

Erratum to: Co-regulation of mitochondrial respiration by proline dehydrogenase/oxidase and succinate

Chad N. Hancock¹ · Wei Liu¹ · W. Gregory Alvord² · James M. Phang¹

Published online: 13 February 2016
© Springer-Verlag Wien 2016

Erratum to: Amino Acids
DOI 10.1007/s00726-015-2134-7

In the original publication, the legend of Fig. 2d was wrongly published. The correct Fig. 2d is given below.

It should read:

- (Yellow symbol) POX + NAC 5 mM
- (Blue symbol) POX + NAC 10 mM

The online version of the original article can be found under doi:[10.1007/s00726-015-2134-7](https://doi.org/10.1007/s00726-015-2134-7).

✉ Chad N. Hancock
chad.hancock@nih.gov

✉ James M. Phang
phangj@mail.nih.gov

¹ Metabolism and Cancer Susceptibility Section, Basic Research Laboratory, Center for Cancer Research, National Cancer Institute, NCI-Frederick, 1050 Boyles Street, Bldg. 538, Rm. 144, Frederick, MD 21702-1201, USA

² Data Management Services, National Cancer Institute at Frederick, Frederick, MD 21702, USA

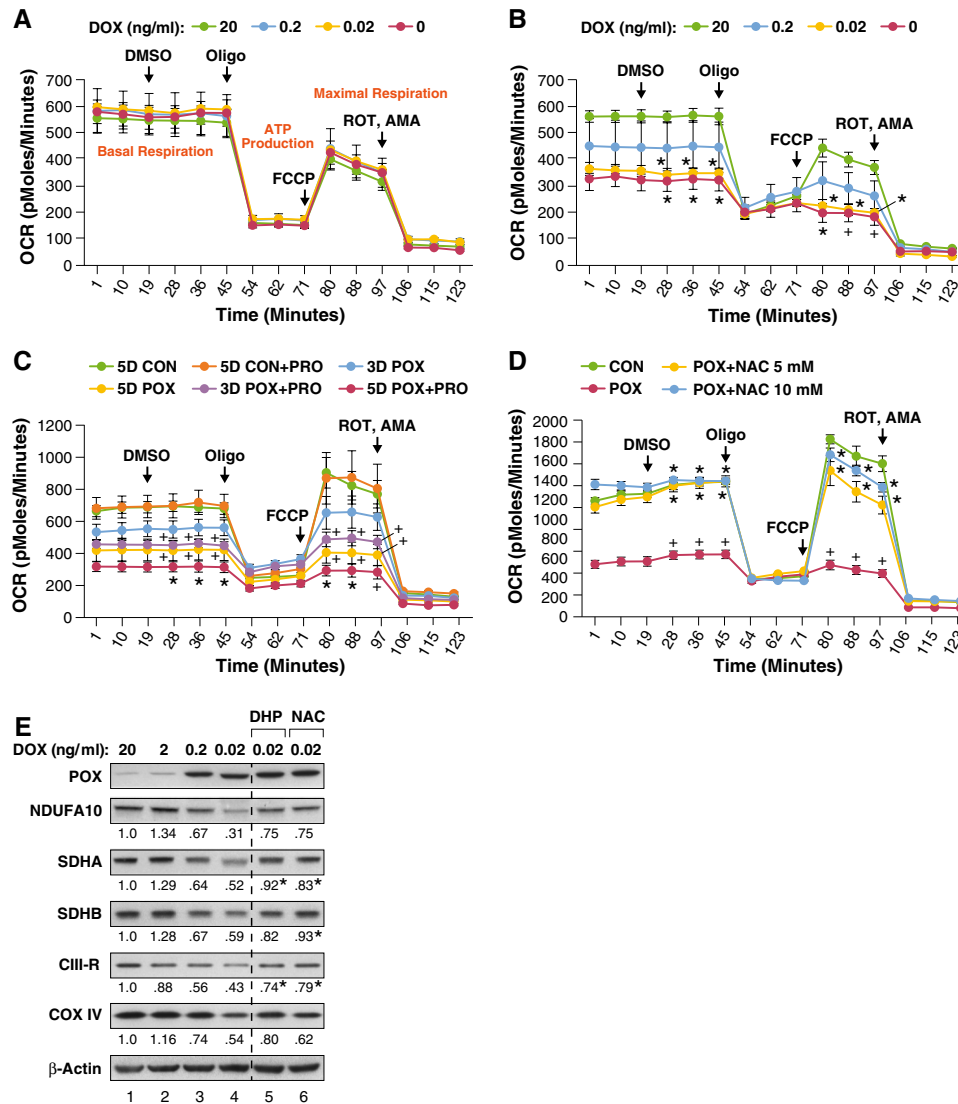


Fig. 2 Extended PRODH/POX ROS production decreases total respiratory fitness. Data for each time point represents mean \pm SEM ($n = 3$) for all panels. **a** DOX concentration does not affect respiration in DLD-VEC control cells. Cells grown for 48 h in the indicated concentration of DOX. Oxygen consumption rate (OCR) was measured and a cellular respiratory profile was established by the addition of 2.5 μ M DMSO, OLIGO, FCCP, and ROT/AMA at the indicated timepoints. **b** Increasing PRODH/POX expression correlates with lower cellular respiration. DLD-POX cells were grown in the indicated amount of DOX and oxygen consumption rate was analyzed as in (a). Values with DOX = 0.02 and 0.0 were compared to DOX = 20; * $p \leq 0.01$; + $p < 0.02$. **c** Prolonged PRODH/POX expression and addition of proline correlates with greater decreases in respiration. DLD-POX cells were grown in 0.2 ng/ml DOX to allow PRODH/POX expression for 3 days (3D POX) or 5 days (5D POX) alone or in media supplemented with 5 mM proline (3D POX + PRO and 5D POX + PRO). Respiration by these cells was compared to DLD-POX cells that had been grown for 5 days in 20 ng/ml DOX to suppress PRODH/POX expression, alone or in combination with 5 mM proline (5D CON and 5D CON + PRO, respectively). Oxygen consumption rate was measured and a respiratory profile established as described in (a). Values for 3D POX + PRO, 5D POX, and 5D POX + PRO were compared to 5D CON. + $p \leq 0.05$; * $p < 0.01$. **d** Inhibition of PRODH/POX-mediated ROS decreases effects on respiration. DLD-POX cells were grown for

48 h in either 20 ng/ml DOX (CON), or 0.2 ng/ml DOX alone (POX) or in combination with 5 or 10 mM of *N*-acetyl-L-cysteine (NAC). Oxygen consumption rate was measured and a respiratory profile established as described in (a). Compared to control, * $p < 0.001$; compared to POX, + $p < 0.01$. **e** PRODH/POX expression down-regulated ETC component proteins. DLD-POX cells were grown in the indicated ng/ml concentration of doxycycline (DOX) for 48 h, alone or in combination with 10 mM DHP or NAC. Whole cell lysates were harvested, and protein expression of subunits of Complex I (NDUFA10), Complex II (SDHA and SDHB), Complex III (CIII-R, Reiske Fe-S subunit), and Complex IV (COX IV) were analyzed by Western blotting. β -Actin was used as a protein loading control. The band intensities shown below each panel were quantified using Image Studio, normalized to β -actin control, and expressed as the level relative to untreated control (lane 1 20 ng/ml DOX). Values for DHP and NAC were compared to the mean \pm STD of the ratios for 0.2 ng/ml DOX (lane 3 e and lane 2, Fig. 5a) combined with those for 0.02 ng/ml DOX (lane 4 e) Although the DOX concentration for DHP and NAC treatment was 0.02 ng/ml DOX, the values at 0.02 ng/ml DOX were consistently lower than those at 0.2 ng/ml DOX. Thus, the values used represent a higher distribution for the PRODH/POX-mediated effect on ETC proteins. DHP and NAC increased the values of the ETC proteins, i.e., decreased the effect of PRODH/POX. *Value greater than 2 standard deviations of aforementioned distribution, denoting 95 % confidence limits