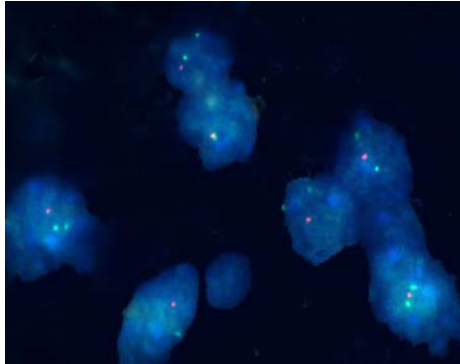


## Neuropathology Service

### TUMORS OF THE CENTRAL AND PERIPHERAL NERVOUS SYSTEM

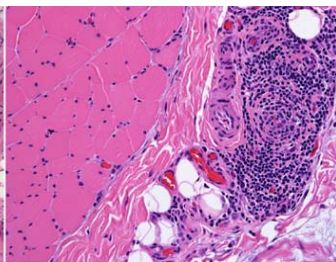
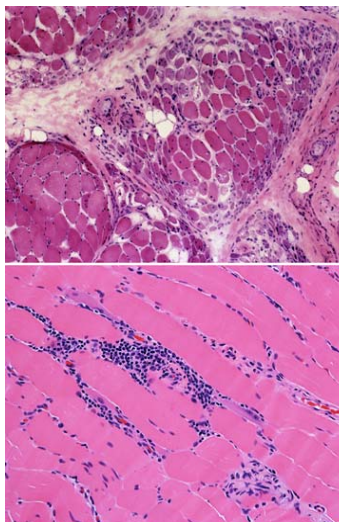
- Routine histologic diagnosis
- Molecular testing for 1p19q deletions in low grade gliomas/oligodendroglioma by FISH
- Testing for MGMT expression in high grade gliomas (prediction of response to Temodar)
- Testing for PTEN and EGFRvIII expression (prediction for response to tyrosine kinase inhibitors in high grade gliomas)
- EGFR amplification by FISH
- Testing for expression of laminin beta 1, as an adverse prognostic marker in intermediate grade infiltrating gliomas



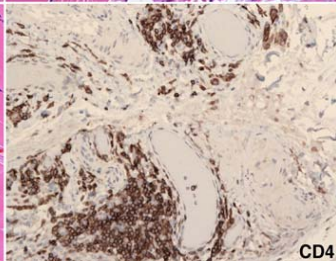
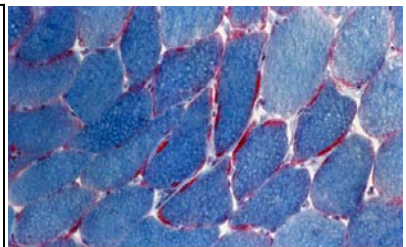
Standard of care in treatment of low grade infiltrating gliomas includes evaluation for deletion of chromosomal arms 1p and 19q. Deletion of 1p predicts a better survival of patients, response to chemotherapy and radiation and correlates with “classic oligodendroglial” morphology. Co-deletion of 19q further improves the odds of more benign behavior in infiltrating gliomas. Cedars-Sinai pathology offers testing for 1p19q deletions using *Fluorescence in situ hybridization (FISH)*. Image illustrates loss of heterozygosity for 1p as evidenced by presence of two green signals corresponding to 1q locus and only one red signal corresponding to 1p.

### HISTOPATHOLOGY, IMMUNOPATHOLOGY AND ELECTRON MICROSCOPY OF SKELETAL MUSCLE

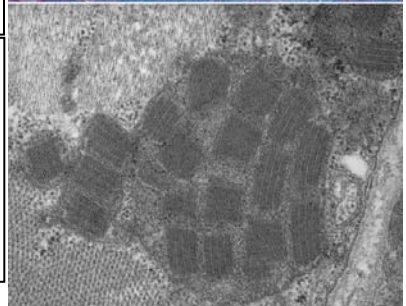
- **Inflammatory myopathies, including inclusion body myositis (IBM), metabolic, congenital and storage myopathies**
- **Histochemical stains:** H&E, NADH, Gomori Trichrome, ATPase X 3, Congo Red, Acid Phosphatase, Periodic Acid Schiff, Cytochrome Oxidase, Succinic Dehydrogenase, Amylo-phosphorylase, Oil Red O
- **Immunohistochemistry for Dystrophies:** Dystrophin (N, C and Rod domain), Sarcoglycans ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ), Emerin, Desmin, Merosin
- **Transmission electron microscopy** for IBM, mitochondrial myopathy, channelopathies



*Typical case of Dermatomyositis, showing perivascular atrophy (upper left), perivascular and endomysial CD4-positive T-lymphocytes*



*In mitochondrial myopathy Ragged red fibers as seen by trichrome (top) correspond to mitochondrial paracrystalline inclusions →*

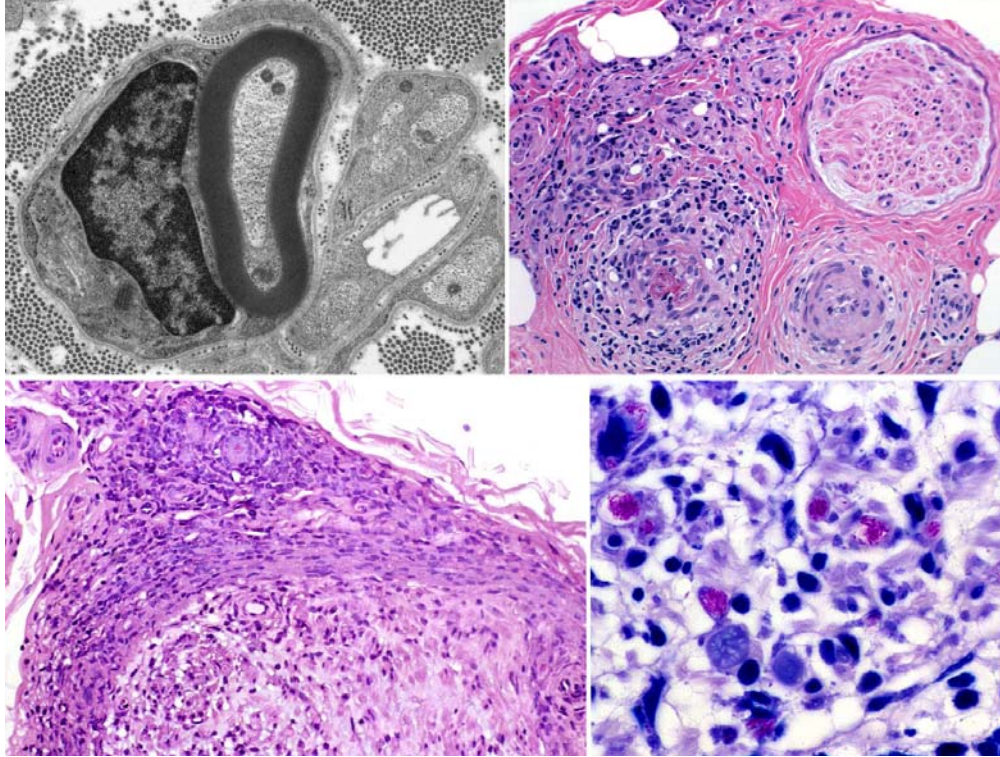


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## NERVE BIOPSIES

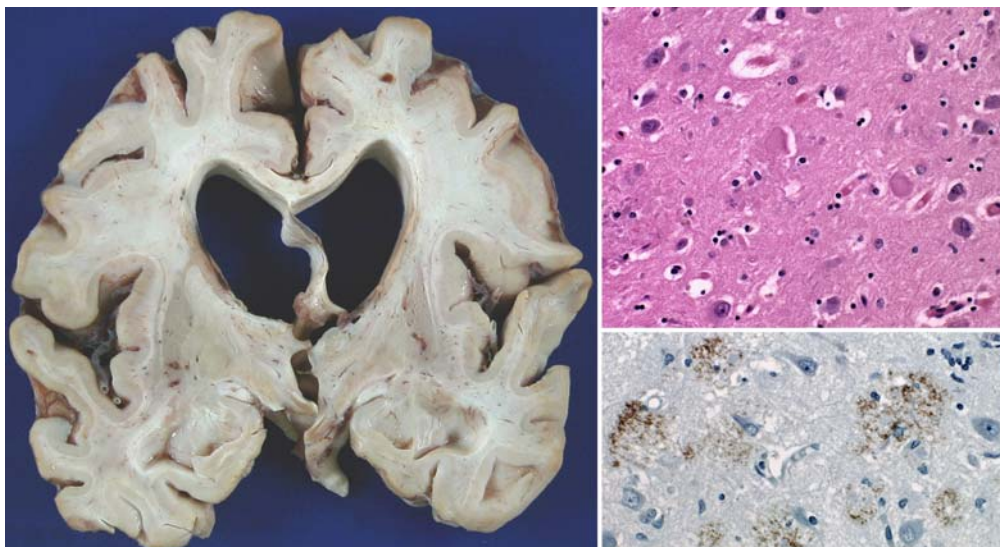
- Evaluation for inflammatory neuropathies, hereditary and diabetic neuropathy, Wallerian degeneration, Amyloid deposition, extent of nerve fiber loss
- Transmission electron microscopy for the above conditions



*All nerve biopsies are processed for full electron microscopy (upper left). Paraffin sections are used to evaluate for vasculitis (upper right), amyloidosis and for potential infection, like in this case of leprosy (lower panel, H&E and AFB stains, showing organisms)*

## DEMENTIA STUDIES

- State of the Art evaluation of postmortem brains for various dementias
- Diagnosis and staging of Alzheimer's disease, Lewy body dementia, tauopathies, synucleinopathies, prion diseases, vascular dementias etc.



*With aging of our population the prevalence of dementia is increasing. Currently, postmortem neuropathologic evaluation remains a gold standard of reliable diagnosis for family members. Images show cortical atrophy and hydrocephalus ex vacuo (left), neuritic plaques on H&E (top) and  $\beta$  amyloid immunostain (bottom)*

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