Bristol Genetics Laboratory

North Bristol NHS Trust

Immunoglobulin and T-cell receptor clonality testing in lymphoma

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Samples Required

Paraffin embedded tissue, snap frozen fresh tissue, fresh tissue in transport media, bone marrow in transport media or blood in EDTA (please contact laboratory for supply of transport media).

Samples should be accompanied by a FULLY completed request form (available as download at https://www.nbt.nhs.uk/severn-pathology/pathology-services/bristol-genetics-laboratory-bgl or from the laboratory).

Please include details of test, family history, address and POSTCODE, NHS number, referring clinician and unit/hospital.

Consent and DNA Storage
All genetic testing requires consent. It is the responsibility of the referring clinician to ensure that appropriate consent has been obtained.

Stored material from all referrals may be retained for quality assurance purposes and may be used anonymously for the development of new tests for the disorder in question.

Clinical Background and Genetics

- Lymphomas are a group of diseases caused by malignant lymphocytes that accumulate in lymph nodes and cause the clinical features of lymphadenopathy.
- The classification of lymphomas is either Hodgkin's lymphoma and non-Hodgkin's lymphoma where subdivision is based on the presence of Reed-Sternberg cells in the disease tissue of Hodgkin's lymphoma.
- Routine diagnosis is performed using histomorphology, immunochemistry and flow cytometry. However, differential diagnosis between reactive lymphoproliferations and malignant lymphomas can be problematic.
- In such cases immunoglobulin (Ig) and/or T-cell receptor (TCR) clonality assessment can be a useful additional diagnostic tool.
- Ig/TCR gene rearrangements occur sequentially in the earliest stages of lymphoid differentiation and thus are present in almost all immature and mature lymphoid cells.
- Since malignant lesions are derived from a single transformed lymphoid cell, monoclonailty is therefore a key feature and virtually all progeny will contain one or several clonal Ig and/or TCR gene rearrangements.

Service offered

- BGL is part of the Bristol Haemato-oncology Diagnostic Service (BHODs) and has access to a full range of complementary pathology services.
- The BIOMED-2 IdentiClone™ multiplex PCR systems provide a standardised strategy for clonality assessment in patients with suspect lymphoproliferations.
- PCR primers and protocols allow the discrimination between polyclonal, reactive processes and monoclonal, malignant tumours.
- Multiplex primer systems are used to screen for clonal rearrangements at immunoglobulin loci including the immunoglobulin heavy chain (IgH), immunoglobulin light chain (IgK) and immunoglobulin lambda chain (IgL) and T-cell receptor loci including TCR beta (TCR B), TCR gamma (TCR G) and TCR delta (TCR D).
- Differential fluorescence detection is used to resolve amplicons using on a capillary electrophoresis (Beckman Coulter CEQ8000 and the ABI 3730).
- A strategy employing initial and extended B- and T-cell multiplex PCR panels is employed for lymphoma screening where respective detection rates for B-cell proliferations are 91% and 100% and those for T-cell proliferations are 94% and 100%.
- Results are interpreted in the context of clinical, histological and immunophenotypic data.

Referrals

- **Diagnostic and Follow-up Testing**
  Ig and TCR clonality assessment is principally offered for patients with lymphoma and can also be used to discriminate between reactive and malignant lymphoproliferations.

Quality

- BGL participates in the UK NEQAS EQA programme for IG/TCR clonality

- **Target reporting Time**

	TAT
Initial B- or T-cell clonality assessment	14 days
Extended B- or T-cell clonality assessment	14 days
Combined extended clonality assessment	14 days

For up-to-date prices please contact the laboratory.

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