Supplementary table 1 HPLC conditions for analytes

Analytes	Elute condition	Injection volume	Run time
8-oxodGuo and 8-oxoGuo in urine	0-1.8 min: 5% B, 0.3ml/min; 1.8-2.0 min: 20% B, 0.3ml/min; 2.0-3.0 min: 5% B, 0.3ml/min.	2 μl	3 min

Supplementary table 2 Effects of variables on urinary 8-oxodGuo and 8-oxoGuo by ordinal regression

| Oxidation markers	Variables	OR (95% CI)	p
8-oxodGuo			
All	Age	1.03 (1.02-1.04)	<0.001
Healthy controls	Age	1.05 (1.04-1.06)	<0.001
8-oxoGuo			
All	Age	1.07 (1.06-1.08)	<0.001
	Glucose	1.12 (1.08-1.17)	<0.001
Healthy controls	Age	1.09 (1.07-1.10)	<0.001
Type 2 diabetes	Age	1.05 (1.03-1.06)	<0.001
	Glucose	1.07 (1.01-1.12)	0.013

OR, odds ratio; CI, confidence interval.

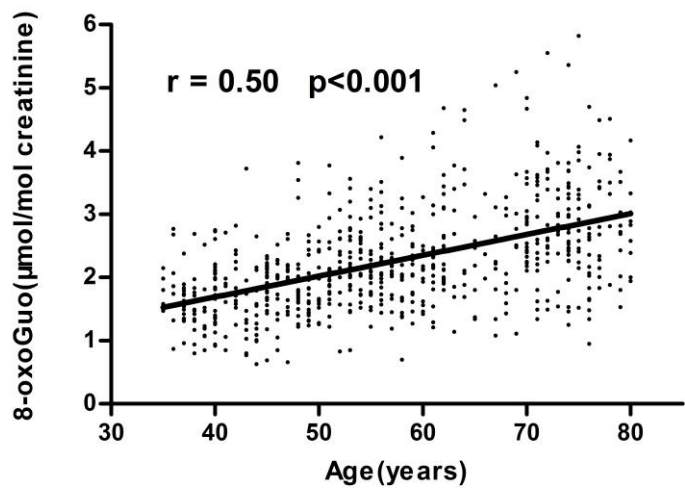8-oxodGuo and 8-oxoGuo are categorized into four groups according to their quartiles respectively.
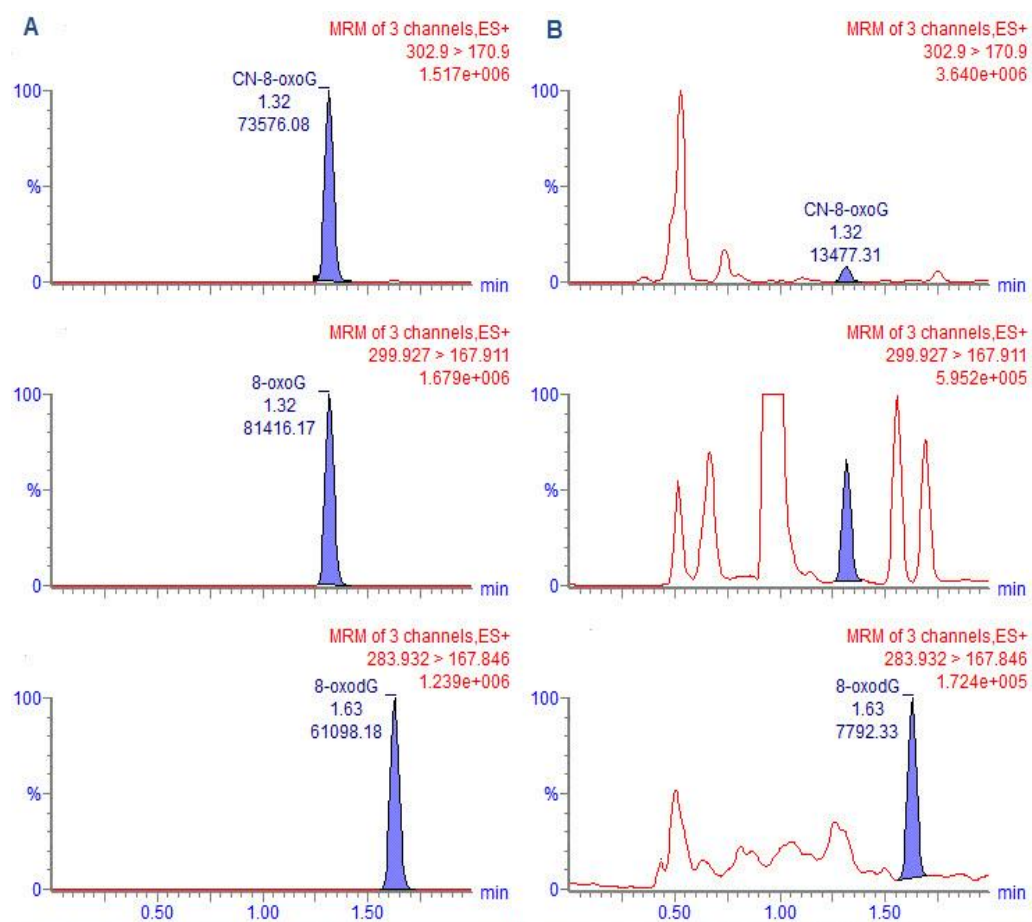
Supplementary figure 1 UPLC-MS/MS chromatograms. (A) Standard of CN-8-oxoG, 8-oxoGuo and 8-oxodGuo. (B) Human urine sample. CN-8-oxoG: $[^{15}N_2{}^{13}C_1]$8-oxoGuo, the internal standard for 8-oxoGuo. 8-oxodGuo and 8-oxoGuo were eluted at 1.63 and 1.32 minutes respectively.

A.
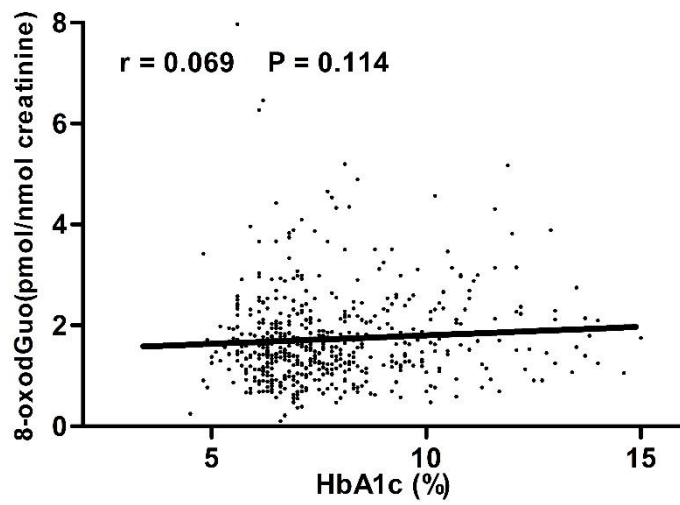

B.
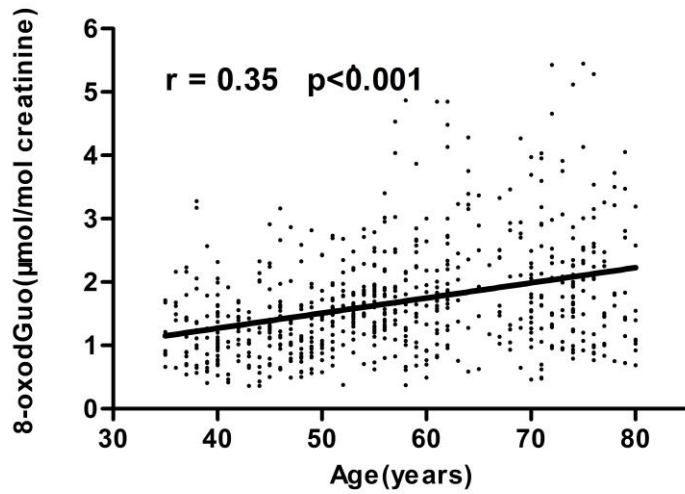
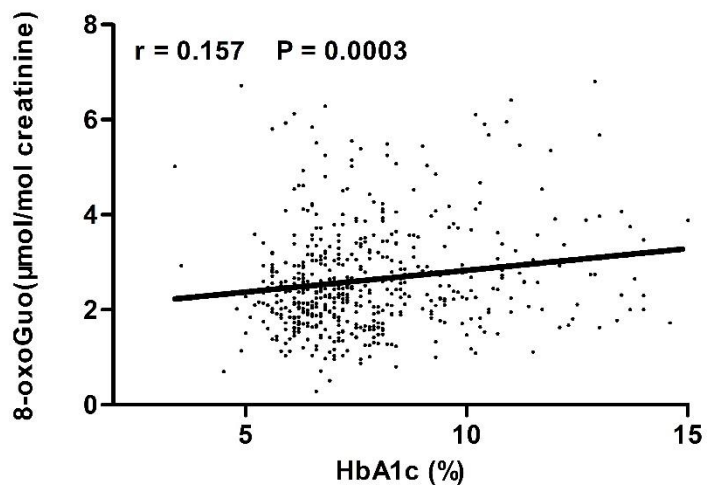**Supplementary figure 2 Correlation of nucleic acid oxidation with age in healthy controls.** (A) Correlation of urinary 8-oxodGuo (μmol/mol creatinine) levels with age in healthy controls (r=0.35, p<0.001, n=683). (B) Correlation of urinary 8-oxoGuo (μmol/mol creatinine) levels with age in healthy controls (r=0.50, p<0.001, n=683).
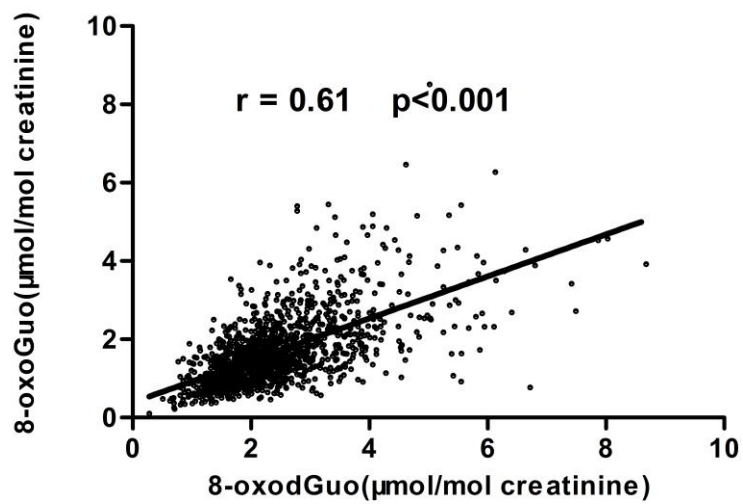
A.

B.

Supplementary figure 3 Correlations between urinary biomarkers and HbA1c in patients with type 2 diabetes. (A) Between 8-oxodGuo and HbA1c.   (B) Between 8-oxoGuo and HbA1c.

Supplementary figure 4 Correlation of urinary 8-oxodGuo with 8-oxoGuo.

Urinary levels of 8-oxodGuo and 8-oxoGuo in all the healthy controls and diabetes patients from 31 to 80 years (r=0.61, p<0.001, n=1316).