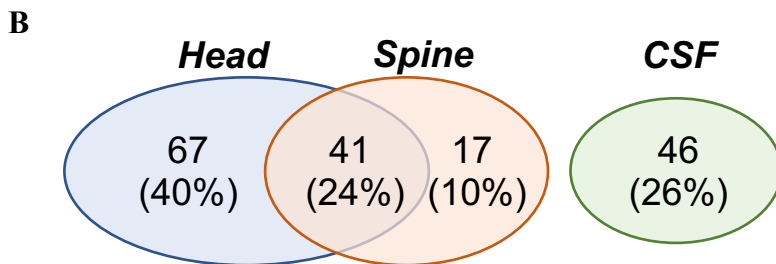
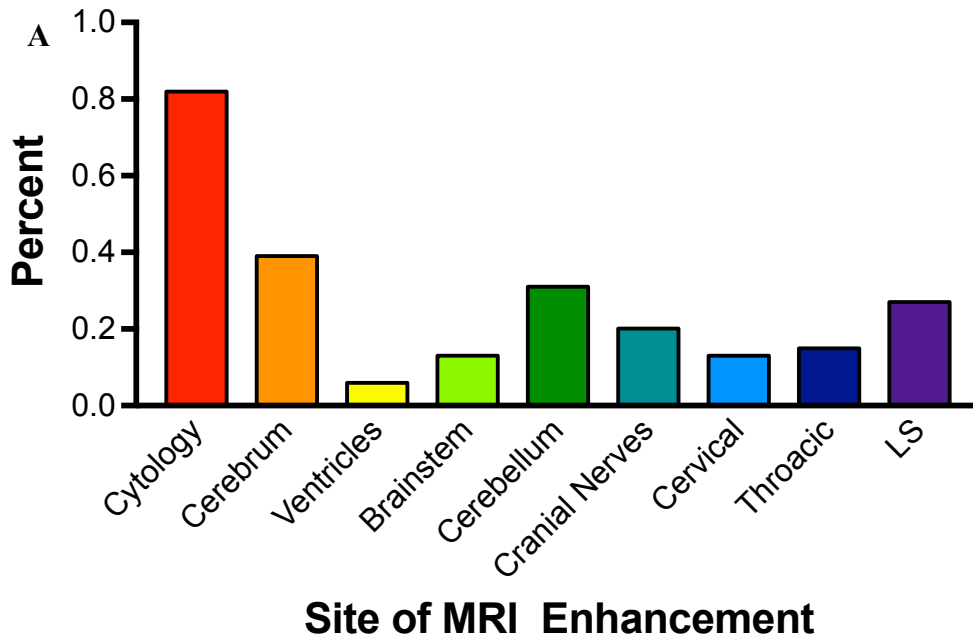


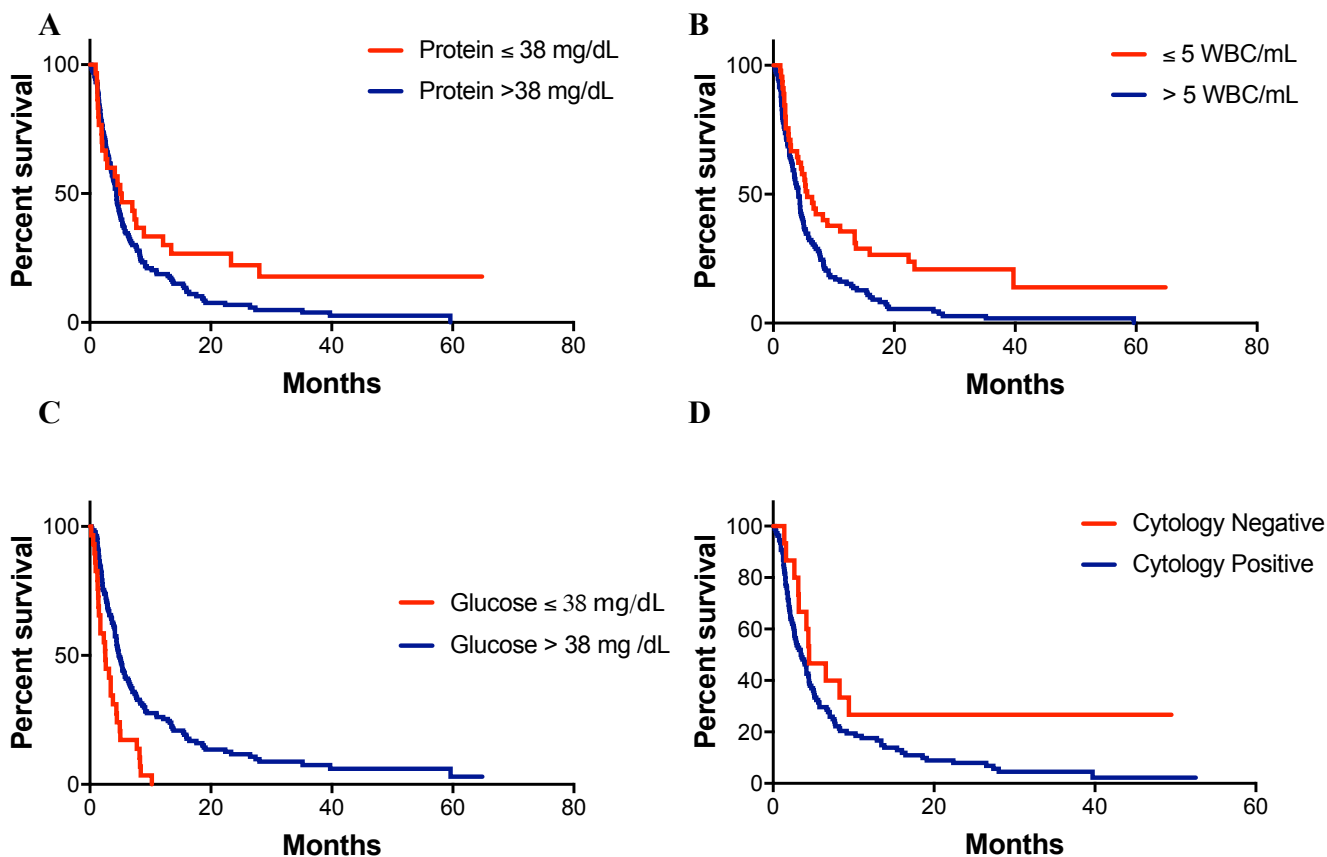
Supplementary Figure 1. Survival in patients with LC-LM by using traditional prognostic indicators.

A. Median overall survival of the entire cohort was 4.18 months (95% CI: 3.61 months-4.93 months). **B.** Patients 60 years of age or older were significantly more likely to die than those younger than 60 at LC-LM diagnosis (HR for age 60 or greater: 1.54; 95% CI: 1.10-2.16; $p=0.01$). **C.** KPS was significantly associated with overall survival; those with KPS 70 or greater lived longer (HR for KPS ≥ 70 : 0.47; 95% CI: 0.33-0.69; $p<0.0001$). **D.** Using a median cut point of 578 days from time of cancer diagnosis to LC-LM diagnosis, there was no significant difference in survival between the two groups (HR for 578 \geq days: 1.19; 95% CI: 0.86-1.63; $p=0.30$). **E.** In 105 patients with measured and recorded CSF opening pressure, with a cut-off value of 20 cm H₂O, CSF opening pressure was not a significant predictor of OS. (HR for OP > 20 cm H₂O 0.9529, 95% CI: 0.62-1.45; $p = 0.53$).



Supplementary Figure 2. Site(s) of leptomeningeal disease

A. Most patients (82%) with LC-LM had positive CSF cytology. Sites of radiographic-evident LC-LM varied between patients in a fairly even distribution; the cerebrum, cerebellum, and lumbosacral spine (LS) were most common, the ventricles were the least common site of radiographic-evident disease. **B.** Of the 171 patients with LC-LM, 46 patients (26%) had positive CSF cytology only. 125 patients were diagnosed with LM only by evidence of radiographic involvement on MRI (no positive CSF cytology), of these patients 10% had radiographic spine disease only, 40% had brain disease only, and 24% had evidence of both.



Supplementary Figure 3. Standard CSF analysis at time of LC-LM diagnosis

A. 115 patients had CSF protein values available from the time of LC-LM diagnosis; 87 patients had CSF protein levels above normal range (upper limit of normal 38 mg/dl). Elevated CSF protein was not significantly associated with survival ($p=0.2$). **B.** 113 patients had CSF WBC results available from the time of LC-LM diagnosis; 71 patients had elevated WBC upper limit of normal (5 WBC/mcl). Elevated CSF WBC was associated with a statistically significant increased risk of death ($p=0.04$). **C.** 80 of the 115 patients with CSF glucose values available from the time of LC-LM diagnosis had abnormally low glucose (lower limit of normal 38 mg/dl). Low CSF glucose was associated with a statistically significant increased risk of death ($p<0.0001$).