NHS
North Central London
Cancer Alliance

The introduction of AI to prioritise requesting of biomarkers in Breast Cancer and subsequent assistance with the interpretation of HER 2 staining

Project lead and organisation - Julia Rees, Royal Free London

Partner organisation(s) involved - Ibex AI

Funding requested (£) - Year 1 - £64996, Year 2 - £51996

Proposed start and end dates - September 2026 – September 2028

Summary

This bid proposes introducing artificial intelligence (AI) into breast cancer pathology workflows at the Royal Free London to improve the timeliness and accuracy of biomarker testing and interpretation. The current challenge is that biomarker testing (ER, PR, HER2) is often delayed because it is manually requested after diagnosis, leading to missed timelines, repeated MDT discussions, and delays in treatment. In addition, interpretation of HER2 staining is complex and variable, frequently resulting in equivocal results that require additional, time-consuming and costly testing.

The project will deploy an AI platform to analyse biopsy slides early in the diagnostic process. By identifying cases likely to be invasive cancer, the system will automatically trigger biomarker testing before formal diagnosis is completed. This enables pathologists to review both diagnosis and biomarker results simultaneously, significantly shortening turnaround times. The AI will also support more accurate HER2 scoring, reducing equivocal results and the need for further testing.

Expected benefits include faster diagnosis, fewer delays in MDT decision-making, improved pathway efficiency, and enhanced patient experience.

NCLCA Big Ideas Fund – Expression of Interest

Questions marked with an asterisk indicate additional guidance on page 2 of this document.

Submit by 25 June 2026. Only NCLCA colleagues may submit.

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Section 1 – Project Details			
Proposal title	**The introduction of AI to prioritise requesting of biomarkers in Breast Cancer and subsequent assistance with the interpretation of HER 2 staining.**	**Project lead and organisation**	**Julia Rees Royal Free London**
Partner organisation(s) involved	**Ibex AI**	**Funding requested (£)***	**Year 1 £64996 Year 2 £51996**
Proposed start and end dates*	**1/9/26 -1/9/28**		
Section 2 – The Idea			
1. What is the challenge you are seeking to address?*	1)Timely and accurate biomarker testing in breast core biopsies is essential for optimal breast cancer management. Delays or omissions in ordering biomarkers (i.e. ER, PR and HER2) can lead to treatment delays, repeated Multi Disciplinary Team (MDT) discussion, increased administrative burden, and can heighten patient anxiety and negatively affect care pathways. The current "Getting It Right First Time (GIRFT)" programme requires that all breast cancer biopsies have both a diagnosis and biomarker status available within 7 days of the biopsy being taken. This is a challenging timeline and often means that the biomarkers will not be ready for the weekly MDT, thus unnecessarily losing 7 days in the patient pathway. This then impacts the 62-day target, currently at 54%. 2)Interpretation of ER and PR staining is well established with a low variation amongst pathologists. However scoring of HER 2 staining is more problematic as the scoring system is complex and requires assessment of a number of features e.g. number of cells staining, intensity and clarity of staining, completeness of membrane staining. With the introduction of digital pathology there has been a national increase in the number of cases scored by pathologists as equivocal (2+). This then requires a further (FISH) test to establish whether the patient is eligible for Herceptin treatment. The HER 2 FISH test is expensive and currently the TAT is 10 days and therefore awaiting the result potentially delays the patient pathway further.		
2. What is your proposed project and – at a high level – how would it be delivered?	Currently biomarker workflows and prioritisation decisions are triggered *after* the histopathological diagnosis is made. This introduces inherent delays and depends on manual recognition and ordering processes, however the introduction of digital pathology into the department and recent advances in AI now enables extraction of predictive morphological patterns *before* formal diagnostic sign-out, allowing probability-based stratification of cases earlier in the workflow. **Current State** 1. Slide prepared 2. Slide digitally scanned (day 3) 3. Pathologist reviews the H&E scanned slide 4. Diagnosis made (day 4) 5. Manual biomarker ordering by pathologist 6. Pathologist reporting of biomarker results (> day 7) 7.MDT readiness (approximately 30% of cases awaiting biomarkers are rolled over for re-discussion) **Proposed Future State** 1. Slide prepared 2. Slide digitally scanned (day 3) 3. H&E slide analysed by AI 4.AI generates invasive probability score (pre-report) and AI outputs transferred to the Laboratory Input System 5. For cases flagged as "high likelihood for invasive cancer" biomarkers are directly and autonomously		

	ordered without the involvement of the pathologist 6. Pathologist reporting of both H&E and biomarkers at the same time (day 4-5) 7. Faster diagnostic completion and MDT readiness (projected over 90% of cases)
Section 3 – Impact & Strategic Alignment	
3. Which NCL strategic objectives and/or National Cancer Plan ambitions does your project align with?	This proposal directly aligns with regional Cancer Alliance priorities and the national "Getting It Right First Time (GIRFT)" programme (https://www.england.nhs.uk/long-read/faster-diagnostic-pathways-implementing-a-timed-breast-cancer-diagnostic-pathway-guidance-for-local-health-and-social-care-systems/), which emphasises reducing variation, improving efficiency and standardising high-quality cancer diagnostic pathways across the NHS. Potential savings are difficult to quantify definitively but would include reduced unnecessary biomarker testing (e.g. if blind reflex testing was introduced), reduced HER 2 FISH tests (exact figures are not available due to commercial sensitivity), reduced MDT time/resource.
4. What impact do you expect the project to have on NCL cancer outcomes and/or patient experience?	A recent prospective audit of our service found that up to 30% of cases that were rolled over to the next MDT would have potentially benefited from timely availability of biomarkers at the time of initial reporting, with potential for a further 30% benefiting when using additional AI functions. 1) Recent studies in 5 NHS Trusts that use AI for requesting biomarkers showed a reduction in average turnaround time (TAT) of 1.2 days. (https://ibex-ai.com/wp-content/uploads/2025/11/NHS-Wales-Ibex-Nationwide-Case-Study.pdf) 2) Centres in which pathologists were supported by AI to score HER 2 showed improved accuracy in scoring and reduced equivocal (2+) classifications. This not only benefits patients by improving the efficiency of the pathway but may also be cost saving by reducing the number of additional FISH tests requested (https://ibex-ai.com/wp-content/uploads/2025/12/Ibex_SABCS-2025-HER2-Positivity_MV_V16_WEB.pdf) Reduced TATs to a final diagnosis which includes biomarker status would increase the chance of complete discussion at first MDT and therefore reducing multiple MDT discussions and enabling quicker treatment decisions and the overall improvement in the patient experience.
Section 4 – Resources	
5. What do you see as the likelihood of attracting external funding?	Unlikely to attract external funding
6. High-level indication of how the budget would be used*	Subscription and licensing costs for the Ibex Breast AI platform. Integration and implementation costs.
Section 5 – Anything Else	
7. Is there anything else you would like to flag?	The additional cost for the algorithm that assists with HER 2 scoring is costed at approximately £7000 per annum.

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Additional Guidance on Completing this EOI

General

- All EOIs must not exceed 2 pages.
- Please submit to uclh.nclcanceralliance@nhs.net by 25th June 2026.
- Only NCLCA colleagues may submit.

Section 1 – Project Details

- Our current expectation is that we will fund a small number of projects from a total funding pot of ~£600k.
- Proposed end date for the project must be no later than March 2029.

Section 2 – The Idea

- Question 1 - Describe the problem or unmet need. Include relevant data or evidence where possible.

Section 4 – Resources

- Question 6 - e.g., staffing, clinical time, technology, evaluation, overheads. Precise costings are not required at EOI stage.