MS02-2 **Microglial lysosomal-mitochondrial sysytem as a strategic traget for anti-aging agents**

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There is increasing evidence that microglia, the resident mononuclear phagocyte population within the central nervous system (CNS), are primed during aging and exaggerate neuroinflammation in response to systemic inflammation. The accumulation of lysosome- and mitochondria-derived reactive oxygen species (ROS) are the most important causative factors for the overactivation of microglia. Autophagic dysfunction and mitochondrial DNA damages in CNS are prominently found in microglia. The autophagic dysfunction may induce the defective turnover of mitochondria, which results in the accumulation of ROS-hypergenerating older mitochondria in microglia. ROS activate redox-dependent transduction cascades and transcription factors, including nuclear factor-κB, which induce the expression of inflammatory genes. Therefore, “microglia-aging” could function as a major driver for brain aging. Furthermore, the prevention of lysosomal-autophagic dysfunctions and mitochondrial DNA damage in microglia may therefore be a potentially effective new pharmaceutical intervention against brain aging.