

Supplemental table 1. Table 2 ROC analysis for FDG-PET vs SPECT in normal vs dementia (AD and DLB) for individual visual rating.

Assessment	FDG-PET AUC (S.E.)	SPECT AUC (S.E.)	FDG-PET – SPECT AUC difference (95% CI)	P value
Reader 1	0.905 (0.034)	0.720 (0.058)	0.184 (0.064–0.305)	
Reader 2	0.859 (0.041)	0.747 (0.057)	0.112 (-0.006–0.230)	
Reader 3	0.884 (0.038)	0.709 (0.060)	0.175 (0.059–0.292)	
Multi-reader analysis	0.883 (0.025)	0.725 (0.056)	0.157 (0.061–0.254)	$F_{1,194} = 10.4$, $p = 0.002$

Supplemental table 2. ROC analysis for FDG-PET vs SPECT in AD vs DLB for individual visual rating and Occipital/Cerebellum ROI analysis.

Assessment	FDG-PET AUC (S.E.)	SPECT AUC (S.E.)	FDG-PET – SPECT AUC difference (95% CI)	P value
Reader 1	0.775 (0.065)	0.565 (0.075)	0.211 (0.039–0.382)	
Reader 2	0.693 (0.066)	0.516 (0.074)	0.177 (-0.011–0.365)	
Reader 3	0.775 (0.063)	0.660 (0.069)	0.115 (-0.041–0.271)	
Multi-reader analysis	0.748 (0.056)	0.580 (0.062)	0.168 (0.047–0.288)	$F_{1,134}=7.67$, $p=0.007$
ROI Occipital / Cerebellum	0.780 (0.057)	0.698 (0.064)	0.082 (-0.019–0.183)	$A=1.60$, $p=0.11$

Supplemental table 3. Consensus tripartite SPECT PET diagnosis

PET correct	SPECT		
	No	Yes	Total
No	19	10	29
Yes	29	40	69
Total	48	50	98

McNemar test, 2 tailed, $p=0.003$ (PET correct significantly more often than SPECT)

Supplemental table 4. Consensus visual rating for FDG-PET vs SPECT for normal vs dementia

		Control Subjects					
		FDG-PET normal Consensus					
		Definitely Normal	Probably Normal	Unclear	Probably dementia	Definitely dementia	Total
SPECT Consensus	Definitely Normal	4	2	2	0	0	8
	Probably Normal	5	7	1	0	0	13
	Probably dementia	2	3	1	0	0	6
	Definitely dementia	0	1	0	1	1	3
	Total	11	13	4	1	1	30
		Subjects with dementia					
		FDG-PET Consensus					
		Definitely Normal	Probably Normal	Unclear	Probably dementia	Definitely dementia	Total
SPECT Consensus	Definitely Normal	1	1	1	2	0	5
	Probably Normal	0	2	1	11	1	15
	Unclear	0	0	0	2	2	4
	Probably dementia	0	2	2	12	10	26
	Definitely dementia	0	0	2	1	15	18
	Total	1	5	6	28	28	68

Supplemental table 5. Consensus visual rating for FDG-PET vs SPECT for AD vs DLB

		FDG-PET					
		Consensus					
SPECT Consensus	AD Subjects	Definitely	Probably	Unclear	Probably	Definitely	
		AD	AD		DLB	DLB	Total
	Definitely AD	1	0	0	0	0	1
	Probably AD	3	2	1	0	0	6
	Unclear	6	8	5	3	0	22
	Probably DLB	0	3	5	0	0	8
	Definitely DLB	0	0	0	1	0	1
Total		10	13	11	4	0	38

		FDG-PET					
		Consensus					
SPECT Consensus	DLB Subjects	Definitely	Probably	Unclear	Probably	Definitely	
		AD	AD		DLB	DLB	Total
	Definitely AD	1	0	1	0	0	2
	Probably AD	0	0	2	3	0	5
	Unclear	1	3	5	1	0	10
	Probably DLB	0	1	0	4	4	9
	Definitely DLB	0	0	0	0	4	4
Total		2	4	8	8	8	30

Supplemental table 6. Region of interest analysis.

					Post hoc p		
					Tukey		
	Control	AD	DLB	ANOVA	C v AD	C v	DLB v
	(n=30)	(n=38)	(n=29)	F _{2,94}		DLB	AD
				p value			
FDG-PET Region of Interest							
Interest							
Precuneus/Cerebellum	1.08	0.981	0.951	18.6,	<0.001	<0.001	0.4
	(0.067)	(0.090)	(0.102)	p<0.001			
Parietal/Cerebellum	1.06	0.881	0.846	48.2,	<0.001	<0.001	0.3
	(0.079)	(0.100)	(0.091)	p<0.001			
MTL/Cerebellum	0.736	0.673	0.731	15.0,	<0.001	0.9	<0.001
	(0.043)	(0.057)	(0.056)	p<0.001			
Precuneus/ posterior cingulate	1.081	1.10	1.05	3.86,	0.6	0.2	0.018
	(0.055)	(0.061)	(0.087)	p=0.025			
Medial Occipital/MTL	1.47	1.59	1.36	21.8,	0.004	0.006	<0.001
	(0.088)	(0.15)	(0.17)	p<0.001			
Medial Occipital/Cerebellum	1.082	1.062	0.986	15.1,	0.5	<0.001	<0.001
	(0.073)	(0.069)	(0.075)	p<0.001			
Lateral Occipital / Cerebellum	1.032	0.948	0.875	22.7,	0.001	<0.001	0.004
	(0.069)	(0.106)	(0.086)	p<0.001			
All Occipital / Cerebellum	1.055	1.000	0.925	20.6,	0.015	<0.001	<0.001
	(0.069)	(0.084)	(0.079)	p<0.001			
SPECT Region of Interest							
Precuneus/cerebellum	0.841	0.818	0.800	3.39,	0.25	0.03	0.5
	(0.052)	(0.063)	(0.065)	p=0.038			
Parietal/Cerebellum	0.775	0.739	0.712	10.2	0.02	<0.001	0.11

	(0.050)	(0.060)	(0.051)	p<0.001			
MTL/Cerebellum	0.854	0.834	0.850	2.73	0.08	0.9	0.2
	(0.034)	(0.041)	(0.041)	p=0.07			
Precuneus/posterior	0.990	0.988	0.988	0.08,	1.0	1.0	1.0
cingulate	(0.054)	(0.054)	(0.068)	p=ns			
Medial Occipital/MTL	1.11	1.14	1.08	11.1,	0.024	0.14	<0.001
	(0.033)	(0.059)	(0.071)	p<0.001			
Medial	0.945	0.952	0.915	6.25,	0.8	0.028	0.003
Occipital/Cerebellum	(0.038)	(0.051)	(0.042)	p=0.003			
Lateral Occipital /	0.793	0.787	0.752	5.89,	0.9	0.006	0.015
Cerebellum	(0.041)	(0.056)	(0.053)	p=0.004			
All Occipital / Cerebellum	0.863	0.863	0.827	6.58,	1	0.007	0.004
	(0.038)	(0.051)	(0.045)	p=0.002			

MTL = medial temporal lobe. Values are mean (SD)

Supplemental table 7. Number (and percentage) of significant voxels for various t statistic thresholds for the SPM voxelwise analysis. Total number of voxels in brain mask = 261253

	t>3	t>3.5	t>4	t>4.5
FDG-PET				
comparison				
Dementia < control	105019 (40%)	82802 (32%)	64747 (25%)	49704 (19%)
AD > DLB	12533 (5%)	7001 (3%)	3594 (1.4%)	1561 (0.6%)
DLB > AD	7427 (3%)	4413 (2%)	2609 (1.0%)	1554 (0.6%)
SPECT comparison				
Dementia < control	17580 (7%)	7392 (3%)	2126 (0.8%)	232 (0.1%)
AD > DLB	4236 (1.6%)	1117 (0.4%)	322 (0.1%)	126 (0.05%)
DLB > AD	1144 (0.4%)	293 (0.1%)	27 (0.01%)	0 (0%)