

## Resources for Metabolism & Translational Science

<b>Biological Domains of Aging</b>	<b>Proteins</b> (Immunoblot/ELISA/Jess System/Luminex)	<b>RNA</b> (qRT-PCR)	<b>DNA</b> (qRT-PCR and q-PCR)	<b>Function</b> (Oxygraph-2k, XFe96 Flux Analyzer, Spectrophotometry)
<b>Mitochondrial Biology (including Oxidative Stress)</b>	PGC1a, TFAM, NRF1, Opa1, Fis1, Mfn1, Drp1, Sirtuin-3; total OXPHOS cocktail (includes subunits of all five ETCs), GDF15; MPO, oxLDL, protein carbonyls, ferritin; Nitrotyrosine, 4-HNE	PGC1a, TFAM, NRF1, Sirtuin-3, TNFa, IL-6, NF-κB, ETC enzymes; GDF15	Quantification of Mt DNA copy number Mt DNA strand breaks and oxidized purines within specific regions encoding ETC (NADH dehydrogenase subunit 1/2 (ND1/2), NADH dehydrogenase subunit 4/5 (ND4/5), Cytochrome Oxidase subunit II and ATPase subunit 6/8 (COII/ATPase 6/8), Cytochrome B6, Mt DNA 4977-bp common deletion (Mt DNA <sup>4977</sup> )	Mt respiratory function in WBCs, fat, and muscle fibers (high-resolution respirometry, Oxygraph-2k; high-throughput respirometry, XFe96 Flux Analyzer); ETC enzyme and citrate synthase activity; ROS production (H <sub>2</sub> O <sub>2</sub> ); aconitase activity
<b>Senescence and Inflammation</b>	Senescence proteins: GDF15, Fas, OPN*2 TNFR1, CCL3, IL-15, activin A NF-κB; adiponectin, MPO, soluble E-Selectin, Soluble ICAM-1, soluble VCAM-1, Total PAI-1, IFN-γ, IL-10, IL-12, IL-12, IL-13, IL-1β, IL-5, IL-6, IL-8, TNF-α, IL-15	TNFa, IL-6, NF-κB, GDF15	DAMPs; Mt <i>DAMPs</i> like <i>Mt DNA</i> and nuclear fragments	
<b>Autophagy</b>	Beclin-1, Atg proteins, LC3, LAMP1 & 2A, PINK1, Parkin, p62, BNIP3, TFEB	Same as proteins		
<b>NAD<sup>+</sup> Homeostasis</b>	NAMPT, CD38, PARPs, SARM1, sirtuins	Same as proteins		NAD/NADH and NADP/NADPH; NAMPT enzyme activity