

## **DETECTION OF PrP<sup>Sc</sup> WITH REAGENTS DESIGNED AND SCREENED TO BIND PrP<sup>Sc</sup>**

M. Michelitsch, C. Gao, X. Wang, M. Connolly, R. Zuckermann, J. Hall, T. Horn, A. Gyenes, B. Shimizu, L. Pack, B. Phelps, D. Chien and C. Hu  
Blood Testing Division, Chiron Corporation, Emeryville, CA USA

**Background:** vCJD and BSE have caused great public health concern and impacted blood supplies worldwide. Chiron has initiated a project to develop sensitive tests for PrP<sup>Sc</sup>. Most tests presently available employ antibodies that bind to both the normal and diseased forms of prions, PrP<sup>C</sup> and PrP<sup>Sc</sup> respectively. Scientists in the prion field have been searching for antibodies specific to PrP<sup>Sc</sup> without binding to PrP<sup>C</sup>. However, this has proven to be difficult. Without PrP<sup>Sc</sup> specific antibodies, most assays rely on the protease resistant nature of PrP<sup>Sc</sup> to differentiate it from PrP<sup>C</sup>. Samples are first treated with protease to clear PrP<sup>C</sup>. But protease treatment is not entirely specific. This fundamentally limits the sensitivity and specificity of these assays.

**Methods:** In our attempt to design sensitive assays for PrP<sup>Sc</sup>, we have taken the effort to develop specific reagents by utilizing the known chemical and structural characteristics of PrP<sup>Sc</sup> coupled with screening methods.

**Results:** We have identified a few reagents that bind PrP<sup>Sc</sup> with high affinity but not to PrP<sup>C</sup> and have been working on these reagents to further improve their affinity and specificity. We have used these reagents to develop assays. The sensitivity of the assays and the approaches to enhance the assay performances will be presented.

**Conclusions:** The availability of these improved reagents will facilitate the development of sensitive assays for PrP<sup>Sc</sup>.