Supplementary Material S1:

Plasma separation method:

1. Blood samples should be processed within 4 hours of collection.
2. Centrifuge blood collection tube at 2500 rpm for 10 minutes.
3. Pipette the top plasma layer into a separate 15mL tube. Pipette only down to within 1-2mm of the white-cell buffy layer and avoid disturbing that layer.
4. Repeat centrifugation step at 2500 rpm for 10 minutes.
5. Separate the plasma into storage tubes and leave the pellet behind.
6. Store at -80^{o}C until required.

DNA salt extraction protocol:

1. To 2mL tube for TissueLyser II, add: 1.2 nuclei lysis buffer, tissue sample and 5mm stainless steel beads.
2. Homogenise on TissueLyser II for 20 seconds at 30Hz, if there are many samples then rotate the samples at 10 seconds to result in equal homogenisation for all samples (longer times will result in DNA shearing).
3. Centrifuge the sample briefly to ensure that all the tissue sample is at the bottom of the tube.
4. Add 150uL of Proteinase K (20mg/mL) and 150uL of SDS (20%). Vortex solution gently to mix thoroughly.
5. Incubate in a shaking water bath overnight (55^{0}C).
6. If sample is not completely digested, then add another 100uL proteinase K and repeat incubation for 1 hour.
7. Transfer and split sample into 2 x 2mL labelled tubes.
8. Add 333uL of 6M saturated salt solution. Vortex thoroughly for >30 seconds.
9. Centrifuge for 30 minutes, 1300 rpm at 4^{0}C.
10. Transfer supernatant (contains DNA) into a 15mL tube.
11. Add 5mL of cold ethanol. Should cause DNA to precipitate with gentle inversion. If the ethanol appears dirty, then transfer the DNA into a fresh 5mL cold ethanol in 15mL tube.
12. Sample can be left overnight at 0-4^{0}C at this stage.
13. Centrifuge at 1200rpm, room temp for 2 min to pellet the DNA (then remove ethanol and transfer the pellet) to a 2mL tube.
14. Add 1mL of 70% ethanol and invert to wash the DNA. Ensure the pellet is in the solution and not sitting at the bottom.
15. Centrifuge at room temp, 1200rpm, for 2 mins to pellet the DNA.
16. Remove the ethanol and repeat the 70% ethanol wash steps.
17. After removal of the ethanol, air dry the pellet in the bio-safety hood to remove any trace of ethanol.
18. Resuspend the pellet in 1 x TE, 200uL. Incubate at 55^{0}C in heating block overnight to reconstitute the DNA.
19. Check that DNA has dissolved. If sample is not clear or bubbles appear trapped in a gel like solution, then DNA is not fully dissolved. If so, then add a further 50-100uL of TE and repeat incubation step. Continue this until fully dissolved.
20. The total amount of genomic DNA purified from the tissue samples was quantified using Qubit 2.0, dsDNA broad range or high sensitivity assay kits as per the manufacturer's instructions.