

SUPPLEMENTARY METHODS

All procedures were performed in strict accordance with the recommendations of the ethical guidelines for animal studies. All experimental animal care protocols were approved by the Animal Care and Use Committee of the Catholic University of Korea (CUMC-2018-0130). Minicircle (MC)-mock or MC-multiple target-directed agent (MTA) were delivered 1 day before measuring body weight and basic functions using the hydrodynamic tail-vein injection. Animals in each group measured body weight and collected blood at indicated day. Basic functions of animals in each group were analyzed using portable Abbott i-STAT analyzer (Abbott Point of Care, East Windsor, NJ, USA) using G3+ cartridge for blood gases and Chem8+ cartridge for chemistries/electrolytes in whole blood. Assay for glutamate oxaloacetate transaminase and glutamate pyruvate transaminase in serum was run at the equipment Fuji Dri-Chem NX500 (Fujifilm Corp., Tokyo, Japan) according to the manufacture's recommendations.