Supplementary File 1

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| Citation  | Native Mitochondrial sAC localization  | Role of PKA | Physiological role of sAC signaling  |
| Manfredi and coworkers34, 40-42  | Matrix  | PKA-dependent | Sensing nutrient availability  |
| Balaban and coworkers43 | ND | PKA-independent | ND |
| Lefkimmiatis  23, 44 | ND | PKA-independent | ND |
| Brenner and coworkers 45  | ND | PKA-independent | Regulates calcium accumulation, permeability transition and cell death  |
| This paper | mitochondrial inter membrane space | PKA-independent | Sensing substrate consumption - mechano-metabolic sensor  |

**Supplementary File 1.** Mechanistic findings by investigations of sAC and its role in mitochondria.