Supplementary table 1 – Sperm parameters of the donors participating in this study.

Parameter	**Mean ± ESM**	**Median (range)**
Volume (ml)	2.9 ± 0.4	2.5 (0.8-8)
Sperm concentration (10^6 cells/ml)	232.7 ± 47.6	193.5 (15.6-829.8)
Total sperm count	609.6 ± 114.2	514.4 (93.9-2074.5)
Progressive motility	67 ± 3	65 (41-91)
Total motility	79 ± 3	77 (54-96)
Distance curved line (DCL; µm)	31.6 ± 0.9	31.8 (22.1-38.5)
Distance average path (DAP; µm)	21.8 ± 0.5	21.5 (16.6-28.5)
Distance straight line (DSL; µm)	17.2 ± 0.6	17.0 (12.2-25)
Curvilinear velocity (VCL; µm/sec)	71.2 ± 2.2	72.0 (51.1-88.2)
Average path velocity (VAP; µm/sec)	50.5 ± 1.7	49.2 (38.4-74.7)
Straight-line velocity (VSL; µm/sec)	38.9 ± 1.3	38.5 (29.6-55.7)
Linearity (LIN; VSL/VCL)	0.5 ± 0	0.5 (0.4-0.7)
Straightness (STR; VSL/VAP)	0.8 ± 0	0.8 (0.6-0.9)
Wobble (WOB; VAP/VCL)	0.7 ± 0	0.7 (0.6-0.8)
Beat cross frequency BCF (hertz)	26.7 ± 0.5	26.4 (24.1-32.1)
Amplitude of lateral head displacement ALH (µm)	2.1 ± 0.1	2.0 (1.5-2.7)
Average orientation change of the head (AOC; °)	22.9 ± 0.9	22.5 (15.5-31.9)

N=21

Supplementary table 2 – Protein candidates susceptible of redox-dependent modifications

Protein	Tyrosine nitration	S-Glutahionylation	Reference
Glycolitic enzymes			
glyceraldehyde 3-P dehydrogenase	✓	✓	(Gokulrangan *et al.* 2007; Lind *et al.* 2002; Fratelli *et al.* 2004)
enolase	✓		(Gokulrangan *et al.* 2007; Lind *et al.* 2002)
fructose 1,6 bi phosphate aldolase		✓	(Fratelli *et al.* 2004)
Krebs cycle enzymes			
aconitase	✓		(Gokulrangan *et al.* 2007; Lind *et al.* 2002)
α-ketoglutarate dehydrogenase	✓	✓	(Shi *et al.* 2011; Gokulrangan *et al.* 2007; Lind *et al.* 2002; Fratelli *et al.* 2004)
malate dehydrogenase	✓	✓	(Gokulrangan *et al.* 2007; Lind *et al.* 2002; Fratelli *et al.* 2004)
dihydro lipoamide dehydrogenase	✓		(Shi *et al.* 2011; Gokulrangan *et al.* 2007; Lind *et al.* 2002)
Structural proteins			
actin		✓	(Dalle-Donne *et al.* 2003; Pastore *et al.* 2003; Fratelli *et al.* 2004)
tubulin	✓	✓	(Landino *et al.* 2004)
Antioxidant enzymes			
PRDX1		✓	(Lind *et al.* 2002)
PRDX6		✓	(Noguera-Mazon *et al.* 2006)
Other enzymes			
Metalloproteinase-9	✓		(Wang *et al.* 2011)