North West Genomic Laboratory Hub (Manchester Site)
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NHS North West NHS Genomic Laboratory Hub

Forename:	**ACCESSIBILITY**	Report No:	**R24-0WH7-1**		
Surname:	**ZZZTESTA**	Hospital No:	**Not provided**		
Sex:	**Unspecified**	Other No:	**Not provided**		
DoB:	**21/10/1978**	Sample:	**Blood**	Sample2:	**Blood**
NHS No:	**999 001 2563**				
Collected:	**Not provided**	Received:	**08/10/2023 08:18**	Activated:	**26/06/2024**
Collected2:	**25/06/2024**	Received2:	**26/06/2024 14:21**	Reported:	

Referred by: Dr Anna Castleton, Haematology, The Christie Hospital, Manchester, M20 4BX, (chn-tr.Haematology.Results@nhs.net)

Genomics Laboratory Report

Reason for Testing
MRD follow up.

RESULT SUMMARY:
BCR::ABL1 Major (e14a2 / e13a2) – Detected and quantitated. See graph overleaf.

Result and Interpretation
The bone marrow/peripheral blood sample taken/received from this patient on XX/XX/XX showed detectable *BCR::ABL1* transcripts: X% $BCR::ABL1^{IS}$ (MR^{X}).

[REASON FOR TESTING - COPY BELOW TEXT TO 'REPORTING REFERRAL INFORMATION TEXT' BOX THEN DELETE]
Measurable residual disease analysis for the *BCR::ABL1* fusion transcript has been requested.

Reported By:
Hannah Reed
Pre-Registration Scientist

Authorised By:

Forename: **ACCESSIBILITY**
Surname: **ZZZTESTA**

Report No: **R24-0WH7-1**
DoB: **21/10/1978**

APPENDIX I - Test Methodology:

Interpretation of graph: *BCR::ABL1 RT-qPCR results for the major transcripts (e14a2/e13a2) are expressed on the International Scale (IS) as a percentage relative to the standardised baseline used in the IRIS trial which evaluated the tyrosine kinase inhibitor (TKI) in patients with CML. The reference gene used for this assay is ABL1. Levels above the upper relapse risk threshold are consistent with fusion gene levels detected at presentation, persistent disease and relapse. The lower risk threshold (or lower) approximately equates to a 2-log reduction which is usually consistent with complete cytogenetic remission (CCyR). The pale blue line (or lower) represents a major molecular response (MMR) defined as a 3-log reduction from the standardised baseline (MR3 or 0.1% BCR::ABL1 IS) in major (e14a2/e13a2) positive patients. For major (e14a2/e13a2) positive patients, deep molecular responses (DMR) of MR4, MR4.5, and MR5 are defined as ≤0.01%, ≤0.0032% and ≤0.001% BCR::ABL1 IS respectively. Please note, these levels have been defined for CML patients, equivalence has not been established for ALL patients. The levels are not patient specific and therefore there may be some patient outliers. The target sensitivity of the assay for major (e14a2/e13a2) positive patients is MR4.5 in most samples. Levels in-between the two risk thresholds (red lines) are consistent with gradual decrease in disease level after treatment (As after diagnosis or relapse) ot increased/high risk of relapse if the patients in remission. A level of 0.0001% is negative which represents undetectable transcripts. Red crosses on graph indicate unquantifiable results. Green data points show the sensitivity level of each test. Sensitivity levels of 0.00001% and below are consistent with highest reliability. * For optimum sensitivity, please provide at least 5ml EDTA peripheral blood or 1ml EDTA bone marrow within 24 hours (preferable) to 48 hours. Interpretation of BCR::ABL1 major (e14a2/e13a2) results will be according to the current ELN guidelines (Baccarani et al 2013, Blood, 122, 872-884), depending on sufficient clinical information given.*

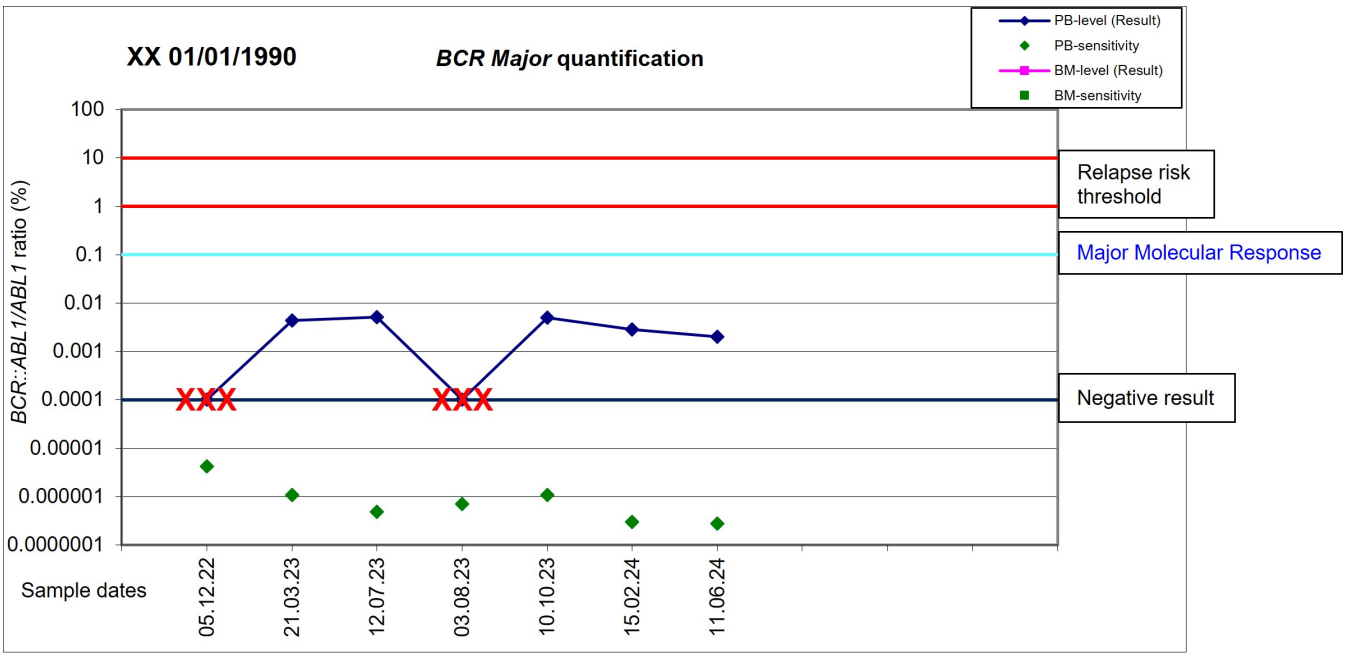
Laboratory process
RNA extraction: *Maxwell RSC simplyRNA for samples extracted by NWGLH*
Testing method: *The TRUPCR® BCR-ABL1 Kit (Version 2.1) by 3B BlackBio Biotech India Ltd (operating as TRUPCR® Europe Ltd) is used to quantify BCR::ABL1 Major (e14a2 and e13a2) fusion transcripts in RNA isolated from the patient sample. Reverse transcription quantitative polymerase chain reaction (RT-qPCR) is performed on the Applied Biosystems® QuantStudio™ 6 platform and analysed in the accompanying software. The TRUPCR® BCR-ABL1 Kit includes six plasmid-based standards that are calibrated to European reference material (ERM®-AD623). Each standard contains both BCR::ABL1 and ABL1 targets to limit variability, with copy numbers of 10^2-10^7 for standard curve production. Each kit contains a calibrator sample which has been normalised to WHO International Standard NIBSC 09/138 material for quantitation of BCR::ABL1, enabling internal conversion of results to the International Scale (IS).*

Limitations: *The assay is designed for measuring deep molecular response and has a limit of detection of ≥3 copies of BCR::ABL1 transcript per reaction well.*

Regulation and accreditations: *This test is not UKAS accredited. This test has been validated locally and will be submitted for UKAS assessment imminently.*

Please contact the laboratory for additional details, if required.

APPENDIX II - Minimal/Measurable Residual Disease (MRD) Chart:



For graph interpretation details please see page 2 of this report.