SUPPLEMENT

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Supplementary materials contain information on chemical structure of the metilin peptide (Fig. S1), analytical HPLC data on metilin (Fig. S2), chemical shifts (δ, ppm) of the metilin proton signals obtained from ^{1}H-NMR spectra (Table S1), results of mass spectroscopic study (Fig. S3) and recording of representative experiments on mitochondrial respiration in saponin-skinned myocardia LV fibers (Fig. S4).

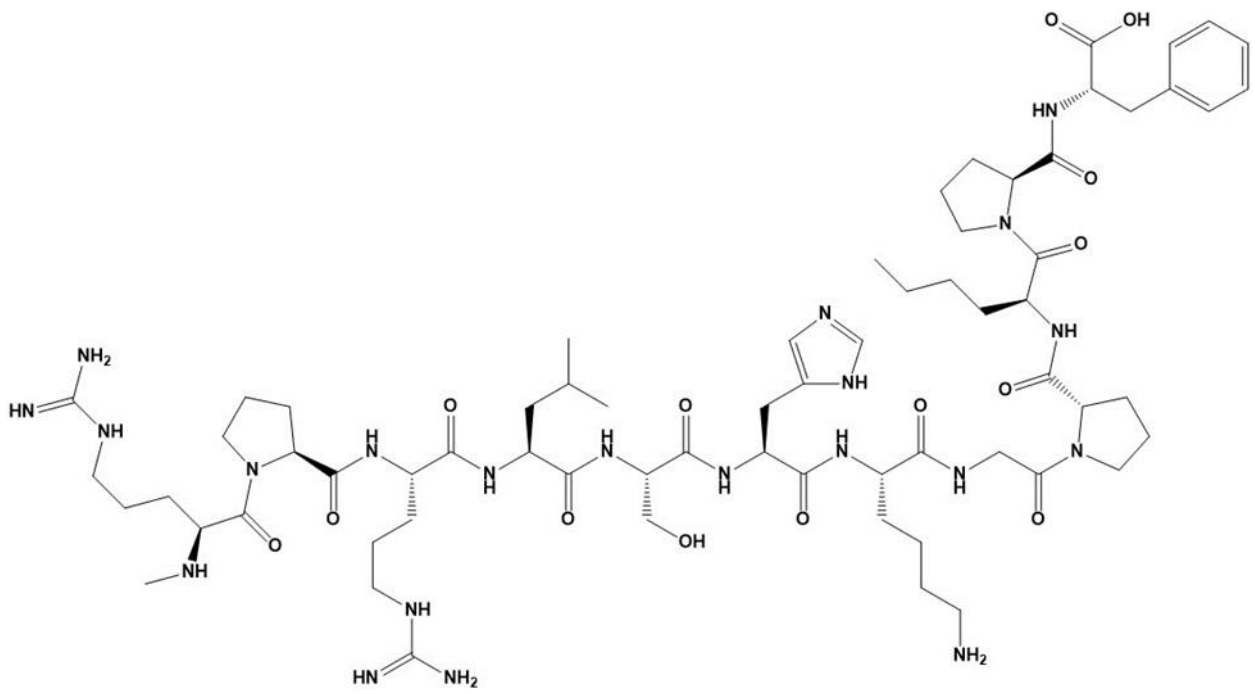

Figure S1. Chemical structure of metilin.

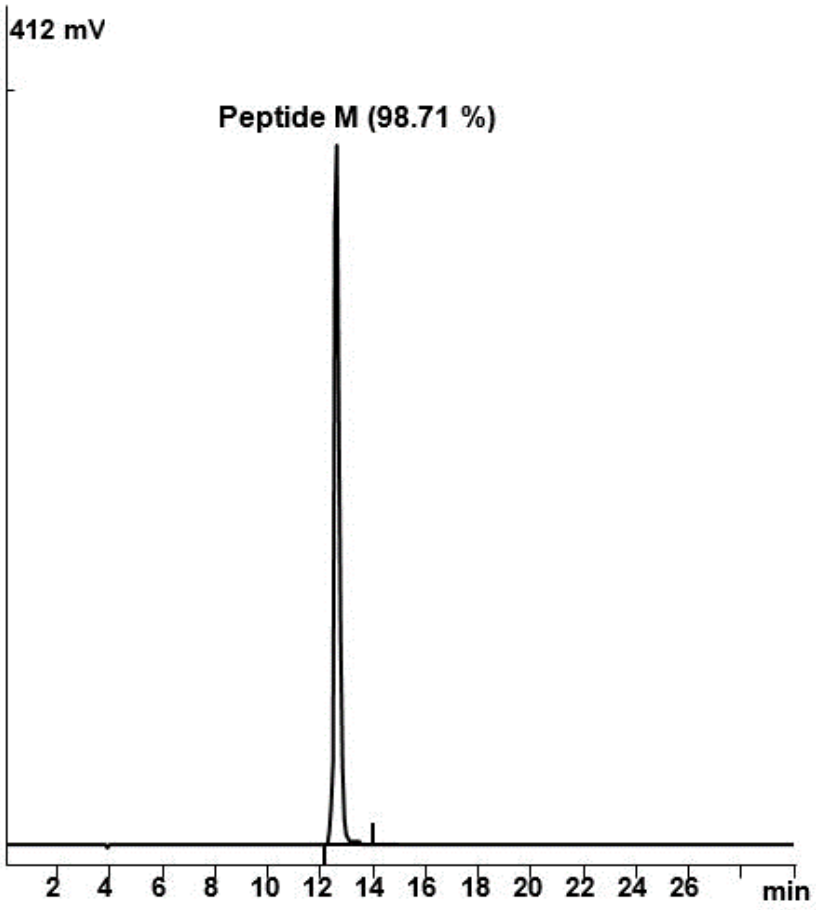

Figure S2. The analytical HPLC of metilin (peptide M) on a Diasphere-110-5 C18 column (4.0 × 250 mm), the size of sorbent particles was 5 μm; Buffer A: 0.05 M KH_2PO_4, pH 3.0; buffer B: 70% acetonitrile in buffer A were used as eluents. The column was eluted at a f low rate of 0.75 ml/min with a concentration gradient of buffer B in buffer A from 20 to 80% within 30 min at 220 nm.

Table S1. Chemical shifts (δ, ppm) of the signals of metilin protons in DMSO-d6 at 300 K.

	$N^{\alpha}H$	$C^{\alpha}H$	$C^{\beta}H$	$C^{\gamma}H$	$C^{\delta}H$	Other
Arg1	8.92, 8.78	4.22	1.78, 1.52			$N^{\alpha}Me$ – 2.52
Pro2	-	4.46	2.14, 1.78	1.87	3.45, 3.72	
Arg3	8.31	4.21	1.77, 1.52			
Leu4	7.78	4.39	1.54, 1.41		0.85, 0.82	
Ser5	8.10	4.285	3.54, 3.758			
His6	8.3	4.59	3.10, 2.99			
Lys7	8.14	4.29	1.67, 1.52			
Gly8	8.19	3.98, 3.86				
Pro9	-	4.36	2.01, 1.80	1.83	3.58, 3.46	
Nle10	7.96	4.385	1.41			
Pro11	-	4.355	2.02, 1.80	1.83	3.58, 3.46	
Phe12	7.98	4.38	3.01, 2.91			

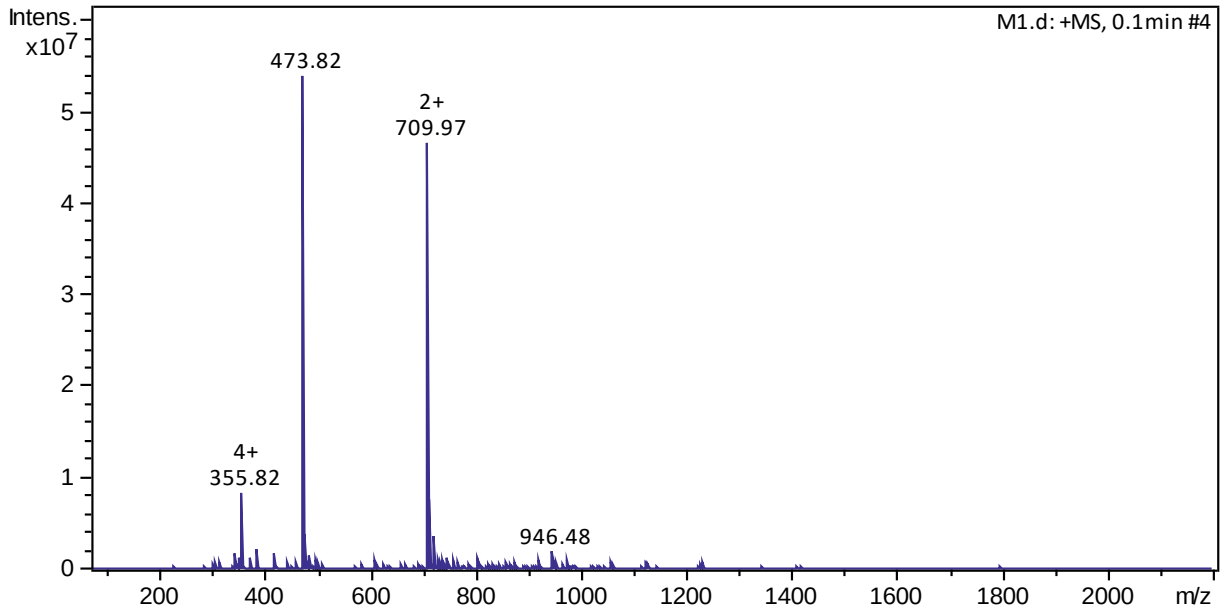

Figure S3. Mass spectrum of metilin was recorded on an Amazon "Bruker Daltonik GmbH" (Germany) device using the electrospray ionization method (ESI) in the mode of registration of positive ions (voltage on the capillary – 3500V). Mass scan range – m/z– 70 – 2200. We used a syringe injection of a sample dissolved in a mixture CH_3CN – H_2O. Nebulizing gas – nitrogen, interface temperature – 100 °C. $M_{calc.}$= 1418.72 g/mol for $C_{66}H_{107}N_{21}O_{14.}$

Calculated in series for metilin are given in the table below.

	$+6H^+$	$+5H^+$	$+4H^+$	$+3H^+$	$+2H^+$	$+H^+$
[M]	237.31	284.57	355.47	473.62	709.92	1418.84

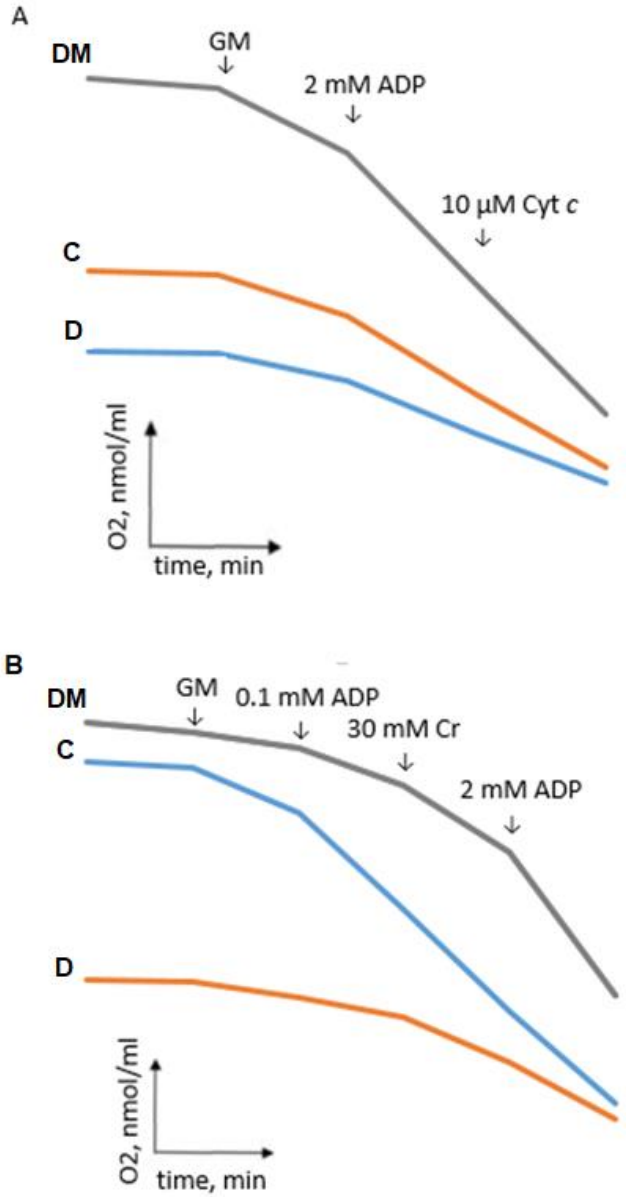

Figure S5. Representative traces of the respiratory protocols for the studied groups showing effects of metilin on state 3 (A) and Cr-dependent respiration (B). C, control; D, STZ; DM, STZ and metilin. GM, 10 mM glutamate and 5 mM malate.