

Metabolomics and the pig model reveal aberrant myocardial energy metabolism in metabolic syndrome

Authors: Maryam Karimi¹, Victoria Petkova², John M Asara², Michael J Griffin³, Frank W Sellke¹, Alan R Bishop⁴, Boian S Alexandrov⁴, Anny Usheva^{1, #}

Institution and Affiliations: ¹Division of Cardiothoracic Surgery, Department of Surgery, The Warren Alpert Medical School, Brown University, Providence, RI 02903; ²Beth Israel Deaconess Medical Center, Harvard Medical School, Boston MA 02115; ³Sam Houston State University, Proposed College of Osteopathic Medicine, Huntsville, TX 77320 ⁴Los Alamos National Laboratory, Los Alamos, NM 87545

TABLE S1 (related to Fig 2a) Metabolites that are overrepresented in LD vs MS as identified by UML based on the weight of the metabolite in the individual signatures. Probability in LD is higher than in MS (100 means MS, S3=0)

glyoxylate	NADH	fructose-1,6-bisphosphate
pyruvate	acetyl-CoA	NADPH
ribose-phosphate	succinyl-CoA	N-acetyl-glutamine
uridine	acetoacetate	Glucose-3-phosphate
glucose-1-phosphate	2-oxobutanoate	UDP
biotin	anthranilate	ATP
guanosine	glucose-6-phosphate	3-hydroxybutirate
7-methylguanosine	fructose-6-phosphate	Malonyl-CoA
AMP	FAD	glutathione glyoxylate

Figure S1 (related to Fig 4b) (a) Western blot with protein specific antibodies against IDH2, SDHB, FH, MAOB, GAPDH as shown on top of the panels. Each gel received total tissue lysate (50 μ g/lane) from four of the LD pigs (lanes 1, 2, 3, 4) and four of the MS pigs (5, 6, 7, 8). The migration position and the molecular mass of the protein that is recognized by the antibody is shown on left. (b) Ponceau staining of the membranes confirmed equal lysate loading and transfer.

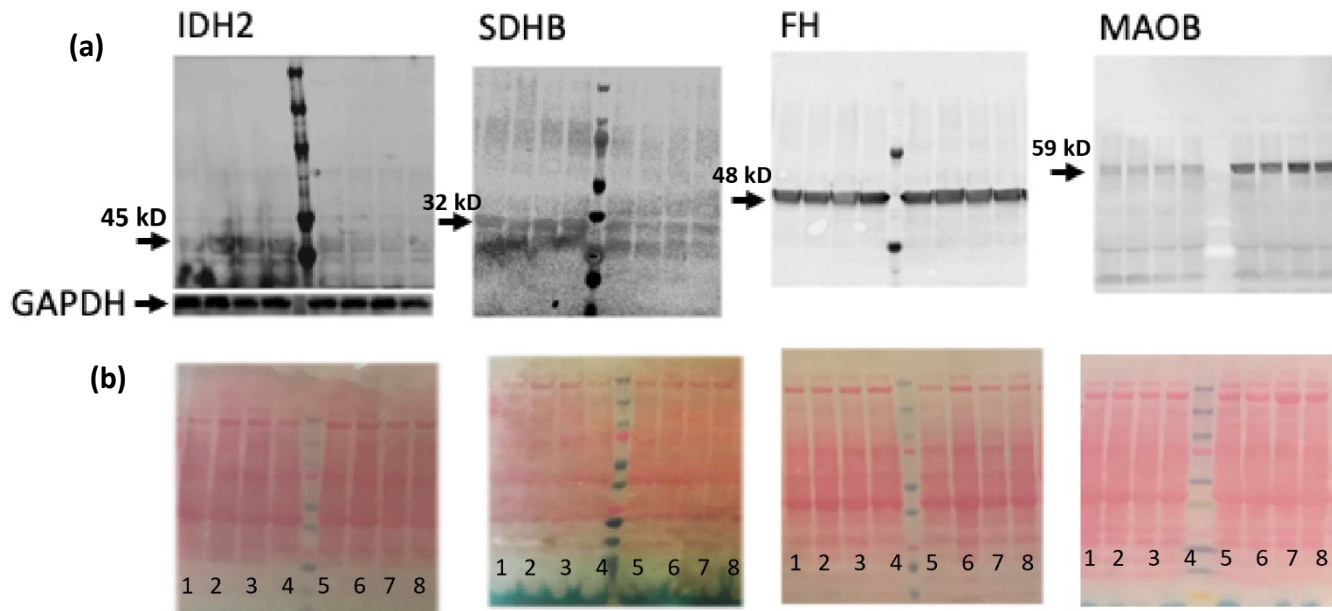


Figure S2 (related to Fig 4a) mRNA content of phenylalanine hydroxylase (*PAH*) (n=4, p=0.028) and Fumarylacetoacetase (*FAH*) (n=4, p=0.059)

