

VDx: Unlocking Complex Diagnostics

VDx now offers Flow Cytometry. Your tool for state-of-the-art immunophenotyping of hematopoietic neoplasia in dogs.

What is Flow Cytometry and how can it help you manage cases?

Flow cytometry is an advanced technique for immunophenotyping hematopoietic neoplasia (leukemia and lymphoma). Because this is a heterogeneous group of diseases with a range of clinical presentations and progression, accurate classification of hematopoietic neoplasia is critical in predicting biologic behavior and selecting appropriate therapy. Flow cytometry, which is performed on live cells in liquid suspension (blood, bone marrow aspirates, and tissue aspirates in saline), allows for identification of cell associated proteins that distinguish neoplastic cell populations by lineage (e.g. lymphoid vs. myeloid, B cell vs. T cell) and aberrant protein expression, allowing more precise classification for better prognostication and tailored therapy.

What are the advantages of Flow Cytometry?

Flow cytometry has advantages over traditional immunohistochemistry in that multiple cell associated proteins can be assessed simultaneously, sample collection is minimally invasive, and results are rapidly available. This information will allow you to make timely, well-informed, decisions regarding clinical management of your patients.

How can Flow Cytometry be integrated into your current work up of hematopoietic neoplasia in dogs?

Flow cytometry is typically recommended to guide clinical decision making after a diagnosis of lymphoma or leukemia has already been established. Accurate classification of hematopoietic neoplasia requires assessment of disease distribution, cell morphology and relevant clinicopathologic findings, in addition to immunophenotyping. As such, flow cytometry should always be interpreted in the context of clinical findings and concurrent cytologic or histologic evaluation of the affected tissue(s). In order to provide the best interpretation of flow cytometry results we recommend concurrent submission of air dried, unstained blood smears or fine needle aspirate smears for cytologic evaluation (or copy of cytology/CBC report if evaluated elsewhere), along with your submission for flow cytometry testing.

What are the limitations of Flow Cytometry?

Flow cytometry can only be run on live cells. Samples must be shipped expediently so that they can be processed, ideally, within 24 hours of sample collection. See FAQs for recommendations regarding sample collection and shipping. It can be difficult to interpret heterogeneous samples and samples with small numbers of neoplastic cells. Neoplastic cells can sometimes have unexpected atypical protein expression that precludes definitive lineage classification. In these cases additional tests, such as PCR for Antigen Receptor Rearrangement (PARR) may help to further characterize these cells.



Flow Cytometry FAQs

What samples are good candidates for immunophenotyping by flow cytometry?

- Peripheral blood with a lymphocytosis >10,000 cells/microliter.
- Peripheral blood with atypical cells.
 - If very few atypical cells are present flow cytometry may be inconclusive.
- Lymph node, bone marrow, or other tissue aspirate from a patient with a defined population of atypical cells and/or previous diagnosis of lymphoma or leukemia.

How should I prepare samples for flow cytometry?

- Whole blood, minimum of 1.0 ml, in an EDTA (purple top) tube.
- Tissue aspirate into 1ml sterile 0.9% saline in a plain red top tube.
 - Do not use serum separator tubes or tubes with other additives.
 - Add 0.1ml of canine serum (from the patient or another donor) to aid in cellular preservation, if available.
 - To improve yield of tissue aspirates we recommend using gentle negative pressure during collection, and combining a minimum of three fine needle aspirates within a single red top tube. An ideal sample will look cloudy and have minimal blood contamination.
 - Excessive negative pressure applied during sample collection can lyse cells rendering the sample unsuitable for flow cytometry analysis.
 - Flow cytometry analysis can only be performed on samples containing >70% viable cells.

How should I ship my sample to VDx for flow cytometry?

- DO NOT expose samples to extreme temperatures. **DO NOT FREEZE.**
- Samples should be refrigerated after collection and kept cool on ice during shipping. In order to avoid direct contact of the sample with ice packs please wrap fluid tubes in a paper towel and place in a sealable plastic bag prior to packing.
- Blood smears and air-dried tissue aspirate smears should be shipped in appropriate containers to prevent slide breakage and minimize exposure to moisture. **Do not refrigerate smears.** Do not package smears with biopsy samples as exposure to formalin vapors will degrade cytologic preparations.
- **Northern California courier clients:** Package samples as described above. Keep refrigerated prior to pick up.
- **FedEx/UPS clients:** Samples should be shipped via FedEx Priority Overnight/UPS Next Day Air the same day of collection. **Please do not ship samples on Friday for Saturday or Monday delivery.** Ship samples to:

VDx Veterinary Diagnostics

215 C Street, Suite 301
Davis, CA, 95616

What is the turnaround time for flow cytometry results?

- Results are typically available next business day (Monday – Friday) from sample pick-up or receipt in the laboratory via FedEx/UPS.

Questions?

1-530-753-4285

CustomerService@vdxpathology.com

www.vdxpathology.com

VDx Veterinary Diagnostics

215 C Street, Suite 301
Davis, CA, 95616

