

## Description of Additional Supplementary Files

**File name:** Supplementary Data 1

**Description:** Fig. 7 | Inhibition kinetics of ATP against ALDH1A3. a Sigmoidal plots to determine IC<sub>50</sub> values. The ALDH1A3 activity was assayed in 50 mM HEPES, 5 mM DTT, pH 8.0, without MgCl<sub>2</sub> (blue curve) or including 30 mM MgCl<sub>2</sub> (red curve). Hexanal was used as a substrate at saturating concentration (250 μM). NAD<sup>+</sup> concentration was 24 μM in the absence of MgCl<sub>2</sub>, and 130 μM with 30 mM MgCl<sub>2</sub>. Experimental values with all replicate points are shown. n = 2, technical replicates for each ATP concentration (0.01-100 mM). b Michaelis-Menten plots fitted to the equation for mixed inhibition (Eq. 1). ATP concentrations (mM): 0.0 (empty circles), 2.0 (solid circles), 5.0 (empty squares) and 7.5 (solid squares). Hexanal was used as a substrate at a saturating concentration (250 μM). The values of kinetic parameters from this fit were: V<sub>max</sub> = 0.18 ± 0.01 U/mg; K<sub>m</sub> = 24 ± 2 μM; K<sub>i</sub> = 0.48 ± 0.08 mM; K<sub>i</sub>' = 1.68 ± 0.12 mM. Experimental values with all replicate points are shown. n = 3, technical replicates for each NAD<sup>+</sup> concentration (5-1000 μM). Parameter values are expressed as the calculated value ± standard error.