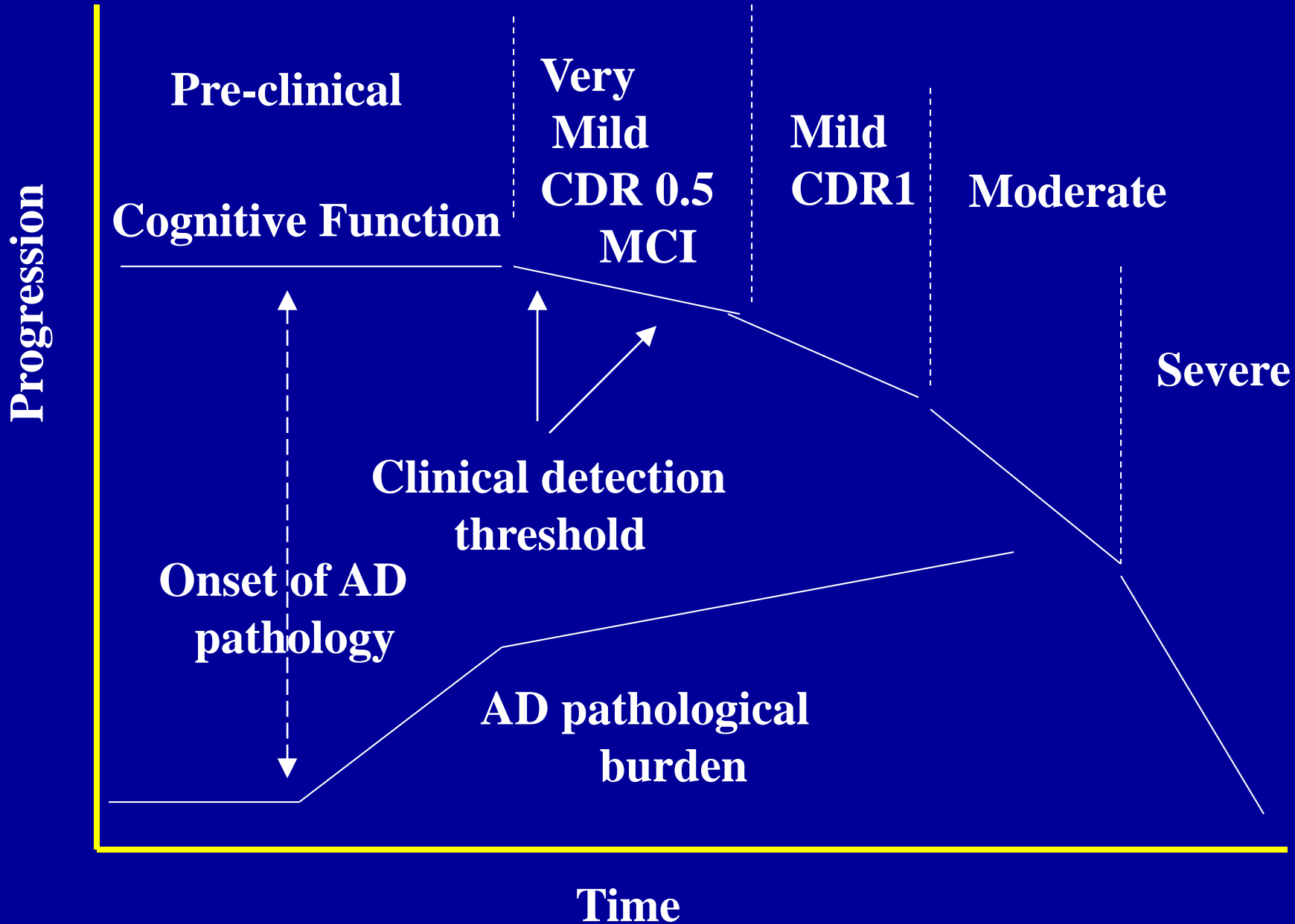


CSF sulfatide is decreased in individuals with incipient dementia

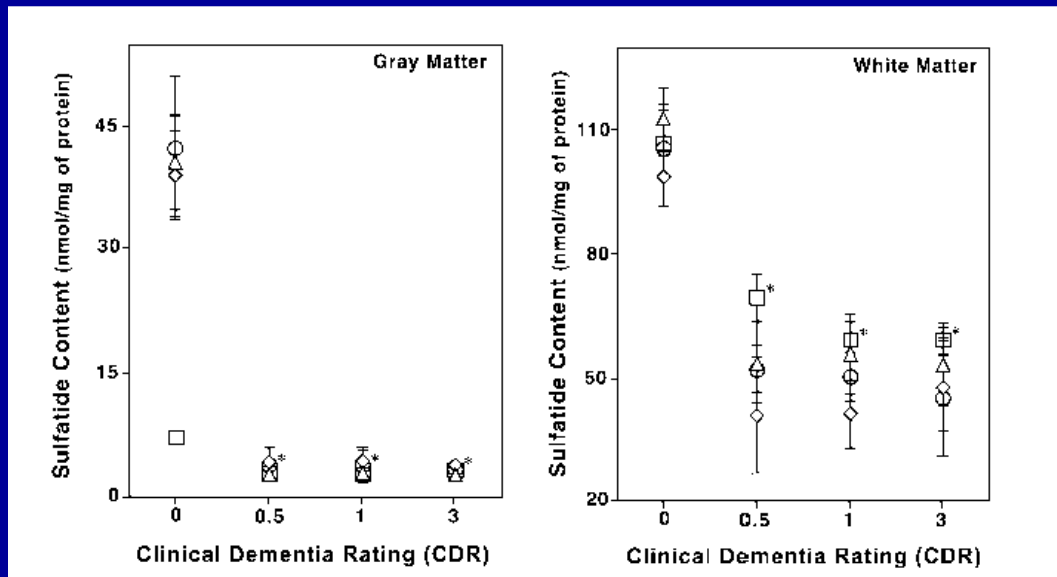
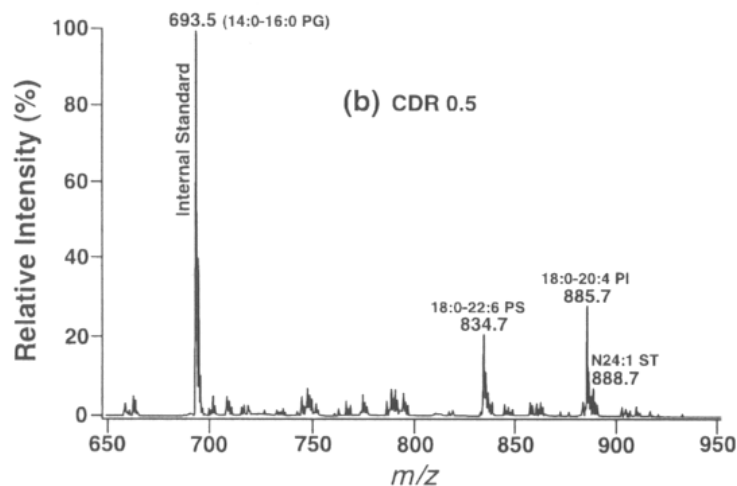
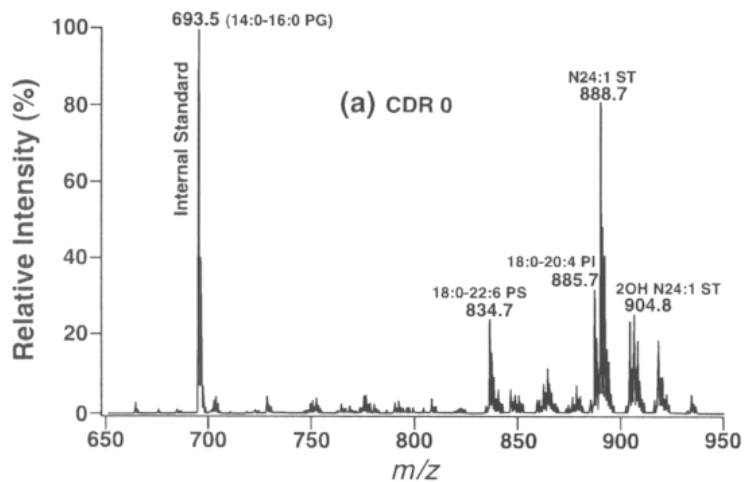
**Xianlin Han, PhD, Anne M. Fagan, PhD, Hua
Cheng, MS, John C. Morris, MD,
Chengjie Xiong, PhD, David M. Holtzman, MD**

**Washington University School of Medicine
Department of Medicine and Neurology**

Stage of dementia



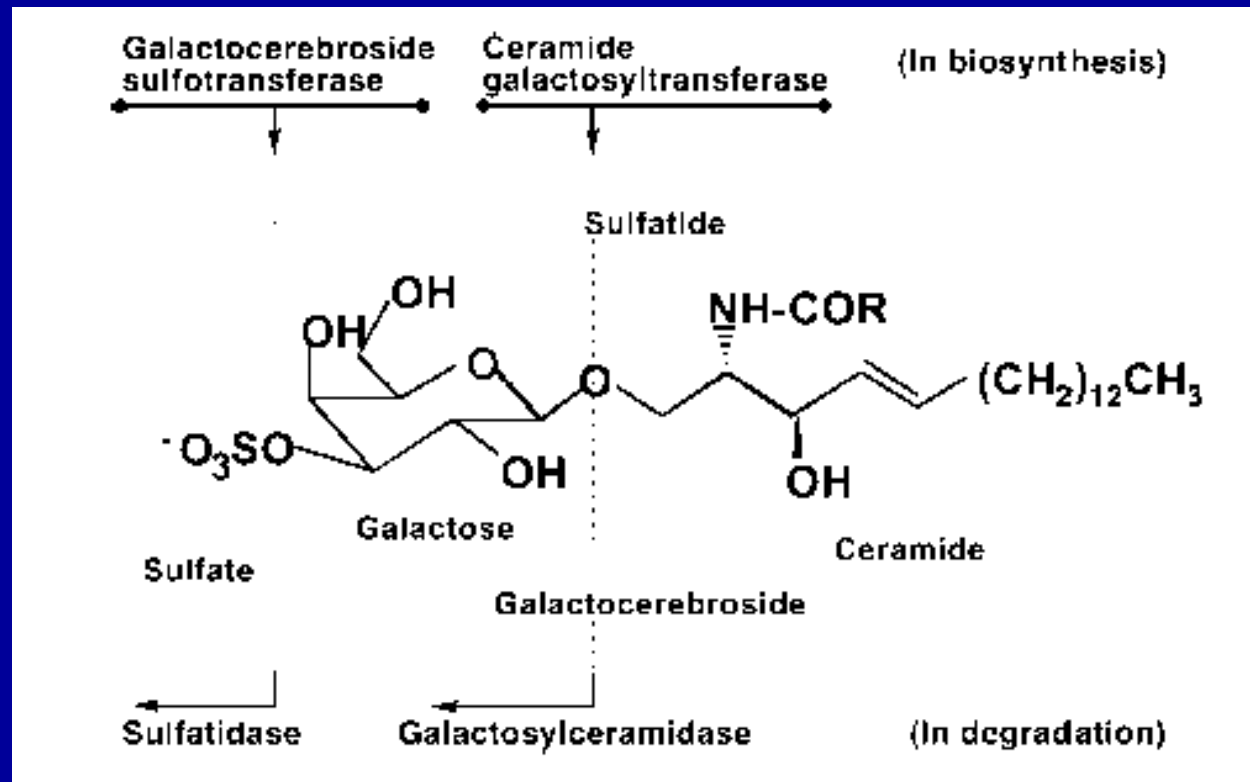
An unbiased screen of normal and AD brain tissue using ESI-mass spectrometry led to identification of marked decline in sulfatide in both gray and white matter at CDR 0.5 level of dementia due to AD. *Most other lipids were unchanged.



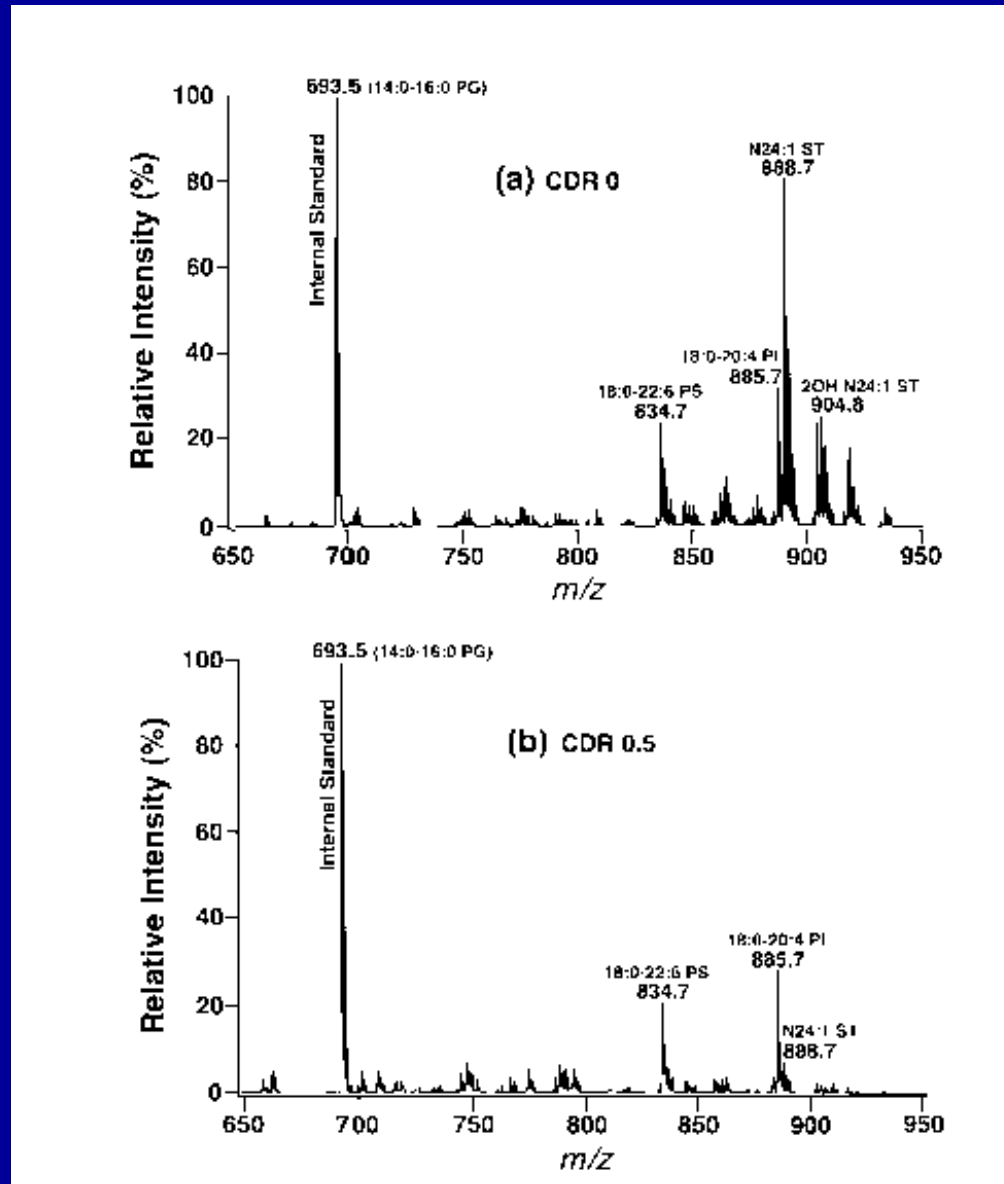
Han et al. J. Neurochem. 2002

Sulfatide: a sulfated galactocerebroside

- * synthesized by oligodendrocytes
- * buildup due to sulfatidase deficiency causes metachromatic leukodystrophy
- * present in lipoprotein particles along with apoE in the CNS



Electrospray ionization mass spectrometry: Decrease in sulfatides in very mild AD frontal grey matter vs. control



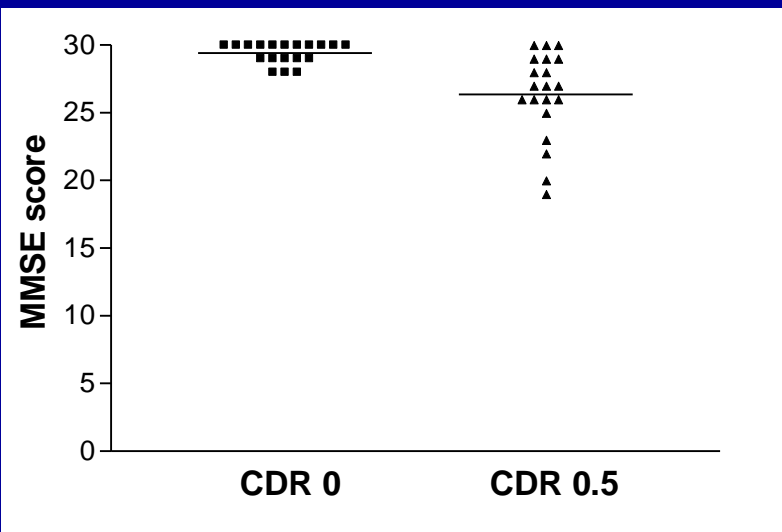
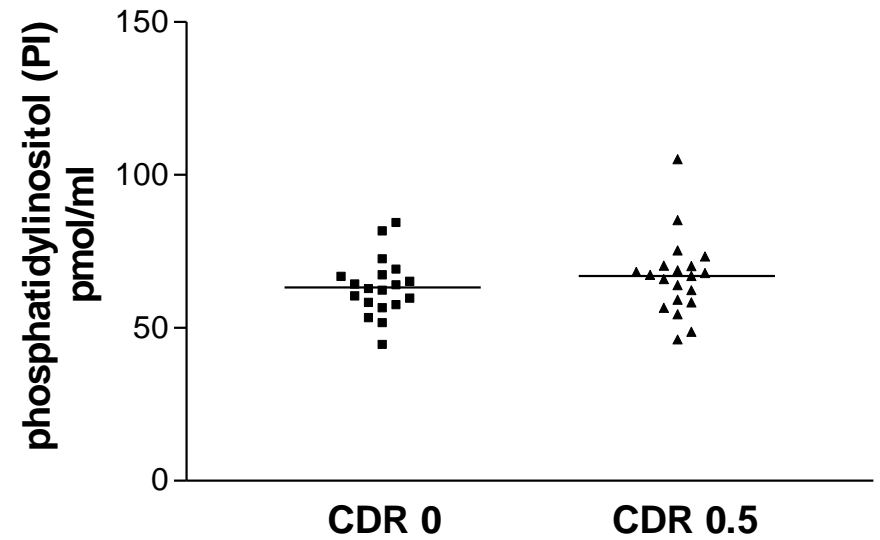
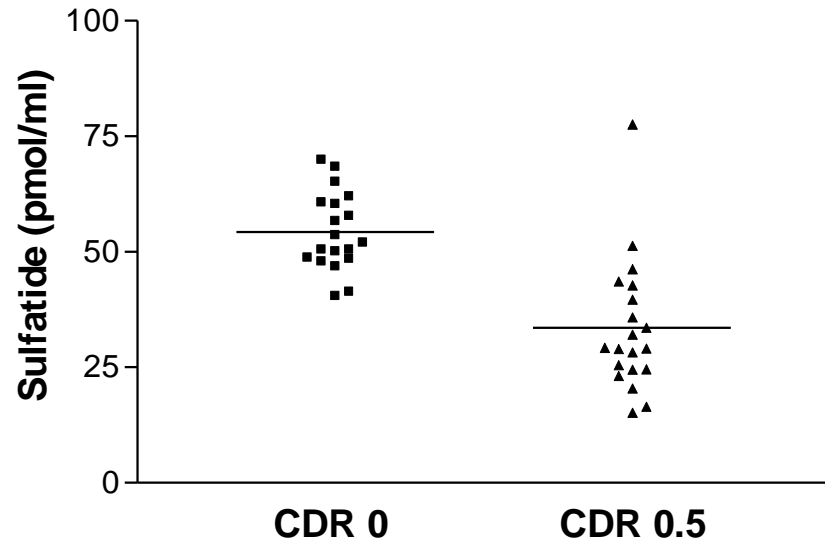
Characteristics of initial group in CSF study

	CDR 0	CDR 0.5	p-value
Subjects	N=19	N=20	
Male/Female	9/10	5/15	
% Caucasian	95%	95%	
Age	70.6 +/- 1.3	73.9 +/- 1.7	0.12
Years of Education	14.21 +/- 0.71	15.1 +/- 0.82	0.44
MMSE score	29.4 +/- 0.18	26.4 +/-0.72	0.0002

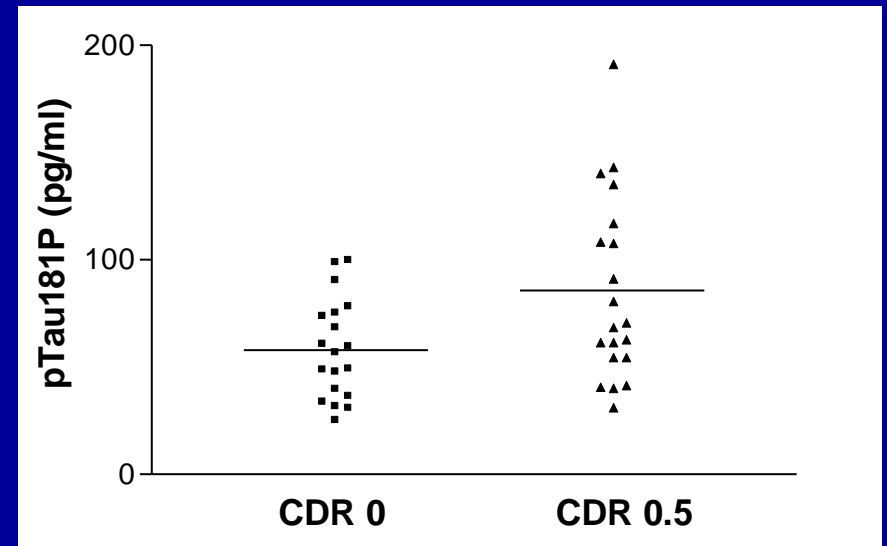
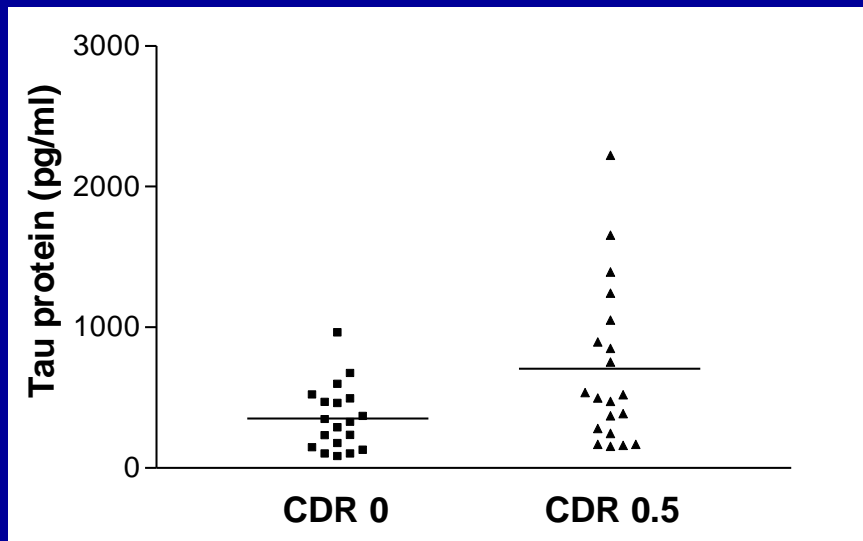
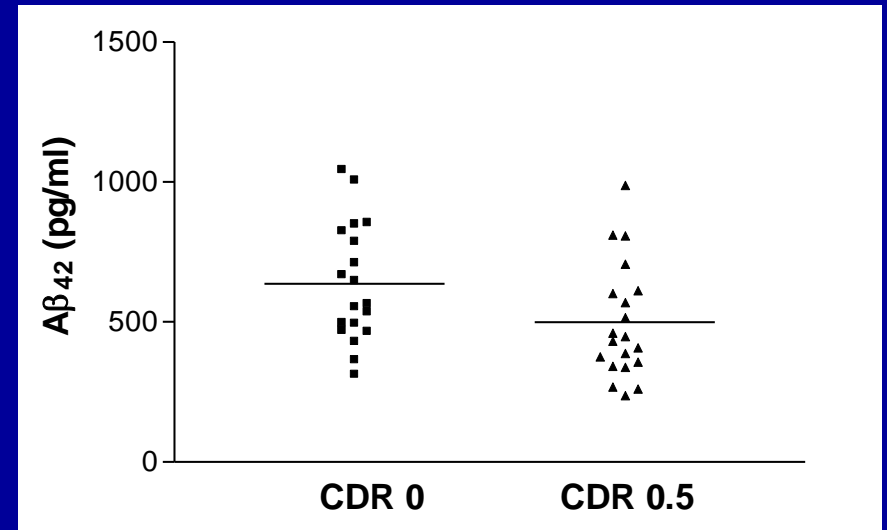
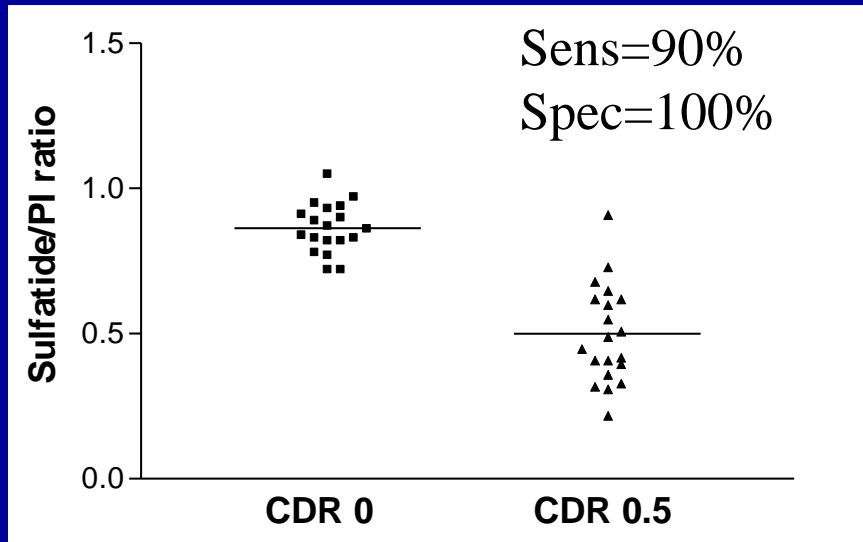
Table 1. Characteristics of study subjects. (Mean +/- SEM)

**All CSF and plasma was collected fasting at 8AM
Samples were stored at -70°C till analyzed**

CSF sulfatide (ST) is markedly and significantly lower in CDR 0.5 vs. CDR 0 subjects



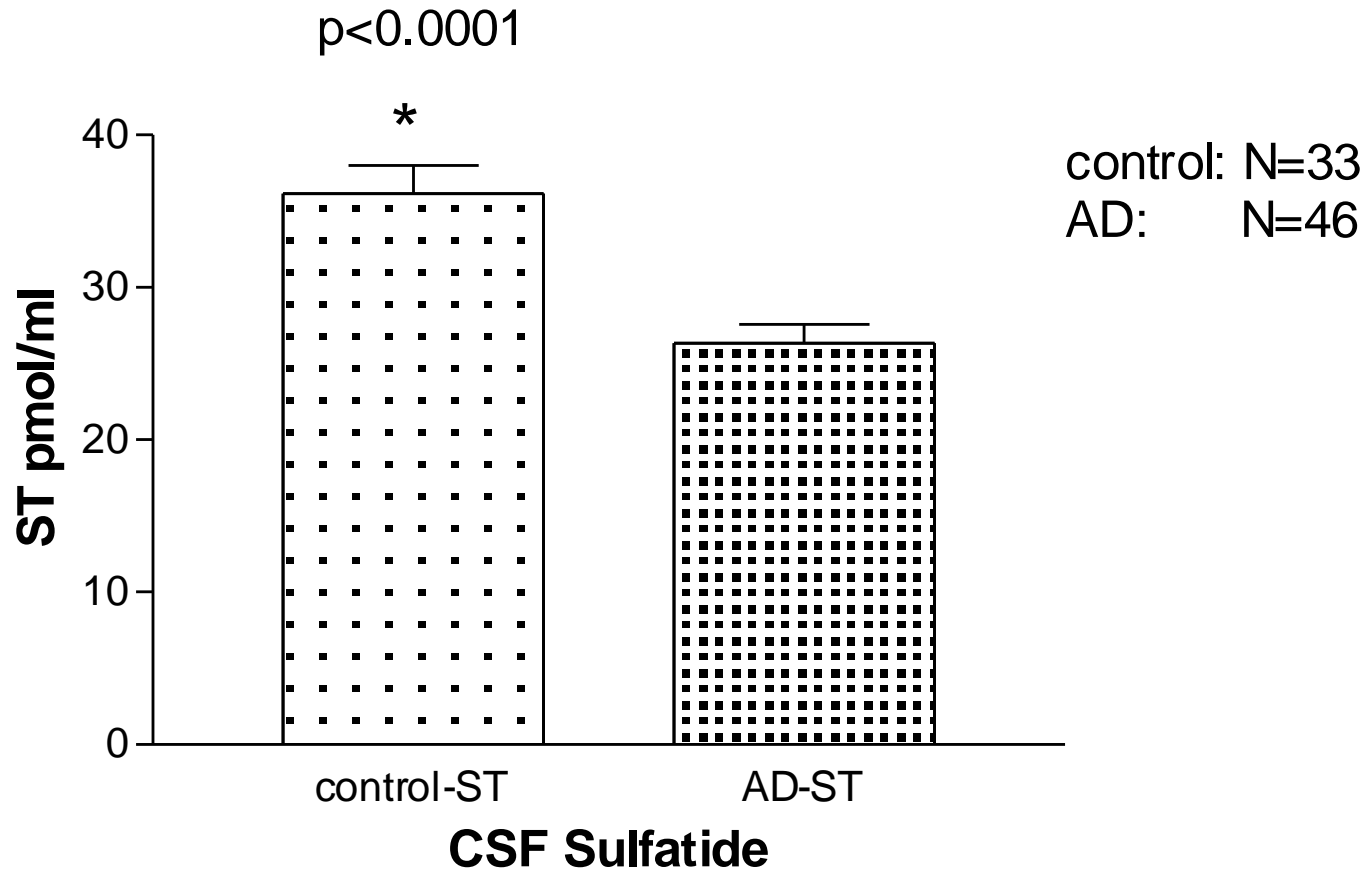
Sensitivity and specificity of CSF sulfatide/PI ratio in differentiating CDR 0 from CDR 0.5 subjects is better in this sample than several other established AD biomarkers



Future Questions to be addressed

- 1. Does sulfatide or the ST/PI ratio differentiate subjects who have a CDR score of 0 from a score of 0.5 and greater in other samples?**
- 2. Are there storage or collection issues that are critical in assessment of this CSF biomarker?**
- 3. Does a low ST/PI ratio increase risk of converting from CDR 0 to CDR 0.5 or from CDR 0.5 to 1?**
- 4. Is a decrease in ST/PI ratio specific for AD vs. other neuro-degenerative diseases (e.g. Parkinson's, fronto-temporal dementia, etc.).**

CSF sulfatide is decreased in a large sample of AD vs. controls subjects



(samples from Joseph Quinn, MD, PhD, Oregon Health Sciences)