Diffuse Glioma Testing Resources

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Purpose

To provide a short list of resources for health care providers who take care of diffuse glioma patients.

Links to important papers in DropBox

What we know about glioblastoma

The molecular era of GBM begins

The rise of IDH1/2

Original work comes from TCGA **GBM** dataset!?

Lower grade diffuse gliomas examined by massive sequencing effort

IDH mutant diffuse and anaplastic astrocytomas: pretty much the same thing

The end of IDH wild type diffuse astrocytoma: WHO update with c-IMPACT-NOW update 3

Why methylation of MGMT is important

The original New England Journal report

Wick's review piece

In our backyard: Mayo's "Revolution in Brain Tumor Diagnosis"

Mayo stratifies gliomas with 1p/19q, IDH status and TERT promoter methylation

IDH-WT grade II or III infiltrating astrocytoma: GBM in sheep's clothing

Adult IDH wild type grade II and grade III gliomas should be further stratified

Adult IDH wild type grade II and III gliomas belong to GBM molecular class

Inventing a new class of diffuse glioma to accommodate the molecular findings

Prognostic relevance of genetic alterations to diffuse lower grade gliomas

So you think it might be a "Diffuse astrocytic glioma, IDH-wildtype, with molecular features of glioblastoma, WHO grade IV"... how do you support your impression?

EGFR amplification, +7 and -10 shown to be helpful. . . at least in classification

TERT promoter mutation, +7, -10 shown to improve prognostication in IDH WT diffuse lower grade gliomas

But prognosis and prediction are mostly a matter of IDH mutation and MGMT promoter methylation

Additional testing may be useful in some IDH mutant tumors too

CDKN2A loss is associated with shortened survival in IDH mutant grade II and III astrocytomas

Other considerations

Diffuse midline gliomas and histone mutations: nomenclature considerations

H3K27M mutants: a plurality in pediatric high grade glioma and DIPG

In infants and children, see especially...

BRAF Alterations

Pilocytic astrocytoma and BRAF translocation/duplication

BRAF V600E in context with BRAF translocation/duplications: V600E heralds other tumors too

Other uncommon low grade neuroepithelial tumors

Low-grade neuroepithelial tumors: BRAF, FGFR1 and MYB mutations

High grade supratentorial pediatric neuroepithelial tumors

Uncommon supratentorial high grade neuroepithelial tumors

High grade supratentorial pediatric neuroepithelial tumors

Developing ontology: Figure 1 and Table 1 in this paper show how to start dissecting these rare and lethal pediatric tumors

Pediatric gliomas: a review

Methylation profiling based classification: what's the fuss?

Time to put away the microscope?

Panels for diffuse gliomas come of age.

A diffuse glioma NGS panel covering a variety of targets. (Duesseldorf)

Important websites:

Sites for exploring The Cancer Genome Atlas (TCGA) data:

Memorial Sloan Kettering Cancer Center:cBioPortal

Broad Institute of MIT and Harvard: Firebrowse

Fred Hutch, Seattle, Oncoscape

Site for connecting to methylation profiling in Europe:

Heidelberg methylation profiling