README – Data for Manuscript: Muscle HO-1 (Cell Reports 2021)

Study Overview
This dataset accompanies the publication:
Alves de Souza RW, Gallo D, Lee GR, Katsuyama E, Schaufler A, Weber J, Csizmadia E, Tsokos GC, Koch LG, Britton SL, Wisløff U, Brum PC, Otterbein LE.
Skeletal muscle heme oxygenase-1 activity regulates aerobic capacity. Cell Reports. 2021;35(3):109018.

It integrates genotyping validation, electron microscopy images, and raw/processed data from biochemical, molecular,
functional, and histological assays. Together, these datasets provide the evidence that skeletal muscle HO-1 activity
is a determinant of aerobic capacity and exercise performance.

File Descriptions
• Data for Manuscript_Muscle HO-1.xlsx – Source data for Figures 1–6 in the manuscript.
• Genotyping PDFs – Transnetyx reports confirming genotypes of floxed and Cre alleles used to generate skeletal muscle-specific Hmox1 knockouts (MHmox1-/-).
• Electron Microscopy images – Ultrastructural images of skeletal muscle from MHmox1-/- and control mice, illustrating mitochondrial and sarcomeric changes.

Experimental Design
• Models: Low-capacity runner (LCR) vs high-capacity runner (HCR) rats; WT vs Hpx-/- mice; skeletal muscle-specific Hmox1-/- mice (MHmox1-/-).
• Interventions: Acute treadmill running, chronic aerobic training (6 weeks).
• Endpoints:
  – Biochemical: serum heme, serum Hpx, CK, LDH.
  – Molecular: HO-1, Hpx, Flvcr2, ANP, BNP, β-MyHC, oxidative stress markers.
  – Mitochondrial: citrate synthase, respiration, OXPHOS proteins, fusion/fission proteins.
  – Morphological: histology, CSA, fiber type distribution.
  – Structural: EM images of skeletal muscle ultrastructure.
  – Genotyping: validation of floxed Hmox1 and Cre recombinase alleles.

Notes
– Data correspond to Figures 1–6 in the published article.
– Statistical significance annotated in source data is consistent with manuscript figures.
– Replicates and n/group information are as described in figure legends.