

# Platelet Mitochondrial Respiration, Endogenous Coenzyme Q<sub>10</sub> and Oxidative Stress in Patients with Chronic Kidney Disease

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## Supplementary Material

**Table 1.** Metabolic parameters of human volunteers and groups of CKD patients.

<b>Table S1a.</b>		<b>Kidney parameters of human volunteers and groups of CKD patients</b>			
<b>Kidney</b>		<b>Control</b>	<b>CKD-ALL</b>	<b>CKD+AH</b>	<b>CKD+AH+DM</b>
<b>eGFR</b> (mL·s <sup>-1</sup> ·1.73m <sup>-2</sup> )	<b>mean</b>	<b>1.328</b>	<b>0.578</b>	<b>0.574</b>	<b>0.583</b>
	<b>stdev P</b>	0.239	0.220	0.211	0.234
	<b>sem</b>	<b>0.069</b>	<b>0.043</b>	<b>0.053</b>	<b>0.074</b>
	<b>n</b>	12	26	16	10
	<b>P vs Control</b>		<b>0.000000</b>	<b>0.000003</b>	<b>0.000001</b>
<b>Creatinine</b> (μmol.L <sup>-1</sup> )	<b>mean</b>	<b>70.7</b>	<b>194.3</b>	<b>198.5</b>	<b>187.3</b>
	<b>stdev P</b>	17.7	88.2	80.9	99.0
	<b>sem</b>	<b>5.10</b>	<b>16.98</b>	<b>19.62</b>	<b>31.32</b>
	<b>n</b>	12	27	17	10
	<b>P vs Control</b>		<b>0.00004</b>	<b>0.00002</b>	<b>0.0011</b>
<b>Uric acid</b> (μmol.L <sup>-1</sup> )	<b>mean</b>	<b>287.4</b>	<b>370.8</b>	<b>346.8</b>	<b>409.2</b>
	<b>stdev P</b>	45.5	127.7	103.5	151.4
	<b>sem</b>	<b>13.7</b>	<b>25.05</b>	<b>25.86</b>	<b>47.86</b>
	<b>n</b>	11	26	16	10
	<b>P vs Control</b>		<b>0.048</b>	0.10	<b>0.026</b>
<b>Table S1b.</b>		<b>Blood parameters of human volunteers and all CKD patients</b>			
<b>Blood</b>		<b>Control</b>	<b>CKD-ALL</b>	<b>CKD+AH</b>	<b>CKD+AH+DM</b>
<b>Hgb</b> (g.L <sup>-1</sup> )	<b>mean</b>	<b>140.5</b>	<b>129.9</b>	<b>132.9</b>	<b>124.7</b>
	<b>stdev P</b>	7.6	22.8	19.9	26.2
	<b>sem</b>	<b>2.2</b>	<b>4.38</b>	<b>4.82</b>	<b>8.28</b>

	<b>n</b>	12	27	17	10
	P vs Control		0.13	0.2	0.072
<b>CRP</b> (g.L <sup>-1</sup> )	<b>mean</b>	<b>1.729</b>	<b>7.213</b>	<b>6.800</b>	<b>7.833</b>
	<b>stdev P</b>	0.918	6.317	5.560	7.262
	<b>sem</b>	<b>0.277</b>	<b>1.263</b>	<b>1.436</b>	<b>2.296</b>
	<b>n</b>	11	25	15	10
	P vs Control		<b>0.0003</b>	<b>0.008</b>	<b>0.017</b>
<b>Glucose</b> (mmol.L <sup>-1</sup> )	<b>mean</b>	<b>5.783</b>	<b>6.19</b>	<b>5.794</b>	<b>6.870</b>
	<b>stdev P</b>	0.574	1.82	0.980	2.565
	<b>sem</b>	<b>0.166</b>	<b>0.35</b>	<b>0.238</b>	<b>0.811</b>
	<b>n</b>	12	27	17	10
	P vs Control		0.5	1.0	0.2

**Table S1c. Lipids parameters of human volunteers and all CKD patients**

<b>Lipids</b>		<b>Control</b>	<b>CKD-ALL</b>	<b>CKD+AH</b>	<b>CKD+AH+DM</b>
<b>TAG</b> (mmol.L <sup>-1</sup> )	<b>mean</b>	<b>1.16</b>	<b>1.78</b>	<b>1.71</b>	<b>1.92</b>
	<b>stdev P</b>	0.37	0.89	0.83	0.98
	<b>sem</b>	<b>0.12</b>	<b>0.18</b>	<b>0.21</b>	<b>0.35</b>
	<b>n</b>	9	24	16	8
	P vs Control		0.057	0.081	0.062
<b>LDL-Chol</b> (mmol.L <sup>-1</sup> )	<b>mean</b>	<b>3.750</b>	<b>3.55</b>	<b>3.50</b>	<b>3.651</b>
	<b>stdev P</b>	0.397	1.01	1.03	0.950
	<b>sem</b>	<b>0.132</b>	<b>0.21</b>	<b>0.26</b>	<b>0.336</b>
	<b>n</b>	9	24	16	8
	P vs Control		0.6	0.5	0.8
<b>HDL-Chol</b> (mmol.L <sup>-1</sup> )	<b>mean</b>	<b>1.50</b>	<b>1.31</b>	<b>1.33</b>	<b>1.27</b>
	<b>stdev P</b>	0.23	0.34	0.35	0.31
	<b>sem</b>	<b>0.07</b>	<b>0.07</b>	<b>0.09</b>	<b>0.10</b>
	<b>n</b>	10	25	16	9
	P vs Control		0.12	0.2	0.10
<b>Chol-Total</b> (mmol.L <sup>-1</sup> )	<b>mean</b>	<b>5.70</b>	<b>5.55</b>	<b>5.30</b>	<b>6.00</b>
	<b>stdev P</b>	0.45	1.54	1.40	1.67
	<b>sem</b>	<b>0.15</b>	<b>0.31</b>	<b>0.35</b>	<b>0.56</b>
	<b>n</b>	9	25	16	9
	P vs Control		0.8	0.4	0.6

**Table S1d. Liver parameters of human volunteers and all CKD patients**

<b>Liver</b>		<b>Control</b>	<b>CKD-ALL</b>	<b>CKD+AH</b>	<b>CKD+AH+DM</b>
<b>AST</b> (kat.L <sup>-1</sup> )		<b>0.371</b>	<b>0.405</b>	<b>0.393</b>	<b>0.421</b>
	<b>stdev P</b>	0.099	0.177	0.132	0.222
	<b>sem</b>	<b>0.028</b>	<b>0.037</b>	<b>0.037</b>	<b>0.070</b>

	<b>n</b>	12	23	13	10
	P vs Control		0.5	0.7	0.5
<b>ALP</b>	<b>mean</b>	<b>0.297</b>	<b>0.863</b>	<b>0.930</b>	<b>0.756</b>
(kat.L <sup>-1</sup> )	<b>stdev P</b>	0.060	0.757	0.812	0.645
	<b>sem</b>	<b>0.017</b>	<b>0.148</b>	<b>0.203</b>	<b>0.204</b>
	<b>n</b>	12	26	16	10
	P vs Control		<b>0.001</b>	<b>0.015</b>	<b>0.030</b>
<b>GMT</b>	<b>mean</b>	<b>0.751</b>	<b>0.530</b>	<b>0.505</b>	<b>0.566</b>
(kat.L <sup>-1</sup> )	<b>stdev P</b>	0.367	0.332	0.317	0.350
	<b>sem</b>	<b>0.130</b>	<b>0.066</b>	<b>0.082</b>	<b>0.111</b>
	<b>n</b>	8	25	15	10
	P vs Control		0.13	0.12	0.32

**Table S2.** Platelet mitochondrial function in control subjects and groups of CKD patients.

		<b>O2 flux (pmol·s<sup>-1</sup>·10<sup>-6</sup> cells)</b>			
		<b>Control</b>	<b>CKD-ALL</b>	<b>CKD+AH</b>	<b>CKD+AH+DM</b>
<b>ce1</b>	<b>mean</b>	0.245	0.230	0.233	0.246
	<b>stdev P</b>	0.067	0.058	0.064	0.041
	<b>sem</b>	0.019	0.011	0.016	0.014
	<b>n</b>	12	26	17	9
<b>1PM</b>	<b>mean</b>	0.052	0.045	0.042	0.056
	<b>stdev P</b>	0.038	0.022	0.019	0.022
	<b>sem</b>	0.011	0.004	0.005	0.007
	<b>n</b>	12	27	17	10
<b>2D</b>	<b>mean</b>	0.204	0.218	0.214	0.252
	<b>stdev P</b>	0.124	0.101	0.106	0.090
	<b>sem</b>	0.036	0.019	0.026	0.029
	<b>n</b>	12	27	17	10
<b>2c</b>	<b>mean</b>	0.202	0.227	0.225	0.257
	<b>stdev P</b>	0.115	0.101	0.107	0.086
	<b>sem</b>	0.033	0.020	0.027	0.027
	<b>n</b>	12	26	16	10
<b>3U</b>	<b>mean</b>	0.233	0.258	0.255	0.291
	<b>stdev P</b>	0.134	0.105	0.106	0.092
	<b>sem</b>	0.039	0.020	0.026	0.029
	<b>n</b>	12	27	17	10
<b>4G</b>	<b>mean</b>	0.284	0.302	0.299	0.339
	<b>stdev P</b>	0.157	0.135	0.142	0.118
	<b>sem</b>	0.047	0.026	0.034	0.037
	<b>n</b>	11	27	17	10
<b>5S</b>	<b>mean</b>	0.772	0.767	0.770	0.831
	<b>stdev P</b>	0.188	0.209	0.238	0.186
	<b>sem</b>	0.057	0.040	0.058	0.059
	<b>n</b>	11	27	17	10
<b>6Rot</b>	<b>mean</b>	0.545	0.541	0.539	0.586
	<b>stdev P</b>	0.108	0.133	0.140	0.150
	<b>sem</b>	0.031	0.026	0.034	0.048
	<b>n</b>	12	27	17	10

**Table S3.** Endogenous CoQ<sub>10</sub>-TOTAL concentration in platelets, blood and plasma in control subjects and groups of CKD patients.

CoQ <sub>10</sub> -TOTAL		Control	CKD-ALL	CKD+AH	CKD+AH+DM
<b>Platelets</b>					
(pmol.10 <sup>-9</sup> cells)	<b>mean</b>	156.1	115.7	100.7	133.4
	<b>stdev P</b>	24.78	43.70	29.56	37.80
	<b>sem</b>	7.47	8.92	7.90	12.60
	<b>n</b>	11	24	14	9
	P vs Control		<b>0.009</b>	<b>0.00008</b>	0.14
<b>Blood</b>					
(μmol.L <sup>-1</sup> )	<b>mean</b>	0.277	0.226	0.210	0.241
	<b>stdev P</b>	0.131	0.06	0.066	0.013
	<b>sem</b>	0.038	0.013	0.018	0.005
	<b>n</b>	11	22	14	7
	P vs Control		0.14	0.12	0.51
<b>Plasma</b>					
(μmol.L <sup>-1</sup> )	<b>mean</b>	0.398	0.278	0.268	0.285
	<b>stdev P</b>	0.143	0.092	0.097	0.064
	<b>sem</b>	0.043	0.021	0.026	0.029
	<b>n</b>	11	20	14	5
	P vs Control		<b>0.010</b>	<b>0.016</b>	0.13

**Table S4.** Physical parameters of human volunteers and groups of CKD patients.

		Control	CKD-ALL	CKD+AH	CKD+AH+DM
<b>Age</b> (years)	<b>mean</b>	<b>67.8</b>	<b>58.3</b>	<b>54.9</b>	<b>64.0</b>
	<b>stdev P</b>	7.1	8.7	9.1	3.6
	<b>sem</b>	<b>2.0</b>	<b>1.68</b>	<b>2.20</b>	<b>1.13</b>
	<b>n</b>	12	27	17	10
	P vs Control		<b>0.002</b>	<b>0.0005</b>	0.15
<b>BMI</b> (kg.m <sup>-2</sup> )	<b>mean</b>	<b>23.9</b>	<b>27.4</b>	<b>26.9</b>	<b>28.3</b>
	<b>stdev P</b>	1.8	5.8	5.7	5.7
	<b>sem</b>	<b>0.6</b>	<b>1.11</b>	<b>1.39</b>	<b>1.79</b>
	<b>n</b>	10	27	17	10
	P vs Control		0.077	0.14	<b>0.040</b>