## **Description of Additional Supplementary Files**

File name: Supplementary Data 1

**Description:** Metabolites associated with cancer cachexia.

File name: Supplementary Data 2

**Description:** Candidate metabolites and concentration.

File name: Supplementary Data 3 **Description:** Altered genes of cancer.

File name: Supplementary Data 4

**Description:** Metabolism related oncogenes.

File name: Supplementary Data 5

**Description:** Gender, age, stage, primary tumor, BMI, weight change in the last 6 months, idh1

R132H mutation and serum D2HG (ng/ml) of cancer and cancer patients.

File name: Supplementary Data 6

**Description:** IDH1 alteration frequency.

File name: Supplementary Data 7

**Description:** D2HG induced gene alteration.

File name: Supplementary Data 8

**Description:** D2HG induced metabolites alteration in two sets of the experiment, and the common

altered metabolites.

File name: Supplementary Data 9

**Description:** D2HG induced gene alteration in two sets of the experiment, and the common altered

genes.

**File name:** Supplementary Data 10

**Description:** Significantly altered genes and metabolites of D2hgdh.

File name: Supplementary Data 11

**Description:** Significantly altered genes and metabolites of D2hgdh+D2HG vs. D2hgdh.

File name: Supplementary Data 12

**Description:** Significantly altered genes and metabolites of D2hghd + D2HG vs. D2HG.

**File name:** Supplementary Data 13

**Description:** Shared enriched and depleted genes of D2hgdh.

File name: Supplementary Data 14

**Description:** Shared enriched and depleted metabolites of D2hgdh.

**File name:** Supplementary Data 15 **Description:** Primers and oligos.

File name: Supplementary Data 16

**Description:** Metabolites and testing parameters.

**File name:** Supplementary Data 17

**Description:** All source data underlying the graphs and charts presented in the main figures.