA menu to include additional lesions/masses over time.



Collecting FNA samples for IDEXX inVue Dx analysis

Less than 1 hour prior to processing on the IDEXX inVue Dx Cellular Analyzer, aspirate a **canine cutaneous** (epidermis or dermis) or **canine subcutaneous mass** using one of the following techniques:

- + **Aspiration technique:** Immobilize the lesion with one hand, introduce a 20–22 gauge needle with a 3–10 cc syringe attached, and draw the specimen into the syringe by withdrawing the plunger (creating negative pressure). Then, remove the needle from the syringe, aspirate air into the syringe, and reattach the needle.
- + **Nonaspiration technique:** Introduce the needle into the lesion and then, while keeping the needle within the lesion, move the needle up and down while redirecting it in multiple directions for maximum cellular yield. Then, aspirate air into a 3–10 cc syringe and attach it to the needle.

When collecting more than 1 aspirate (recommended), each must be from the same lesion using a new needle.

Note: When clinically appropriate, including more than one aspirate from the lesion site will increase the likelihood of having a diagnostic sample. To do this, use a new needle and syringe to obtain a second aspirate from the same lesion.

IMPORTANT: If frank blood is recovered, attempt a second collection with a fresh needle and syringe, using a nonaspiration technique while minimizing lateral movement through the tissue. Significant blood contamination can result in low nucleated cell yield and limited diagnostic information.

Reviewing your IDEXX inVue Dx FNA results

1. Evaluate the Automated Findings.

- + The **Evaluation** section(s) appear(s) when a mast cell tumor (MCT) is suspected or detected based on the cellular characteristics (e.g., the cellularity of the sample and the proportion of mast cells) and/or if adipose tissue and keratinized growth is detected with or without cells or structures (supporting possible lipoma or benign keratinized growth, respectively). When there isn't a suspected/detected presence of MCTs, adipose tissue, or keratinized growth, the Evaluation section does not appear.
- + The **Cellularity** section indicates if there were few or many cells present in the sample.
- + The **Mast Cells** section appears when mast cells are present in the sample.

Notes:

- + When samples are comprised of mostly blood cells, the blood cells can hamper the ability to see the tissue cells. If an aspirate contains frank blood, IDEXX recommends collecting a different sample at the time of collection (for more information, see the *Collecting FNA samples* section above).
 - + Cell lysis (which is rare) is not currently a part of the IDEXX inVue Dx sample quality check. If cell lysis is a frequent problem for your practice, consider using a larger gauge needle when obtaining fine needle aspirates.
2. **Review the Diagnostic Considerations.** The Diagnostic Considerations section includes result-specific information, such as the significance of the presence of adipose tissue/keratinized material alone vs. mixed with other tissue, advisement for further investigation with a pathologist review, and more. These IDEXX inVue Dx result-specific comments and recommendations can be essential in determining the best next steps.
3. **Explore the image gallery.** The image gallery contains multiple images that were captured while the IDEXX inVue Dx analyzer examined the sample at multiple depths within the chambers of the cartridge (as some cells are concentrated and best evaluated in the lowest depth/settled plane while other cells and materials [adipocytes, free-lipid, sebocytes, and lipid-laden macrophages] are present and best evaluated in the superficial/fluid suspended layer).

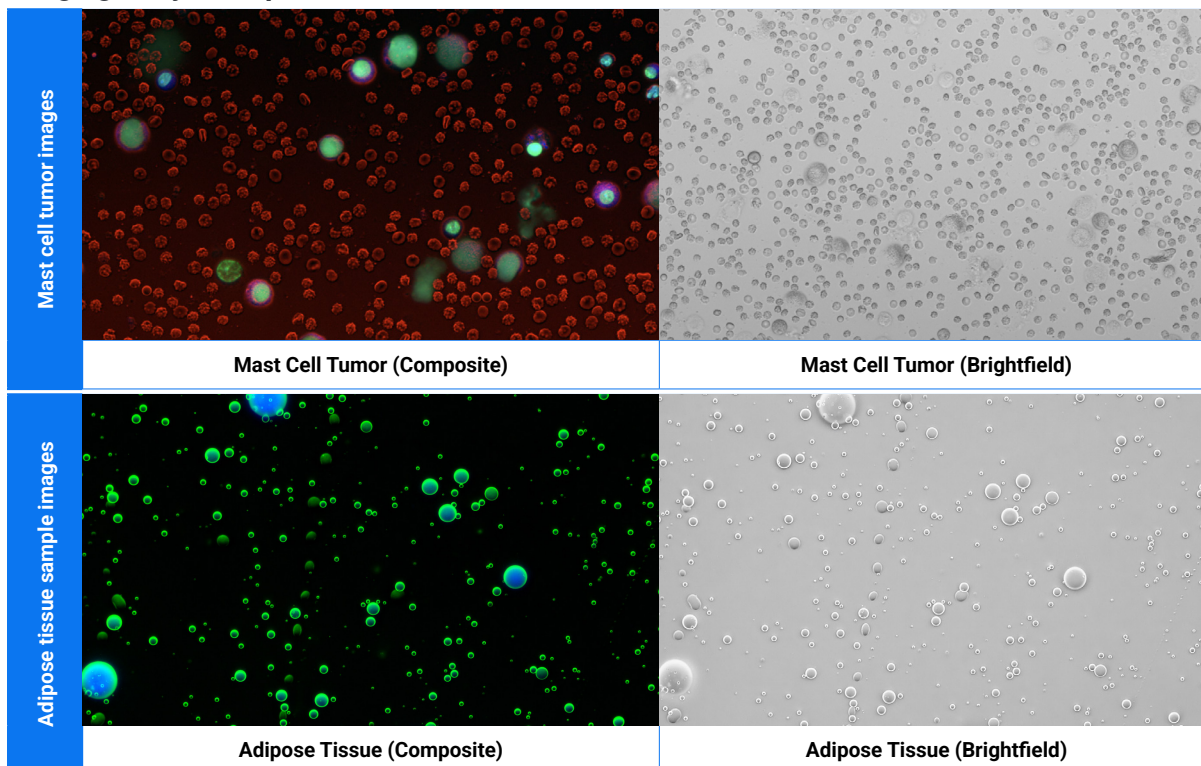
What is the sample quality check?

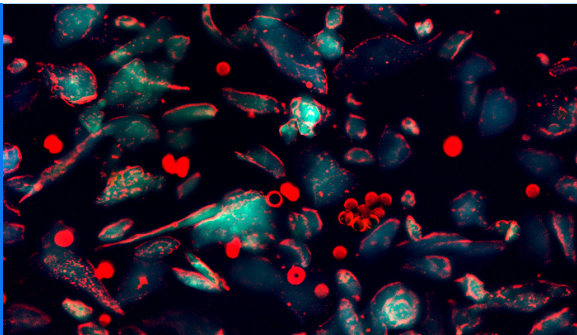
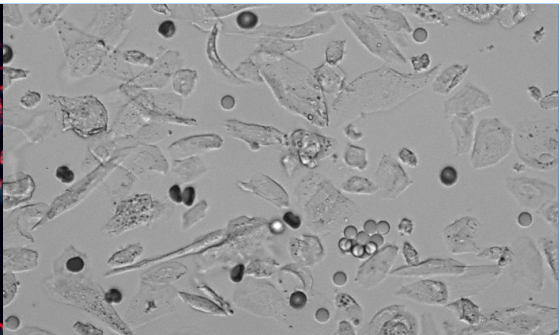
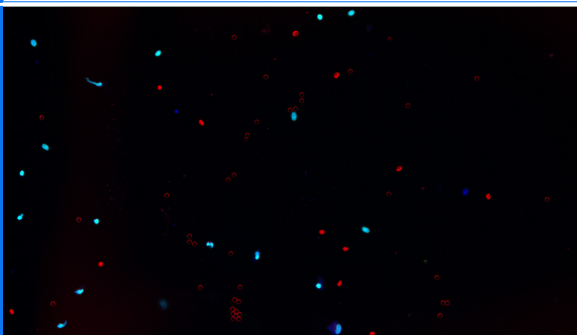
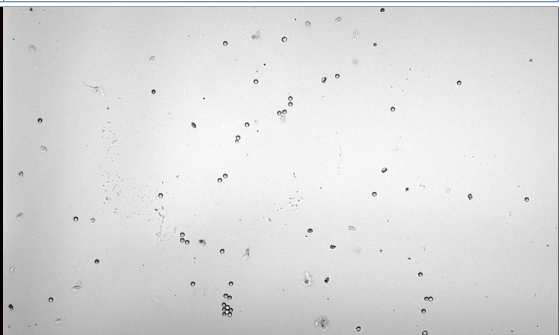
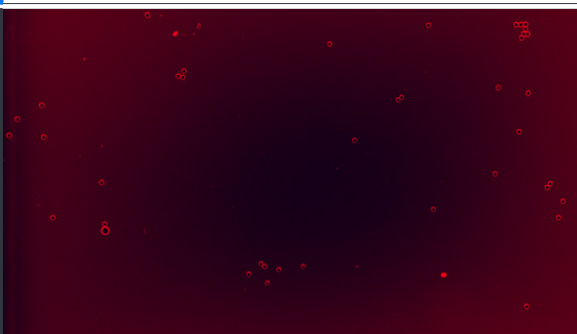
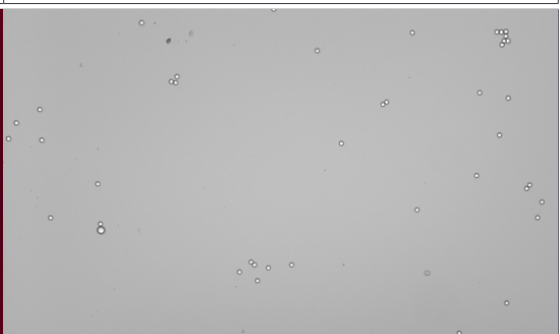
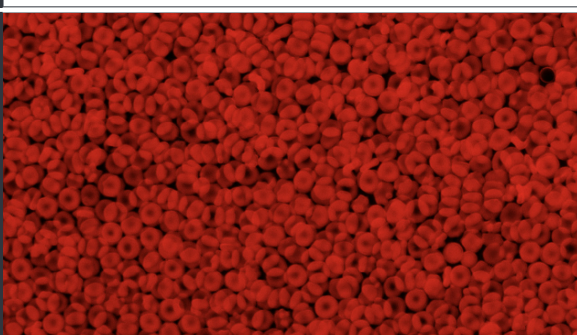
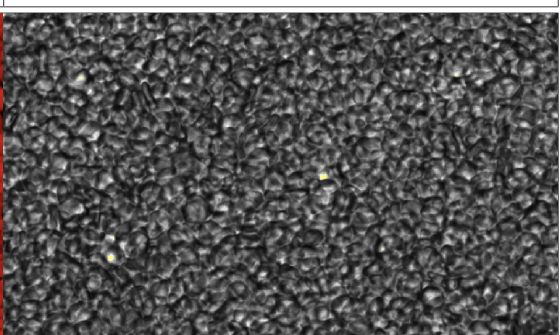
While a fine needle aspirate is an excellent, minimally invasive means of obtaining cells for the purpose of obtaining a cellular diagnosis, samples of inadequate quality are common. This is true of all clinical pathology samples, including those analyzed by the IDEXX inVue Dx analyzer or assessed by a pathologist.

A sample that has few cells or is of otherwise poor quality (e.g., too bloody) cannot be used to produce results or make a diagnosis. For example, if there aren't enough cells or if the cells are damaged, they cannot be evaluated confidently (e.g., some masses don't exfoliate cells as easily as others, some masses are made up of cells that are easily damaged, and some cells are hard to identify in particularly bloody or crowded samples). Issues with the sample quality can be due to the mass itself or to the technique used when collecting it.

IMPORTANT: Did your result indicate a sample quality issue (e.g., poor cellularity)? You can obtain and run a new sample for that patient free of charge as long as it's within 1 hour of the initial run.

Image gallery examples



Keratinized growth sample images		
	Keratinized Growth (Composite)	Keratinized Growth (Brightfield)
Cellular sample images		
	Fine Needle Aspirate Cytology Assessment (Composite)	Fine Needle Aspirate Cytology Assessment (Brightfield)
Poorly cellular sample images		
	Fine Needle Aspirate Cytology Assessment (Composite)	Fine Needle Aspirate Cytology Assessment (Brightfield)
Hemodilute (too bloody) sample images		
	Fine Needle Aspirate Cytology Assessment (Composite)	Fine Needle Aspirate Cytology Assessment (Brightfield)

OPTIONAL: Receiving a pathologist review on your IDEXX inVue Dx FNA result

Canine cutaneous/subcutaneous masses* that are processed as an IDEXX inVue Dx™ FNA run and deemed to be of diagnostic quality are eligible to be sent to IDEXX Reference Laboratories for a discounted pathologist review. IDEXX pathologists are specially trained and can provide further insight and interpretation on your case based on the IDEXX inVue Dx images and your case-specific details, including:

- + Interpretation of a mast cell tumor, adipose tissue (possible lipoma), and keratinized growth.
- + Reporting of mesenchymal, epithelial, and inflammatory cells (when possible).

There are two different test codes for a pathologist review, based on the desired turnaround time:

- + For results within 1–2 days (Monday–Friday): **IDEXX inVue Dx Pathologist Evaluation (INVUFSQ)**
- + For results within 2 hours (24/7/365): **IDEXX inVue Dx Pathologist Evaluation - Express (INVUFEX)**

Technical terms that may be used in your pathologist evaluation

Term	Definition
Chambers	The space within the IDEXX inVue Dx FNA cartridge where the sample is held.
Settled plane	Where cells and structures (e.g., cholesterol crystals, keratin debris, and matrix) in the sample collect within the cartridge chambers and are best evaluated.
Fluid suspended layer	The superficial layer within a chamber where cells (e.g., adipocytes and sebocytes) and structures (e.g., free lipids) are present and best evaluated.
No cells identified in fluid suspended layer	No cells were identified in the fluid suspended/superficial layer of the cartridge chambers. Expected cells in this location include (primarily) adipocytes, but also sebocytes and lipid-laden macrophages.
Acellular or poorly cellular sample	Very few or no tissue cells were present overall due to a poorly exfoliating lesion type or the sampling technique. A repeat aspiration is suggested.

* While we're continuously expanding our reporting capabilities as part of our commitment to Technology for Life, the following are **not currently supported** as part of an IDEXX inVue Dx analyzer run or IDEXX inVue Dx pathologist evaluation:

- + (Sub)cutaneous masses from non-canine species—traditional glass cytology recommended
- + Other traditional cytology submission types from any species, including lymph nodes, internal organs, blood morphology, and fluids (including body cavity effusions [abdominal, pericardial, or pleural], joint effusions, tracheal/bronchoalveolar wash [BAL], or CSF)—traditional glass cytology recommended
- + Further cell classifications (e.g., neoplastic vs. benign characteristics or the presence of infectious agents)