

Resource Summary Report

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Phenotypic Characterization of the Working Heart

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Proper Citation

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Protocol Information

URL: <https://dx.doi.org/10.17504/protocols.io.8a2hsge>

Authors: E. Dale Abel

Group: Diabetic Complications Consortium

Summary: Summary: This protocol describes the procedure used by the DiaComp for cardiac performance, oxygen consumption and substrate metabolic rates in isolated working mouse hearts. Diabetic Complication: References: 1. Belke, D.D., Larsen, T.S., Gibbs, E.M., Severson, D.L. 2001. Glucose metabolism in perfused mouse hearts overexpressing human GLUT-4 glucose transporter. *Am J Physiol Endocrinol Metab.* 280:E420-7. 2. Belke, D.D., Larsen, T.S., Gibbs, E.M., Severson, D.L. 2000. Altered metabolism causes cardiac dysfunction in perfused hearts from diabetic (db/db) mice. *Am J Physiol Endocrinol Metab.* 279:E1104-13. 3. Belke, D.D., Larsen, T.S., Lopaschuk, G.D., Severson, D.L. 1999. Glucose and fatty acid metabolism in the isolated working mouse heart. *Am J Physiol.* 277:R1210-7. 4. Larsen, T.S., Belke, D.D., Sas, R., Giles, W.R., Severson, D.L., Lopaschuk, G.D., Tyberg, J.V. 1999. The isolated working mouse heart: methodological considerations. *Pflugers Arch.* 437:979-85. 5. Belke D.D., Betuing S, Tuttle M.J., Graveleau C, Young M.E., Pham M., Zhang D., Cooksey R.C., McClain D.A., Litwin S.E., Taegtmeyer H., Severson D., Kahn C.R., Abel E.D. 2002. Insulin signaling coordinately regulates cardiac size, metabolism, and contractile protein isoform expression. *J Clin Invest* 109:629-639. 6. Mazumder P.K., O'Neill B.T., Roberts M.W., Buchanan J., Yun U.J., Cooksey R.C., Boudina S., Abel E.D. 2004. Impaired Cardiac Efficiency and Increased Fatty Acid Oxidation in Insulin Resistant ob/ob mouse hearts. *Diabetes.* 53: 2366-2374. 7. Suga H: Ventricular energetics. *Physiol Rev* 70:247-277, 1990

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