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Supplementary Data

Review and Meta-Analysis of Biomarkers and Diagnostic Imaging in Alzheimer's Disease

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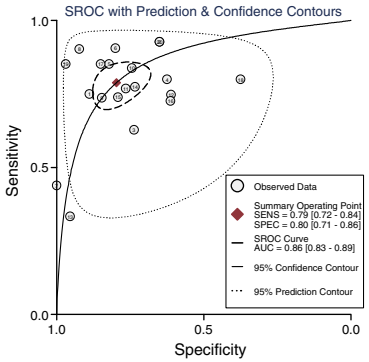
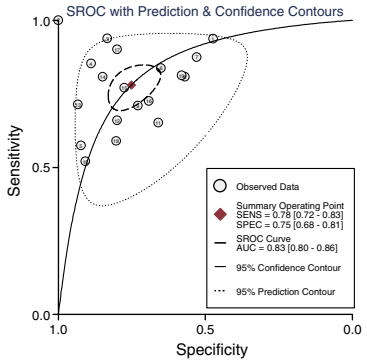
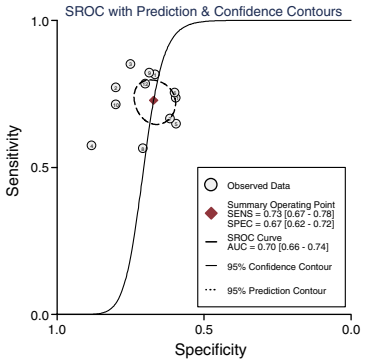
Ptau



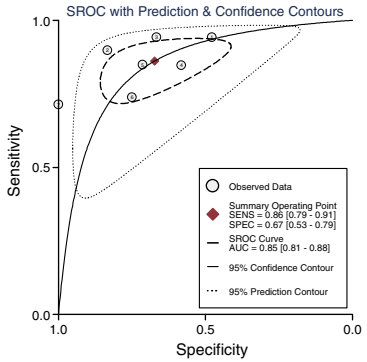
Ttau



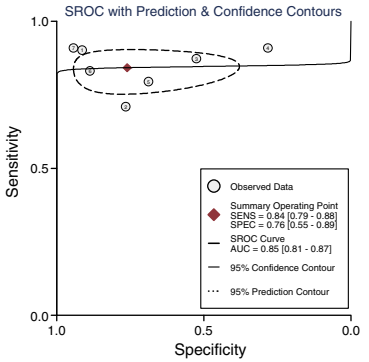
CSF $A\beta 1_{-42}$



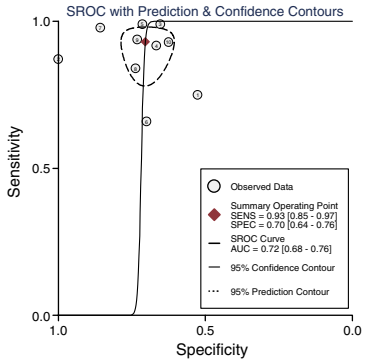
CSF $A\beta_{1\text{-}42}$ and Ttau



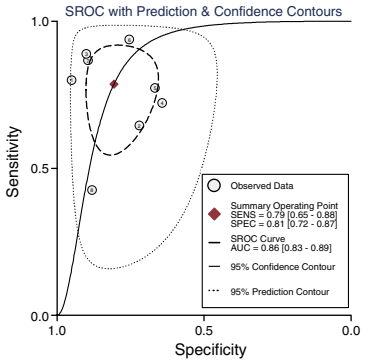
MRI



FDG-PET



SPECT



Supplementary Figures.

Supplementary Table
Method of Establishing True AD Diagnosis for All Included Studies

Author (Year)	Method	Comparator Group	True Diagnosis	Other Notes
Mulder (2010)	CSF $A\beta_{1-42}$, Ttau, $Ptau_{181}$	ND	NINCDS-ADRDA criteria	
Brys (2009)	CSF Ttau, $Ptau_{231}$	MCI	Clinical diagnosis	Predicted 2 yr conversion of MCI to AD. Multiple MTL measures presented
Brys (2009)	MRI of MTA, $Ptau_{231}$, Ttau	MCI	NINCDS-ADRDA criteria	Predicted 2 yr conversion of MCI to AD
Burton (2009)	MRI of MTA	NADD	Autopsy	
Frisoni (2009)	MRI of MTA, FDG-PET, CSF $A\beta_{1-42}$	MCI	Clinical diagnosis	
Haense (2009)	FDG-PET	ND	NINCDS-ADRDA criteria	ADNI cohort
Koopman (2009)	CSF $A\beta_{1-42}$, Ttau, and Ptau	NADD	Autopsy	
Mattsson (2009)	CSF $A\beta_{1-42}$, Ttau, and Ptau	MCI	Clinical diagnosis	
McEvoy (2009)	Volumetric MRI of MTA	ND	NINCDS-ADRDA criteria	
Roher (2009)	CSF $A\beta_{1-42}$	ND, NADD	Autopsy	
Shaw (2009)	CSF $A\beta_{1-42}$, Ttau, and Ptau	ND	Autopsy	
Smach (2009)	CSF$A\beta_{1-42}$, Ttau, $A\beta_{1-42}$ + Ttau,	ND, NADD	NINCDS-ADRDA criteria	
Tapiola (2009)	CSF $A\beta_{1-42}$, Ttau, $A\beta_{1-42}$ + Ttau, Ptau	NADD	Autopsy	
Vemuri (2009)	MRI of MTA, CSF $Ptau_{231}$, $A\beta_{1-42}$, Ttau, $A\beta_{1-42}$ + Ttau	ND	Clinical diagnosis	ADNI cohort
Boban (2008)	CSF Ttau, $Ptau_{181}$, $Ptau_{199}$	VD	Clinical diagnosis	
Brandt (2008)	CSF $A\beta_{1-42}$, Ttau, $Ptau_{181}$	MCI, NADD, DEP	NINCDS-ADRDA criteria	
Colliot (2008)	Volumetric MRI of MTA	MCI	NINCDS-ADRDA criteria	Automated volumetric MRI scans
Duara (2008)	MRA of MTA	MCI	NINCDS-ADRDA criteria	Conversion of MCI to AD at 1-year
Engelborghs (2008)	CSF $A\beta_{1-42}$, Ttau, and Ptau	ND, NADD	Autopsy	
Habeck (2008)	FDG-PET	ND	Clinical diagnosis	
Lewczuk (2008)	CSF $A\beta_{1-42}$, Ttau, $Ptau_{181}$	NADD	NINCDS-ADRDA criteria	Also presents analysis to discriminate MCI-AD from MCI-NADD
McMurtray (2008)	FDG-PET	ND	NINCDS-ADRDA criteria	
Mosconi (2008)	FDG-PET	ND, MCI, FTD, DLB	NINCDS-ADRDA criteria	
Ravaglia (2008)	CSF $Ptau_{181}$	ND, VD	NINCDS-ADRDA criteria	
Barkhof (2007)	MRI of MTA	NADD	DSM-IIIR	Post-mortem MRI of Patients>85 years old
Ewers (2007)	CSF $Ptau_{181}$	MCI	Clinical diagnosis	Longitudinal. Multiple sites presented separately
Foster (2007)	FDG-PET	FTD	Autopsy	
Jagust (2007)	Clinical diagnosis, FDG-PET	NADD, ND	Autopsy	Result from final evaluation used in analysis
Matsunari (2007)	FDG-PET, MRI of MTA	ND	Clinical diagnosis	
McNeill (2007)	HMPAO SPECT	FTD	Autopsy	
Nihashi (2007)	FDG-PET	ND	NINCDS-ADRDA criteria	
Wada-Isoe (2007)	CSF Ptau	ND	NINCDS-ADRDA criteria	
Bonte (2006)	FDG-PET	NADD	Autopsy	
Ibach (2006)	CSF $A\beta_{1-42}$, Ttau, $A\beta_{1-42}$ + Ttau,$Ptau_{181}$	ND, NADD	Clinical diagnosis	

Supplementary Table
(*Continued*)

Author (Year)	Method	Comparator Group	True Diagnosis	Other Notes
Vanderstichele (2006)	CSF $A\beta_{1-42}$, Ttau, $Ptau_{181}$	ND, DLB	Clinical diagnosis	
Anchisi (2005)	FDG-PET	MCI	NINCDS-ADRDA criteria	Predicts conversion of MCI to AD
Brettschneider (2005)	CSF$A\beta_{1-42}$	ND	NINCDS-ADRDA criteria	
Drzezga (2005)	FDG-PET	MCI	NINCDS-ADRDA criteria	Predicts conversion of MCI to AD
Ivanoiu (2005)	CSF $A\beta_{1-42}$, Ttau, $A\beta_{1-42}$ + Ttau	MCI, DEP	Clinical diagnosis	
Hanyu (2005)	MTR of MTA	DLB	NINCDS-ADRDA criteria	
Herukka (2005)	CSF $A\beta_{1-42}$, $A\beta_{1-42}$ + Ttau	ND, MCI	Undetermined	
Kapaki (2005)	CSF Ttau, $A\beta_{1-42}$, $A\beta_{1-42}$ + Ttau	ND, ARCD	NINCDS-ADRDA criteria	
Stefani (2005)	CSF $A\beta_{1-42}$, Ttau, and Ptau	VD	NINCDS-ADRDA criteria	
Bonte (2004)	HMPAO SPECT	FTD	Mixed Clinical diagnosis and Autopsy	
Hampel (2004)	CSF $A\beta_{1-42}$, Ttau,Ptau	MCI	NINCDS-ADRDA criteria	Predicts conversion of MCI to AD
Rossi (2004)	CT of MTA	ND	Autopsy	
Schoonenboom (2004)	CSF $A\beta_{1-42}$, Ttau, $Ptau_{181}$	ND, FTD	NINCDS-ADRDA criteria	
Wang (2004)	MRI of MTA	ND, VD	NINCDS-ADRDA criteria	
Clark (2003)	CSF Ttau, $A\beta_{1-42}$ + Ttau	ND, NADD	Clinical guidelines	
Buerger (2003)	CSF $Ptau_{231}$	DEP	NINCDS-ADRDA criteria	
Kapaki (2003)	CSF Ttau, $A\beta_{1-42}$, $A\beta_{1-42}$ + Ttau	ND, NADD, VD	NINCDS-ADRDA criteria	
Maddalena (2003)	CSF $A\beta_{1-42}$ + Ptau	ND, NADD	Clinical diagnosis	
Schonknect (2003)	CSF Ttau, $Ptau_{181}$	ND	Undetermined	Abstract only
Sunderland (2003)	CSF $A\beta_{1-42}$ + Ttau	VD	Mixed Clinical diagnosis and Autopsy	
Bottino (2002)	MRI of MTA	ND, MCI	NINCDS-ADRDA criteria	
Buerger (2002)	CSF Ttau, $Ptau_{231}$	ND, FTD, DLB, VD	NINCDS-ADRDA criteria	
Herholz (2002)	FDG-PET	ND	NINCDS-ADRDA criteria	
Frisoni (2002)	CT and MRI of MTA	ND	Clinical diagnosis	
Riemenschneider (2002)	CSF $A\beta_{1-42}$ + Ttau	MCI	NINCDS-ADRDA criteria	Predicts conversion of MCI to AD
Shoji (2002)	CSF Ttau	ND, NADD	NINCDS-ADRDA criteria	
Varma (2002)	MRI of MTA, HMPAO SPECT	NADD	NINCDS-ADRDA criteria	
Andreasen (2001)	CSF $A\beta_{1-42}$ + Ttau	ND	NINCDS-ADRDA criteria	
Arnaiz (2001)	FDG-PET	MCI	NINCDS-ADRDA criteria	Predict conversion of MCI to AD
Hanyu (2001)	MRI of MTA	ND	NINCDS-ADRDA criteria	
Itoh (2001)	CSF $Ptau_{199}$	NADD	NINCDS-ADRDA criteria	
O'Brien (2001)	MRI and SPECT	ND	NINCDS-ADRDA criteria	
Parnetti (2001)	CSF Ttau, $A\beta_{1-42}$, Ptau	ND, DLB	Clinical diagnosis	AB42 results not significant and not presented
Silverman (2001)	FDG-PET	NADD	Mixed Clinical diagnosis and Autopsy	
Sjogren (2001)	CSF Ttau, Ptau	ND, FTD, PD	NINCDS-ADRDA criteria	
Denihan (2000)	CT of MTA	NADD	NINCDS-ADRDA criteria	
Higuchi (2000)	FDG-PET	ND, DLB	NINCDS-ADRDA criteria	
Hoffman (2000)	NINCDS-ADRDA criteria	NADD	Autopsy	
Kahle (2000)	CSF Ttau	ND	Mixed clinical diagnosis and Autopsy	
Killiany (2000)	MRI of MTA	ND, MCI	NINCDS-ADRDA criteria	Predicts conversion of MCI to AD
Kohnken (2000)	CSF $Ptau_{231}$	NADD	NINCDS-ADRDA criteria	
O'Brien (2000)	CT of MTA	DEP, DLB, VD	NINCDS-ADRDA criteria	
Ohyama (2000)	FDG-PET	ND	Clinical diagnosis	Abstract only
Andreasen (1999)	CSF Ttau	ND	Clinical diagnosis	

Supplementary Table
(*Continued*)

Author (Year)	Method	Comparator Group	True Diagnosis	Other Notes
Golebiowski (1999)	MRI of MTA	ND	Undetermined	Abstract only
Defebvre (1999)	HMPAO SPECT	PD, DLB	NINCDS-ADRDA criteria	
Lim (1999)	NINCDS-ADRDA criteria	NADD	Autopsy	
Holmes (1999)	NINCDS-ADRDA criteria	NADD	Autopsy	
Hulstaert (1999)	CSF $A\beta_{1-42}$, Ttau	ND, NADD	NINCDS-ADRDA criteria	
Jobst (1998)	NINCDS-ADRDA criteria, DSM-IV criteria, SPECT, CT of MTA	ND	Autopsy	
Kurz (1998)	CSF Ttau	ND	Clinical diagnosis	
Laakso (1998)	MRI of MTA	ND	NINCDS-ADRDA criteria	
Mayeux (1998)	Clinical diagnosis by NINCDS-ADRDA, DSM-III, or Cummings and Benson criteria.	NADD	Autopsy	
Pucci (1998)	MRI of MTA	ND	Clinical diagnosis	
Shoji (1998)	CSF Ttau, Ab1–40, $A\beta_{1-42}$	ND	NINCDS-ADRDA criteria	
Arai (1997)	CSF Ttau	ND, NADD	Clinical diagnosis	
Bonte (1997)	SPECT	ND, NADD	Mixed Clinical diagnosis and Autopsy	
Ishii (1998)	FDG-PET	ND, DLB	Clinical diagnosis	Abstract only
Pasquier (1997)	CT of MTA	NADD	Clinical diagnosis	
O'Brien (1997)	MRI of MTA	ND	Clinical diagnosis	
Scheltens (1997)	MRI of MTA, SPECT	ND	Clinical diagnosis	
Burdette (1996)	FDG-PET	ND	Undetermined	Abstract only
Frisoni, (1996)	MRI of MTA and rWTH	ND	Clinical diagnosis	
Greene (1996)	HMPAO SPECT	ND	NINCDS-ADRDA criteria	
Van Dyke (1996)	ECD SPECT and HMPAO SPECT	ND	Clinical diagnosis	
Van Gool (1995)	HMPAO SPECT	ND	McKhann criteria	
Blacker (1994)	NINCDS-ADRDA criteria	NADD	Autopsy	Post-consensus SN and SP
Claus (1994)	HMPAO SPECT	ND	NINCDS-ADRDA criteria	
Desmond (1994)	MRI of MTA	ND	NINCDS-ADRDA criteria	
Messa (1994)	FDG-PET	ND	Clinical diagnosis	
McMurdo (1994)	HMPAO SPECT	ND	NINCDS-ADRDA criteria	
Szelies (1994)	FDG-PET	ND, VD	Clinical diagnosis	Abstract only
Azari (1993)	FDG-PET	ND	Undetermined	Abstract only
Bonte (1993)	HMPAO SPECT	NADD	Mixed Clinical diagnosis and Autopsy	
Hanyu (1993)	SPECT	NADD	Undetermined	Abstract only
Herholz (1993)	FDG-PET	ND	NINCDS-ADRDA criteria	
Johnson (1993)	SPECT	ND	NINCDS-ADRDA criteria	
Erkinjuntti (1993)	MRI of MTA	ND	NINCDS-ADRDA criteria	Results for hippocampal formation
Kippenhan (1992)	FDG-PET	ND	NINCDS-ADRDA criteria	
Powers (1992)	PET	ND	Undetermined	Abstract only
Scheltens (1992)	MRI of MTA	ND	Clinical diagnosis	
Grady (1990)	FDG-PET	ND	Undetermined	Abstract Only
Herholz (1990)	FDG-PET	ND	NINCDS-ADRDA criteria	Abstract Only
Johnson (1990)	IMP SPECT	ND	Undetermined	Abstract only