Flow cytometry/immunophenotyping and immunocytochemistry for lymphoma and leukaemia

Flow Cytometric Immunophenotyping

Flow cytometry uses a panel of antibodies to accurately differentiate the lineage of the cells in a sample. This allows us to immunophenotype lymphomas and leukaemias and differentiate between acute and chronic leukaemias, and myeloid and lymphoid leukaemias. This service is available for dogs and cats and we report the results the same day that the sample is submitted to us.

In cases with an equivocal cytological diagnosis of lymphoma or leukaemia, flow cytometry can also be helpful to determine if an antigenically homogeneous (likely clonal) population of cells is present, which may be supportive of a neoplastic origin.

Please do not hesitate to contact the laboratory (01223 337625/337635) if you have any questions relating to flow cytometry or immunocytochemistry.

Sample requirements

Lymphoma immunophenotyping

Multiple aspirates should be taken from the affected lymph node or organ (e.g. spleen, liver) and these should be squirted directly into separated serum taken from the patient prior to aspiration (at least 0.5mls). The patient serum acts as a fluid medium to preserve the cells prior to analysis. Aspirates taken into serum should be submitted to the laboratory within 24 hours. Next day delivery (stipulating delivery between 9am and 1pm) is recommended. Normal unstained cytology smears (at least 2) and recent clinical history should also be submitted with the aspirates.

Immunophenotyping can also be performed on body fluids such as pleural and abdominal effusions and CSF if there are a high number of cells present.

Please note that lymphoma immunophenotyping can only be attempted on peripheral blood samples if there is evidence of a lymphocytosis (lymphocyte count > $5x10^9$ cells/L) on haematology.

Leukaemia immunophenotyping

Leukaemia immunophenotyping can only be attempted if there is evidence of a lymphocytosis (lymphocyte count > $5x10^9$ cells/L) on haematology. Please contact the laboratory for advice if the peripheral lymphocyte count is <$5x10^9$ cells/L.

We require 5mls of peripheral blood in normal EDTA tubes, or alternatively a special fixative solution can be used (please call 01223 337625 to request a fixative tube). Please note that the fixative solution is not required if the sample can be submitted within 24 hours. Fresh blood smears should also be submitted. A complete blood count will also be performed as part of the analysis. If possible, all samples should be accompanied by previous history and

haematology results. Next day delivery (stipulating delivery between 9am and 1pm) is recommended.

Bone marrow immunophenotyping

Flow cytometry can also be performed on aspirated bone marrow material. Please contact the laboratory to discuss the case with one of our pathologists prior to submission.

Immunocytochemistry

Immunocytochemistry is available for staining aspirates from lymph nodes, thymus and bone marrow. Antibodies are available to distinguish B and T-lymphocytes, histiocytes and epithelial cells. Although this technique is cheaper than flow cytometry, the panel of antibodies is much more limited which may limit our ability to immunophenotype the lymphoma. Immunocytochemistry is also not recommended for immunophenotyping leukaemia from peripheral blood samples. This technique is also suitable for use on both canine and feline samples.

Canine/feline immunocytochemistry (£46.20 inc. VAT)

Sample requirements.

Five air-dried (unstained) aspirates are required.
Whilst standard glass slides can be used, optimal results are obtained using lysine coated slides. These are available from the laboratory upon request. Immunocytochemistry is reported 2-3 days following submission.