A New Standard for Dementia Diagnosis and Therapeutic Development

ADM Diagnostics (ADMdx) is developing advanced brain image analysis products and services to enable the early and accurate diagnosis of dementias and to improve therapeutic trial success.

**Current Challenges in Diagnosis and Prognosis**

Today, at least 20% of patients with dementia symptoms are misdiagnosed as to their type of dementia, and in some clinics this percentage is much higher. Earlier in disease, it becomes even more difficult to differentiate the source of symptoms. Even when brain imaging is used, the information is typically applied only to rule out stroke, tumor, or other causes, leaving the patient, family, and physician without answers. Furthermore, lack of diagnosis or misdiagnosis may lead to prescription of medications that are harmful for certain types of dementias. Misdiagnosis has also contributed to the high failure rate of Alzheimer’s drug trials. Even correctly diagnosed patients worsen at highly variable rates, impeding demonstration of treatment effect.

**Early and Accurate Diagnosis and Prediction of Cognitive Trajectory**

ADMdx has developed software algorithms that use brain images to detect patterns of activity and brain structure that reveal the type and stage of dementia, even prior to symptom onset. The software is designed to work with image(s) the patient may have available, either one or multiple types (MRI, PET). ADMdx inputs these to a highly sophisticated pattern analysis tool that identifies the closest match or matches (if comorbid disease), disease stage, and likely rate of worsening. The result is a comprehensive, contextual assessment that can be used with other clinical evaluation to provide the best diagnosis, prognosis, and care for the patient. The information generated by ADMdx can be used for patient selection for clinical trials, and to stratify patients for enrichment, increasing the ability to demonstrate treatment effect. ADMdx’ technology can also be applied to identify the multiple brain networks that may be affected by a therapeutic agent, the contribution of each network to overall response, and the reproducibility and predictive power of the results.

**Enabling Technology**

ADMdx’ unique diagnostic capability is enabled by machine learning pattern recognition technology that has been trained to identify Alzheimer’s disease and other dementias. ADMdx has developed a database of thousands of scans and associated clinical, demographic, genotype, laboratory data from public and private sources. The data have been quality controlled, processed, and combined in a unique manner enabling algorithm development and database comparisons. For drug development, ADMdx has combined its analysis capabilities with other imaging study services including site qualification, data management, and centralized processing and analysis.

**Interacting with the Community**

ADMdx has established a board of thought-leading Scientific Advisors and collaborators, and is seeking input from physicians, patients, and others to optimize its diagnostic products. The Company is also actively working with pharmaceutical companies and academic partners to support the development of new therapeutics. For further information, please contact Midori Yokoyama PhD, at myokoyama@admdx.com.