

## SUPPLEMENTAL MATERIAL

### *Laboratory methods for the quantification of the biomarkers other than F2-isoP*

The second oxidative stress biomarker, 8-OHdG, was quantified on 20 mL urine samples collected on admission from each patient. If the patient had an in-dwelling catheter, the reservoir was emptied 30 min before the scheduled collection and then a 20 mL sample was collected. Urine was frozen within 1 hour at -80°C until the processing. The quantification of 8-OHdG was also adjusted for urinary creatinine (8-OHdG\_cr). The ORAC assay was quantified according to methods previously described.<sup>15</sup> Total ORAC (ORAC<sub>TOT</sub>) represents the antioxidant capacity of plasma; precipitation of plasma proteins by 0.5 M perchloric acid (ORAC<sub>PCA</sub>) in a 1:1 ratio with the sample reflects the antioxidant capacity of the remaining small molecular weight compounds. Blood samples for ORAC assay were kept on ice until centrifugation and wrapped in foil to protect them from light. Samples were centrifuged at 13,000 rpm using a microplate centrifuge for 15 min and frozen at -80°C prior to processing.

Blood samples for MMPs were collected into 10 cc EDTA tubes, placed on water ice and immediately centrifuged at 1500 rpm for 15 min within 1 h of the blood draw; plasma was then isolated and frozen at -80 °C for later measurement. Levels of MMPs were analyzed using a commercially available enzyme-linked immunosorbent assay (ELISA) (Human MMP-9 Quantikine ELISA Kit, R&D systems, #DMP900). ELISA was performed according to the manufacturer's instructions. Blood collected in 5 mL red-top tubes drawn at baseline and 48 hours were used for sampling hs-CRP. Plasma was separated by centrifugation at 3000 rpm for 15 min and stored at -80°C until measurement. The analysis of hs-CRP was performed with a latex-enhanced turbidimetric immunoassay using polyclonal rabbit antibody.

Supplemental Table I. Multivariable binary logistic regression analysis for infarct growth (IG) including the time interval stroke onset-to-blood draw

	OR (95% CI)	P-value
lnF2-isoP	3.31 (1.49-7.34)	0.003
Age	0.99 (0.97-1.03)	0.997
Gender	0.40 (0.16-0.98)	0.045
NIHSS	1.11 (1.01-1.23)	0.03
IV t-PA	0.42 (0.17-1.02)	0.09
Prior TIA	0.21 (0.06-0.83)	0.03
Diabetes mellitus	0.79 (0.19-3.23)	0.74
Statin	4.04 (1.40-11.69)	0.01
Vitamin supplement	0.56 (0.19-1.64)	0.29
Glucose	1.01 (0.10-1.02)	0.87
lnDWIV	1.14 (0.79-1.66)	0.48
Stroke onset-to-blood draw	0.999 (0.995-1.002)	0.41

IV=intravenous; t-PA=tissue plasminogen activator; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack

Supplemental Table II. Multivariable linear logistic regression analysis for infarct growth volume (IGV) including the time interval stroke onset-to-blood draw

	B (95% CI)	P-value
lnF2-isoP	0.44 (0.04, 0.85)	0.03
Age	-0.0001 (-0.02, 0.019)	0.995
Gender	0.05 (-0.48, 0.58)	0.85
NIHSS	0.04 (-0.01, 0.10)	0.14
IV t-PA	-0.09 (-0.62, 0.44)	0.74
Prior TIA	0.34 (-1.16, 1.85)	0.65
Diabetes mellitus	0.34 (-0.36, 1.03)	0.34
Glucose	-0.003 (-0.008, 0.003)	0.38
lnDWIV	0.54 (0.28, 0.79)	<0.001
ln_Mismatch V	0.08 (-0.10, 0.26)	0.36
Stroke onset-to-blood draw	-0.00007 (-0.002, 0.002)	0.94

IV=intravenous; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack; t-PA=tissue plasminogen activator.

Supplemental Table III. Multivariable binary logistic regression analysis for infarct growth (IG) including the time interval stroke onset-to-imaging and imaging-to-blood draw

	OR (95% CI)	P-value
lnF2-isoP	3.541 (1.56-8.04)	0.003
Age	0.99 (0.97-1.03)	0.84
Gender	0.42 (0.17-1.03)	0.06
NIHSS	1.11 (1.01-1.22)	0.035
IV t-PA	0.37 (0.14-0.94)	0.036
Prior TIA	0.20 (0.05-0.89)	0.02
Diabetes mellitus	0.71 (0.17-3.00)	0.64
Statin	4.55 (1.51-13.71)	0.007
Vitamin supplement	0.61 (0.19-1.84)	0.38
Glucose	1.01 (0.10-1.02)	0.07
lnDWIV	1.20 (0.82-1.75)	0.36
Stroke onset-to-imaging	0.998 (0.994-1.001)	0.13
Imaging-to-blood draw	0.999 (0.996-1.002)	0.63

IV=intravenous; t-PA=tissue plasminogen activator; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack

Supplemental Table IV. Multivariable linear logistic regression analysis for infarct growth volume (IGV) including the time interval stroke onset-to-imaging and imaging-to-blood draw

	B (95% CI)	P-value
lnF2-isoP	0.45 (0.04, 0.86)	0.03
Age	-0.001 (-0.02, 0.02)	0.94
Gender	0.09 (-0.45, 0.63)	0.74

NIHSS	0.04 (-0.02, 0.10)	0.17
IV t-PA	-0.04 (-0.58, 0.49)	0.87
Prior TIA	0.23 (-1.28, 1.74)	0.76
Diabetes mellitus	0.36 (-0.37, 1.83)	0.33
Glucose	-0.002 (-0.008, 0.003)	0.42
lnDWIV	0.54 (0.28, 0.80)	<0.001
ln_Mismatch V	0.07 (-0.10, 0.26)	0.42
Stroke onset-to-imaging	-0.00007 (-0.001, 0.002)	0.91
Imaging-to-blood draw	0.001 (-0.001, 0.003)	0.37

IV=Intravenous; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack; t-PA=tissue plasminogen activator.

Supplemental Table V. Multivariable binary logistic regression analysis for infarct growth (IG) including any ICH.

	OR (95% CI)	P-value
lnF2-isoP	2.79 (1.35-5.79)	0.006
Age	0.99 (0.96-1.02)	0.40
Gender	0.45 (0.19-1.10)	0.08
NIHSS	1.12 (1.02-1.23)	0.02
IV t-PA	0.44 (0.18-1.04)	0.05
Prior TIA	0.20 (0.05-0.76)	0.02
Diabetes mellitus	0.86 (0.22-3.44)	0.83
Statin	4.15 (1.44-11.93)	0.008
Vitamin supplement	0.55 (0.19-1.62)	0.28
Glucose	1.01 (0.10-1.02)	0.10
lnDWIV	1.10 (0.76-1.62)	0.61
Any ICH	2.18 (0.60-7.88)	0.24

ICH=intracerebral hemorrhage; IV=intravenous; t-PA=tissue plasminogen activator; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack

Supplemental Table VI. Multivariable linear logistic regression analysis for infarct growth volume (IGV) including any ICH

	B (95% CI)	P-value
lnF2-isoP	0.45 (0.05, 0.86)	0.03
Age	-0.001 (-0.020, 0.018)	0.93
Gender	0.07 (-0.45, 0.59)	0.79
NIHSS	0.04 (-0.02, 0.10)	0.16
IV t-PA	-0.07 (-0.58, 0.44)	0.78
Prior TIA	-0.37 (-1.11, 1.85)	0.62
Diabetes mellitus	0.35 (-0.35, 1.04)	0.32
Glucose	-0.003 (-0.008, 0.003)	0.35
lnDWIV	0.53 (0.28, 0.78)	<0.001
ln_Mismatch V	0.08 (-0.10, 0.25)	0.39
Any ICH	0.15 (-0.50, 0.79)	0.65

ICH=intracerebral haemorrhage; IV=Intravenous; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack; t-PA=tissue plasminogen activator.

Supplemental Table VII. Multivariable binary logistic regression analysis for infarct growth (IG) including new brain infarct.

	OR (95% CI)	P-value
lnF2-isoP	2.72 (1.33-5.58)	0.006
Age	0.99 (0.96-1.02)	0.46
Gender	0.45 (0.19-1.10)	0.08
NIHSS	1.12 (1.02-1.23)	0.02
IV t-PA	0.40 (0.17-0.97)	0.042
Prior TIA	0.19 (0.05-0.71)	0.01
Diabetes mellitus	0.92 (0.23-3.74)	0.90
Statin	3.87 (1.34-11.14)	0.012
Vitamin supplement	0.54 (0.18-1.61)	0.27
Glucose	1.01 (0.10-1.02)	0.12
lnDWIV	1.13 (0.78-1.65)	0.52
New brain infarct	0.64 (0.18-2.24)	0.48

IV=intravenous; t-PA=tissue plasminogen activator; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack

Supplemental Table VIII. Multivariable linear logistic regression analysis for infarct growth volume (IGV) including new brain infarct

	B (95% CI)	P-value
lnF2-isoP	0.43 (0.03, 0.84)	0.036
Age	-0.001 (-0.02, 0.019)	0.98
Gender	0.06 (-0.46, 0.58)	0.82
NIHSS	0.04 (-0.02, 0.10)	0.15
IV t-PA	-0.08 (-0.60, 0.43)	0.75
Prior TIA	-0.35 (-1.13, 1.82)	0.64
Diabetes mellitus	0.33 (-0.36, 1.03)	0.34
Glucose	-0.002 (-0.008, 0.003)	0.39
lnDWIV	0.54 (0.29, 0.80)	<0.001
ln_Mismatch V	0.08 (-0.10, 0.26)	0.37
New brain infarct	0.11 (-0.67, 0.89)	0.78

IV=Intravenous; lnDWIV=natural logarithm of diffusion weighted imaging volume; lnF2-isoP=natural logarithm of F2-isoprostane; NIHSS=National Institutes of Health Stroke Scale; TIA=transient ischemic attack; t-PA=tissue plasminogen activator.