Validation of a Serum S-100B ELISA for Measuring S-100B in Cerebrospinal Fluid

J. Alan Erickson1, David G. Grenache1,2

1ARUP Institute for Clinical and Experimental Pathology, ARUP Laboratories, Salt Lake City, UT; 2University of Utah School of Medicine, Department of Pathology, Salt Lake City, UT.

RESULTS

- The parametric limit of blank was 11 ng/L (zero calibrator, 20 replicates).
- Figure 1 showed linearity over a wide range of serum and CSF concentrations, and each measured in triplicate, produced linear regression results of y = 0.999x + 1.34, r² = 0.996. Adding aliquots of a serum specimen with a high S-100B concentration to five different CSF specimens (ratio 1:100) resulted in a mean recovery of 96% (94% – 102%). Precision was determined from two CSF pools tested over 20 days in triplicate. Repeatability and within-laboratory CVs were 3.5% and 0.4% at 140 ng/L, and 2.3% and 3.1% at 1177 ng/L respectively. S-100B was also stable in CSF for 4 hours at room temperature, and minimums of 7 days and 4 weeks at -8 °C and -20 °C, respectively. The analyte was also stable over a minimum of three freeze/thaw cycles.
- S-100B was measured from 141 CSF specimens (69 males, 72 females, ages 3 – 77 years) and was stable for over a minimum of 3 freeze/thaw cycles. The systematic error is estimated to be 8%.
- The parametric limit of blank was 11 ng/L (zero calibrator, 20 replicates). Dilution of an elevated S-100B CSF specimen to the zero calibrator to 11 samples with different duplicated, paired linear regression results generated a mean recovery of 99.9% (99.5% – 100.4%). Adding aliquots of a serum specimen with a high S-100B concentration to five CSF specimens (ratio 1:100) resulted in a mean recovery of 96% (94% – 102%). Precision was determined from two CSF pools tested over 20 days in triplicate. Repeatability and within-laboratory CVs were 3.5% and 0.4% at 140 ng/L, and 2.3% and 3.1% at 1177 ng/L, respectively. S-100B was also stable in CSF for 4 hours at room temperature, and minimums of 7 days and 4 weeks at -8 °C and -20 °C, respectively. The analyte was also stable over a minimum of three freeze/thaw cycles. S-100B was measured from 141 CSF specimens (69 males, 72 females, ages 3 – 77 years) and was stable for over a minimum of 3 freeze/thaw cycles. The systematic error is estimated to be 8%.

CONCLUSIONS

- The CanAg S100 EIA, intended for use in serum, also demonstrates acceptable performance for quantifying S-100B in CSF. A CSF reference interval has been established for the ELISA which potentially be of value in assessing and/or monitoring traumatic brain conditions.

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REFERENCES