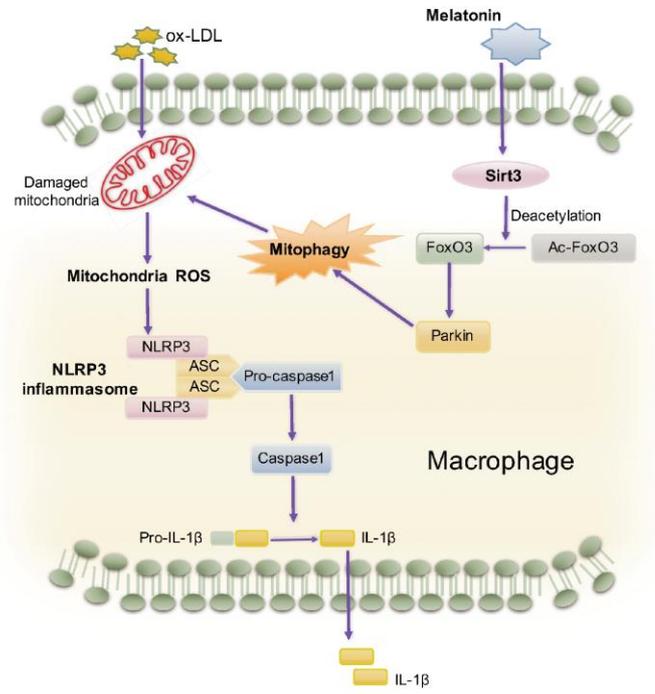


1 **Graphical Abstract**



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Ox-LDL induced mitochondrial damage, which contributed to the excessive mitoROS generation and consequential NLRP3 inflammasome activation in macrophages. Melatonin activated Sirt3 and FoxO3/Parkin-mediated mitophagy, attenuated the mitoROS level and the NLRP3 inflammasome activation, and subsequently reduced Caspase 1 activation and IL-1 β secretion.