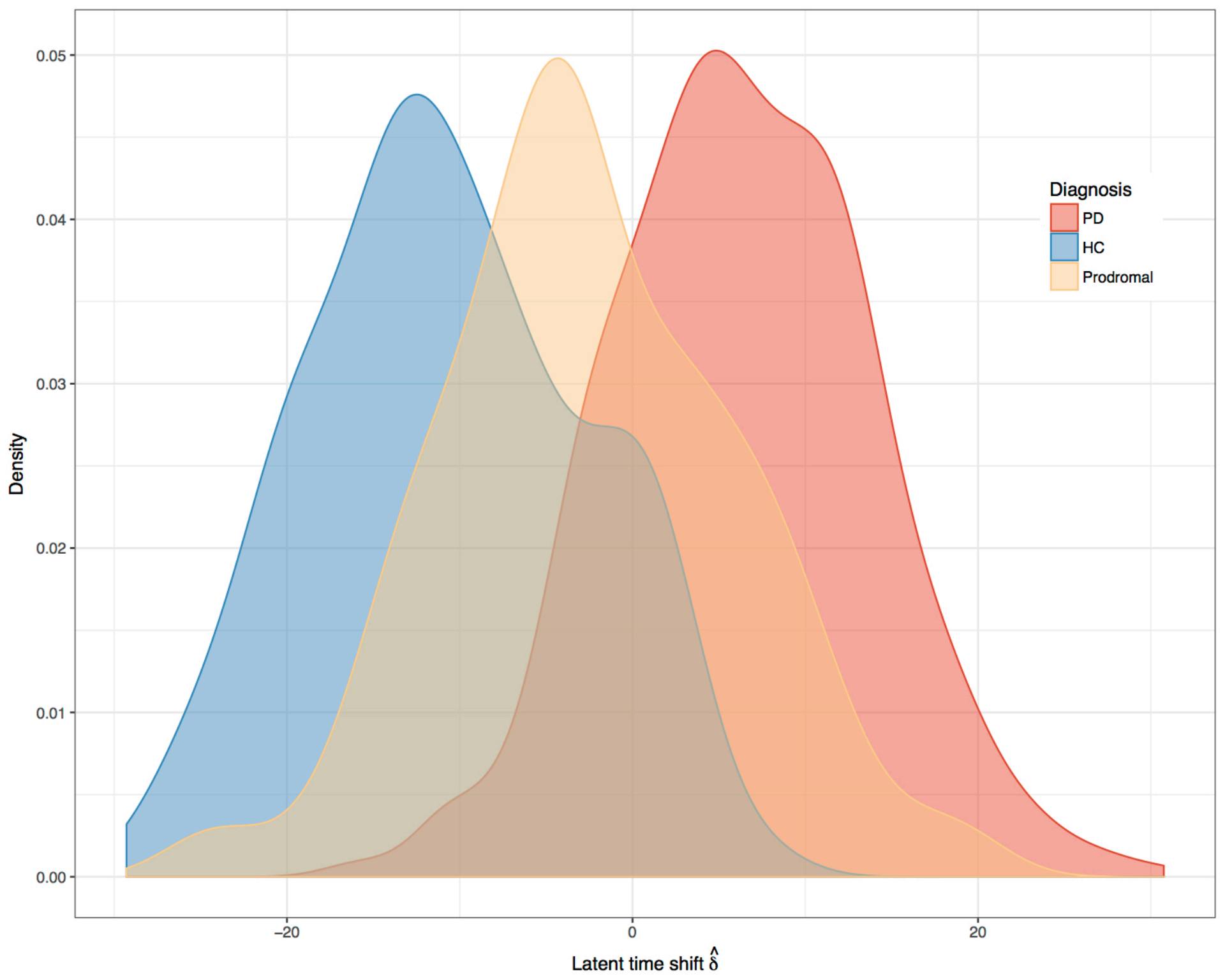
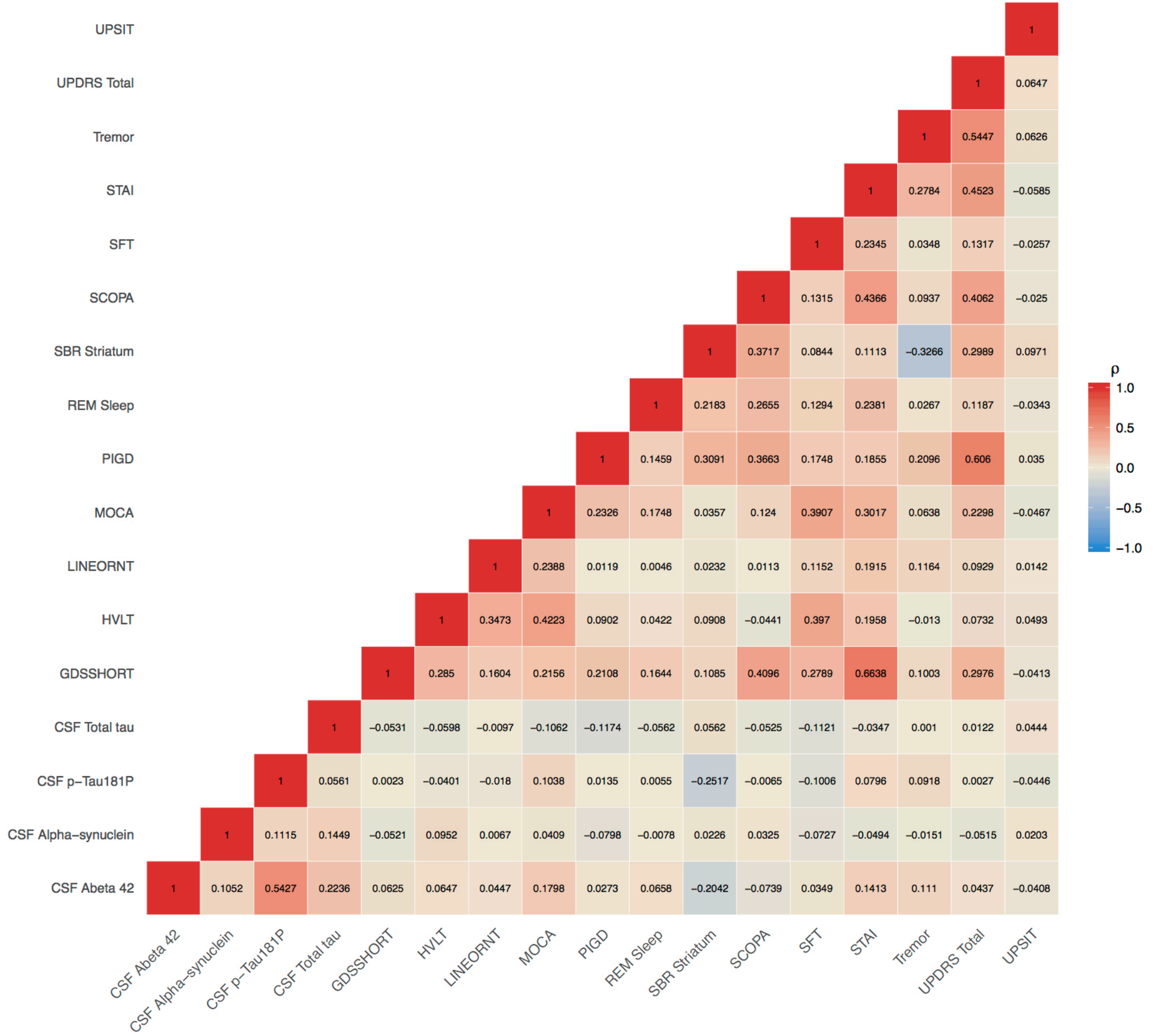
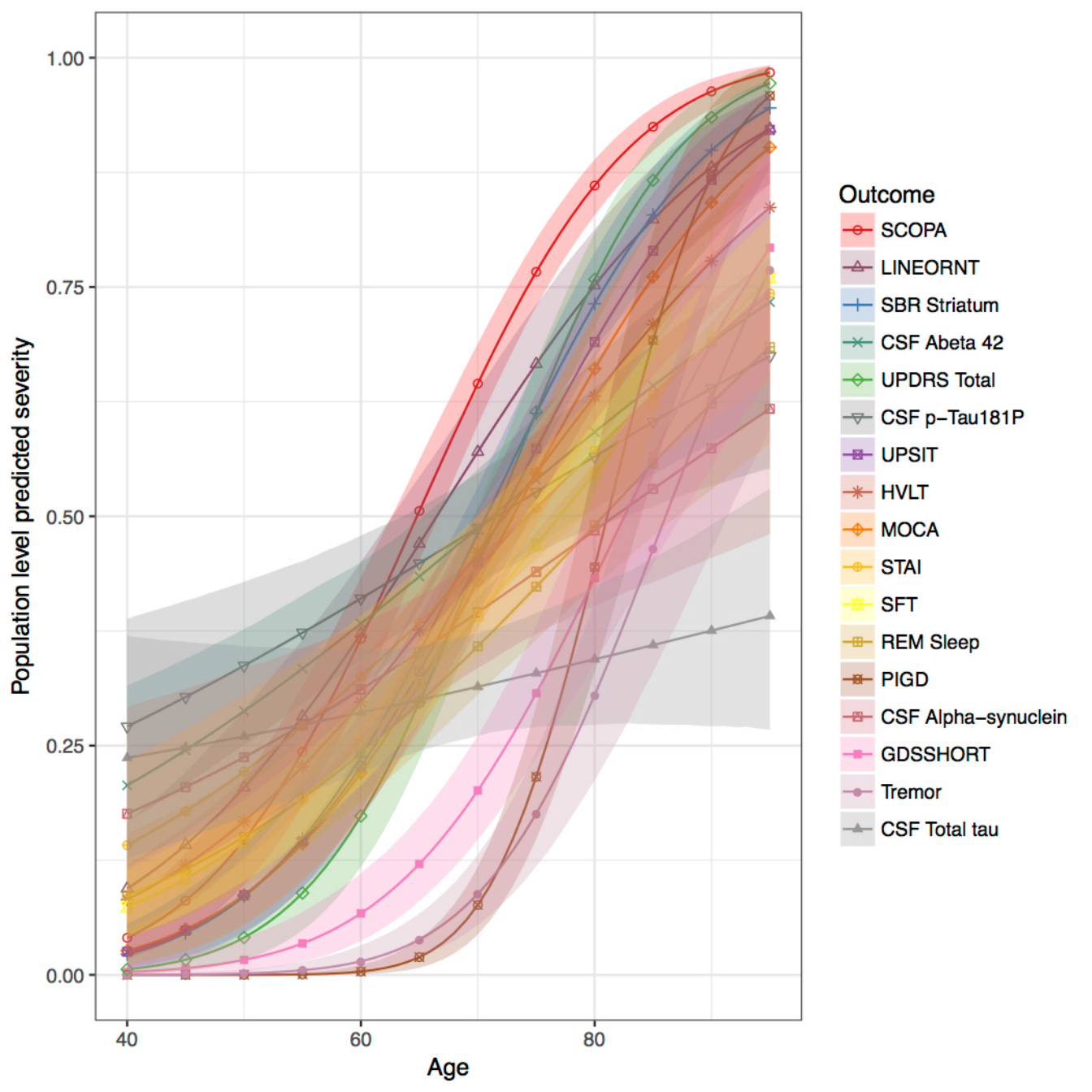
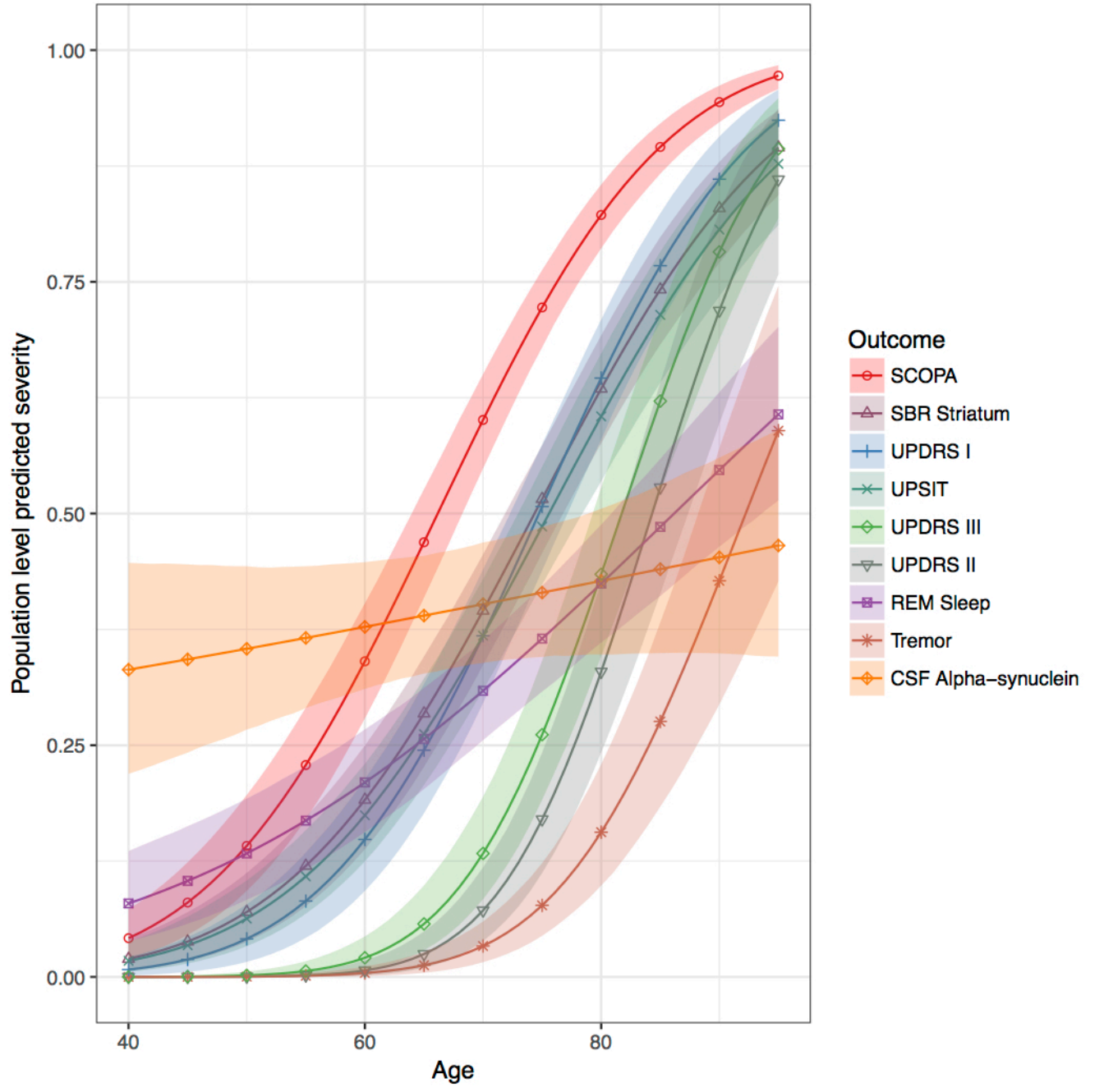
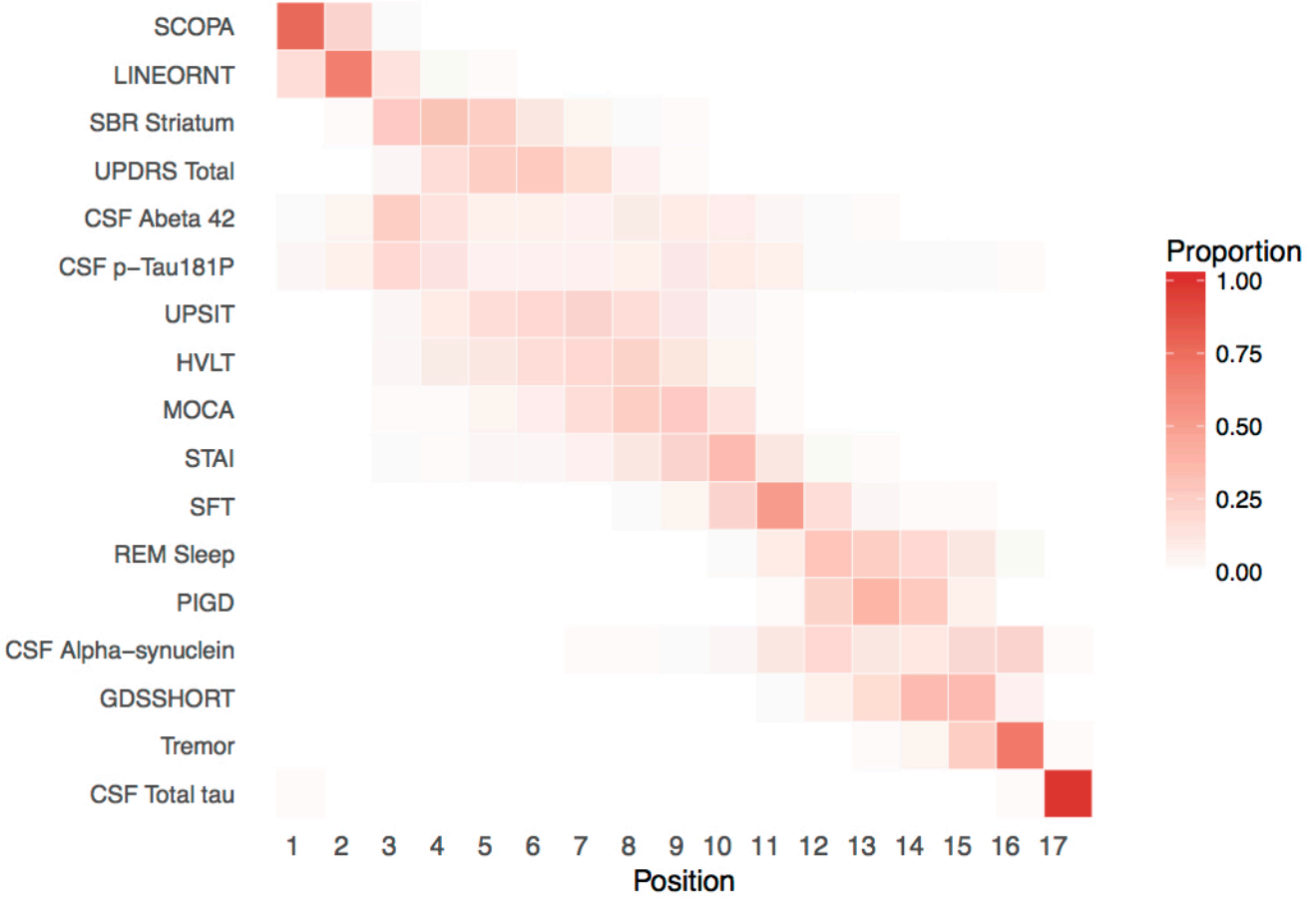
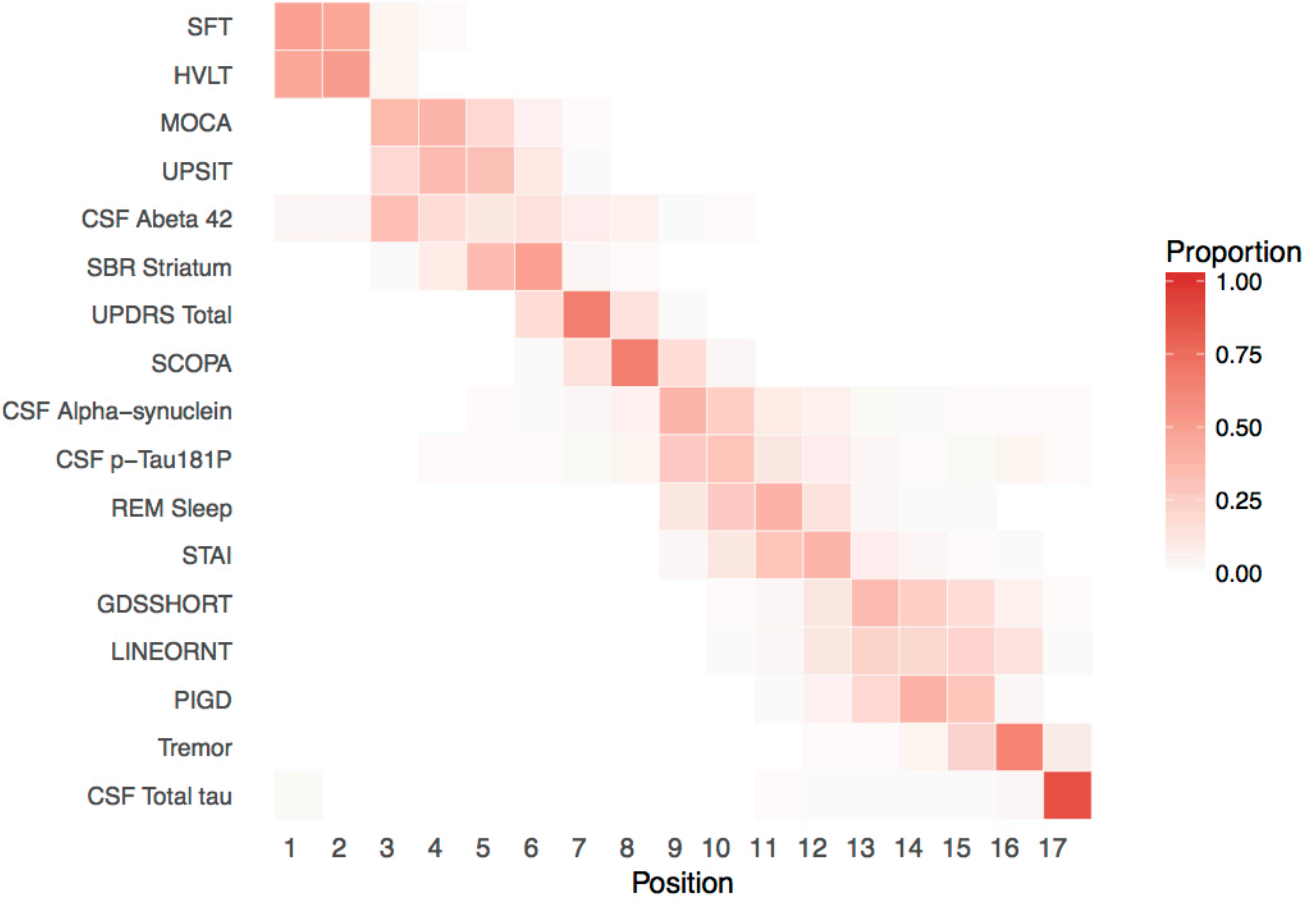

Diagnosis
PD
HC
Prodromal
Density
0.05
0.04
0.03
0.02
0.01
0.00
−20
0
20
Latent time shift $\hat{\delta}$

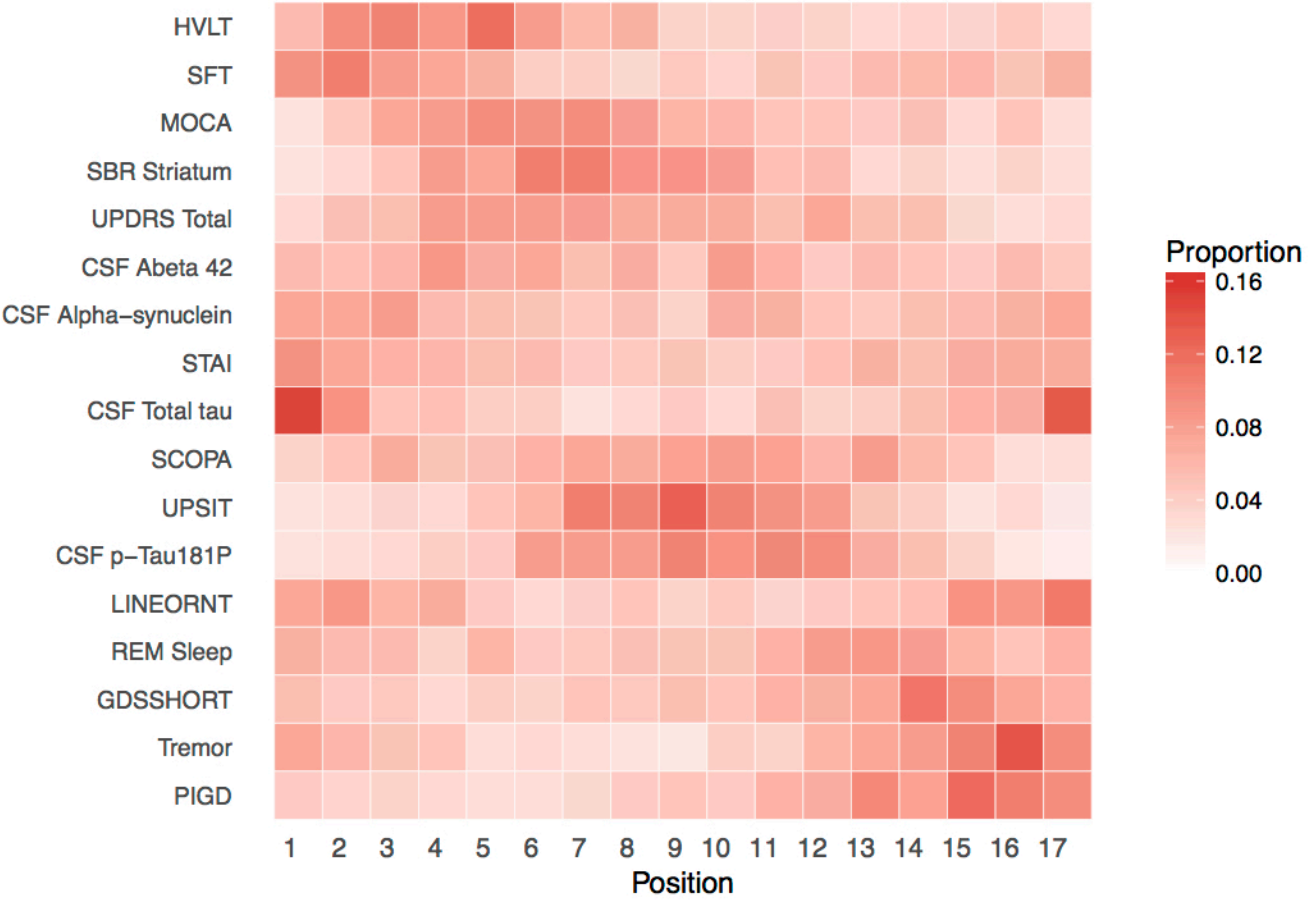

UPSIT
UPDRS Total
Tremor
STAI
SFT
SCOPA
SBR Striatum
REM Sleep
PIGD
MOCA
LINEORNT
HVLT
GDSSHORT
CSF Total tau
CSF p−Tau181P
CSF Alpha−synuclein
CSF Abeta 42
ρ
1.0
0.5
0.0
−0.5
−1.0


Population level predicted severity
1.00
0.75
0.50
0.25
0.00
40
60
80
Age
Outcome
SCOPA
LINEORNT
SBR Striatum
CSF Abeta 42
UPDRS Total
CSF p−Tau181P
UPSIT
HVLT
MOCA
STAI
SFT
REM Sleep
PIGD
CSF Alpha−synuclein
GDSSHORT
Tremor
CSF Total tau


1.00
0.75
0.50
0.25
0.00
Population level predicted severity
40
60
80
Age
Outcome
SCOPA
SBR Striatum
UPDRS I
UPSIT
UPDRS III
UPDRS II
REM Sleep
Tremor
CSF Alpha−synuclein


SCOPA
LINEORNT
SBR Striatum
UPDRS Total
CSF Abeta 42
CSF p−Tau181P
UPSIT
HVLT
MOCA
STAI
SFT
REM Sleep
PIGD
CSF Alpha−synuclein
GDSSHORT
Tremor
CSF Total tau
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Position
Proportion
1.00
0.75
0.50
0.25
0.00


SFT
HVLT
MOCA
UPSIT
CSF Abeta 42
SBR Striatum
UPDRS Total
SCOPA
CSF Alpha−synuclein
CSF p−Tau181P
REM Sleep
STAI
GDSSHORT
LINEORNT
PIGD
Tremor
CSF Total tau
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Position
Proportion
1.00
0.75
0.50
0.25
0.00


HVLT
SFT
MOCA
SBR Striatum
UPDRS Total
CSF Abeta 42
CSF Alpha−synuclein
STAI
CSF Total tau
SCOPA
UPSIT
CSF p−Tau181P
LINEORNT
REM Sleep
GDSSHORT
Tremor
PIGD
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Position
Proportion
0.16
0.12
0.08
0.04
0.00