

Supplemental Table 1 Technical details of MR parameters obtained in the PET/MR enterography protocol

MR-Sequences	Plane	TE / TR (ms)	Matrix size	Slice thickness (mm)	Field of View (mm)
TrueFISP (a)	coronal	1.49 / 666	288 x 288	3	400
T2 HASTE fs (b)	coronal	85 / 1800	256 x 288	5	400
ce T1_3D VIBE fs (c)	coronal	1.51 / 4.08	320 x 195	2	400
ce T1_3D VIBE fs (d)	axial	1,53/3,97	320 x 180	3.5	380
EPI DWI (e)	axial	86/ 1190	192 x 192	5	380

- a) fast steady-state precession sequence (TrueFISP) without fat suppression.
- b) fat-saturated T2-weighted (T2w) half-Fourier acquisition single-shot turbo spin echo (HASTE).
- c) contrast-enhanced 3D T1w Volumetric Interpolated Breath Hold Examination (VIBE) with repetitive scans after i.v. injection of 0.2 ml/kg gadoteric acid (Dotarem®, Guerbet, Villepinte, France).
- d) contrast-enhanced 3D T1w Volumetric Interpolated Breath Hold Examination (VIBE) with 180 seconds delay.
- e) diffusion weighted echo planar sequence (EPI DWI, B-values: 0, 500 and 1000 s/mm²).

Supplemental Table 2 Correlations between PET/MR surrogate markers and SES-CD tested by Spearman's rank correlation test on a segmental basis (all $p < 0.001$)

	SES-CD	MaRIA	Clermont	PET-MR index
SES-CD	$\rho = 1.000$	-	-	-
MaRIA	$\rho = 0.556$	$\rho = 1.000$	-	-
Clermont	$\rho = 0.551$	$\rho = 0.892$	$\rho = 1.000$	-
PET-MR index	$\rho = 0.563$	$\rho = 0.902$	$\rho = 0.891$	$\rho = 1.000$

Supplemental Table 3 Correlations between PET/MR surrogate markers and SES-CD tested by Spearman's rank correlation test on a global level (all $p < 0.001$)

	SES-CD_SUM	MaRIA_SUM	Clermont_SUM	PET-MR index_SUM
SES-CD_SUM	$\rho = 1.000$	-	-	-
MaRIA_SUM	$\rho = 0.687$	$\rho = 1.000$	-	-
Clermont_SUM	$\rho = 0.652$	$\rho = 0.983$	$\rho = 1.000$	-
PET-MR index_SUM	$\rho = 0.618$	$\rho = 0.967$	$\rho = 0.967$	$\rho = 1.000$