Mitochondria are the main producers of bioenergy in most eukaryotic cells and they participate in intermediary metabolism, calcium homeostasis, cellular signalling, and apoptosis. Of the 1000 or more proteins that go make up a mitochondrion the vast majority are encoded by nuclear genes, 13 essential components of the energy generating system) are encoded by a small piece of DNA located within mitochondria (mtDNA). Human mtDNA is about 16 kb in length, also encodes 22 transfer RNAs, 2 ribosomal RNAs. Mitochondrial DNA is packaged with proteins, forming mtDNA-protein complexes known as nucleoids. Defining the complement of mitochondrial nucleoid proteins is critical to understand how mtDNA is organised, copied, expressed and transmitted. We have employed a tandem affinity purification method to isolate mitochondrial nucleoprotein complexes from human cells and identified the proteins associated with mtDNA by Mass Spectrometry. Two were of unknown function. Characterization of these two proteins suggests that one is associated with the small subunit of the mitochondrial ribosome. The other can be used to affinity purify both mtDNA and mitochondrial ribosomes and so may contribute to a super-complex which ensures coordinated transcription and translation of mtDNA.