International Pathology Day 2025
The Royal College of Pathologists
Pathology: the science behind the cure
DIAGNEXIA
#IPD2025

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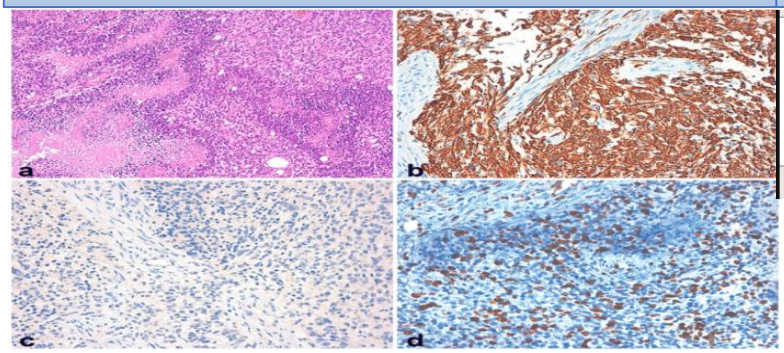
Understanding the differences between glioblastoma patients based on histological or molecular criteria

Background & Methods

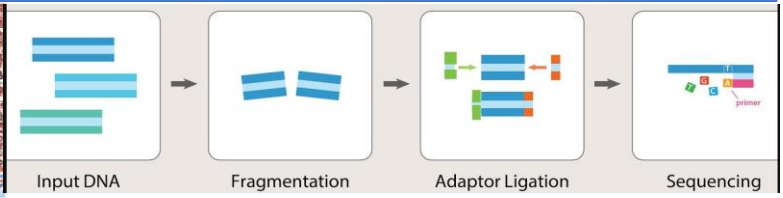
WHO brain tumour diagnostic criteria changed in 2021 to incorporate advances in understanding gliomagenesis. With the incorporation of molecularly diagnosed GBM (mGBM) to histologically diagnosed GBM (hGBM) we sought to investigate whether treatment and prognosis had changed as a result. mGBM criteria includes EGFR amplification, TERT promoter mutation or combined gain of chromosome 7 and loss of chromosome 10. Using the Histo-Mol GBM Collaborative database, a large individual patient database of patients diagnosed with pathologically confirmed glioblastoma in 2021 we investigated differences and patterns between hGBM and mGBM.

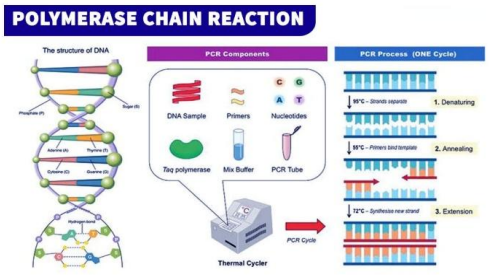
Histological Diagnosis

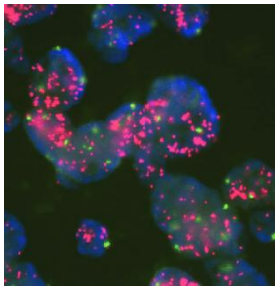


a. High cellularity, pleomorphism, microvascular proliferation, pseudopalisading necrosis.
b. Strong positivity for GFAP. **c**. Lack IDH1-R132H expression. **d**. Mitotic index 40-50%

Molecular Diagnosis



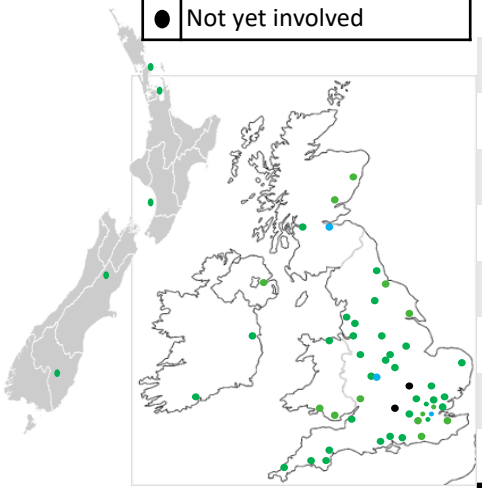




Results

1828 patients across 51 participating centres diagnosed between 1 January 2021 – 31 December 2021. 3 centres have local approval with data collection due to start. Molecular testing performed according to local practice

●	Data collection complete
●	Local approvals gained
●	Not yet involved



	hGBM	mGBM
Total patients	1753	75
Time from MRI → surgery	14 days	23 days
Time from surgery → radiotherapy	40 days	46 days
% alive at time of data analysis	13%	15%
Chemotherapy	79%	80%
Biopsy	30.3%	69.3%
Resection	69.3%	30.7%
EGFR mutation	37.3%	42.4%
Chromosome +7/-10	36.9%	52.8%
pTERT mutation	78.4%	89.4%

Conclusion

The data for this study was collected from 2021, as WHO recommendations being implemented, there were delays to treatment due to processing and additional tests, it would be interesting to see if these have improved. Ultimately the overall treatment regime remains largely unchanged, but this opens the possibility for further biomarkers to be identified and the development of targeted / adjuvant immunotherapies.