

Supplemental Information

LINC01503-MP is a Mitochondrial Microprotein That Promotes Cell Proliferation and Oxidative Metabolism.

Nikita Dewani^{1,2}, Jorge Ruiz-Orera¹, Oliver Popp³, Ning Liang¹, Masanari Sugarawa⁴, Jana F. Schulz¹, Franziska Witte¹, Clara Sandmann¹, Takahiro Tsuji⁵, Susanne Blachut¹, Takaharu Katagiri¹, Ivanela Kondova⁶, Sae Owada⁷, Shinji Yoshii⁷, Hiroshi Kataoka⁸, Andreas Kurtz⁹, Hiroshi Nakase⁷, Sebastiaan van Heesch^{10,11}, Philipp Mertins^{3,12}, Norbert Hübner^{1,2,12,13,14,#}, Masatoshi Kanda^{1,4,14,#}

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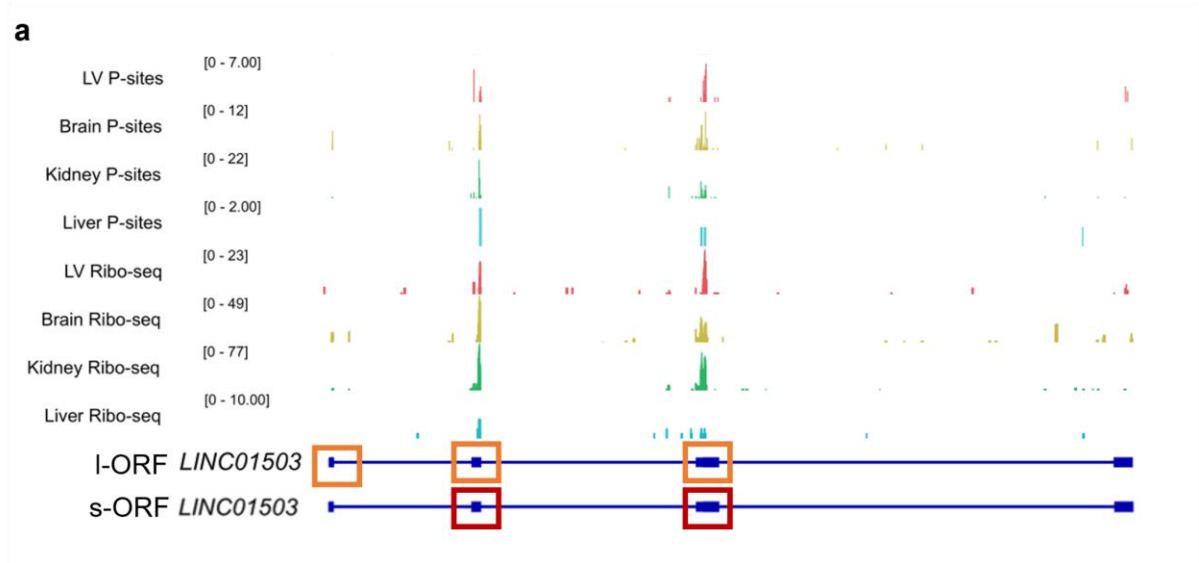


Figure S1 - Ribosome occupancy of *LINC01503* across 4 tissues, related to Figure 1

- a. Genome coverage tracks visualizing Ribo-seq reads and P-site positions on human *LINC01503* in the four considered tissues. Both ORFs showed high ribosome occupancy in the four tissues evaluated with Ribo-Seq. The number inside of the square bracket indicates the range of counts. Orange boxes indicate the long ORF (I-ORF) encoded by *LINC01503*, spanning three exons. Red boxes indicate the short ORF (S-ORF) encoded by *LINC01503*, spanning two exons.

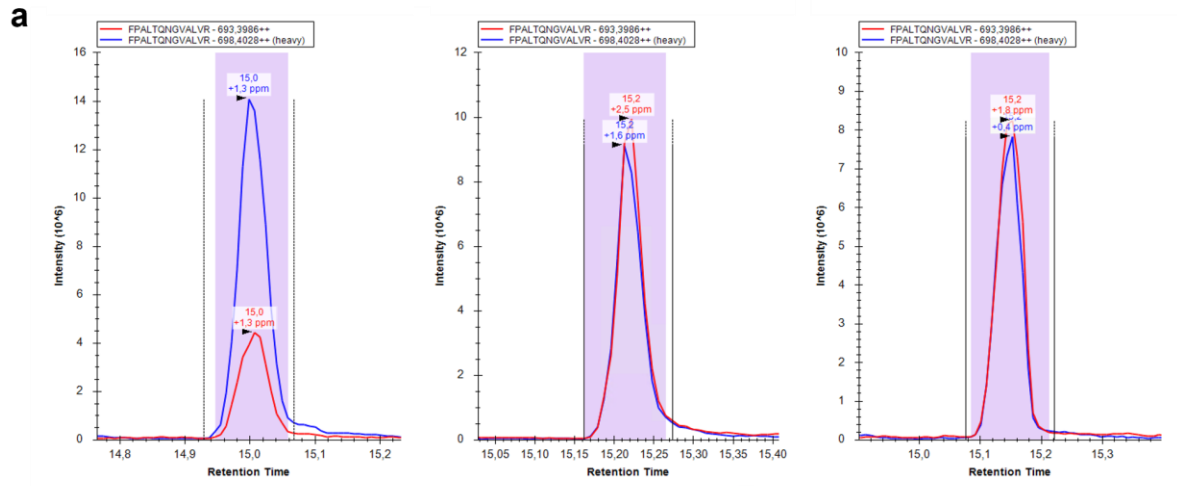


Figure S2 – Mass Spectrometry detection of tryptic peptide, related to Figure 1

- a. PRM mass spectrometry verification of unique peptide 'FPALTQNGVALVR' (heavy) of overexpressed LINC01503-MP in HCT116 cells (n=3).

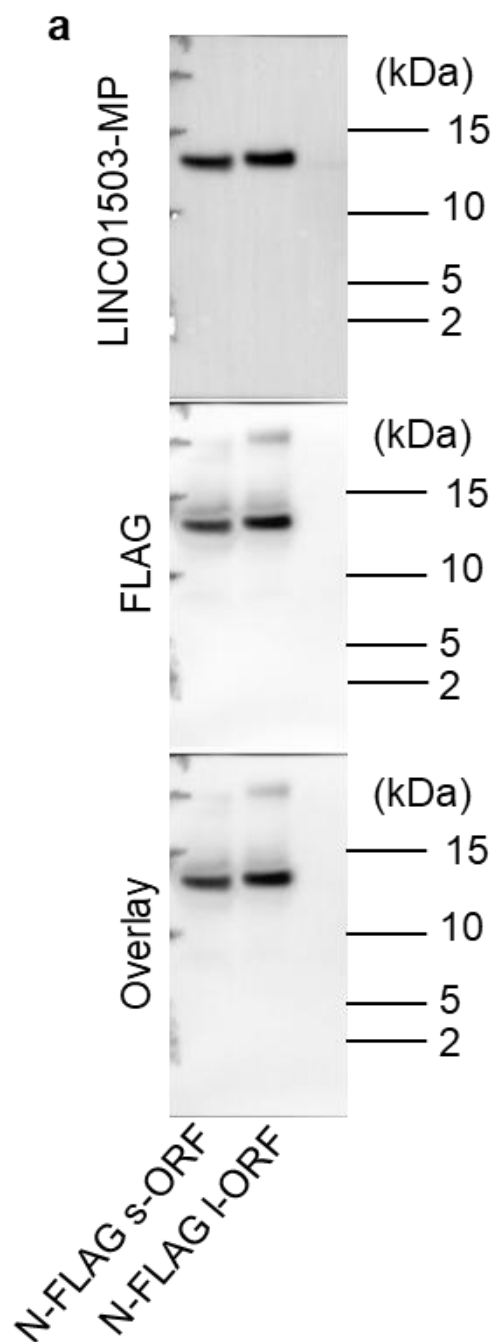


Figure S3 – N-terminus FLAG-tagged LINC01503-MP detection, related to Figure 1

- b. Western blotting of N-terminus FLAG-tagged LINC01503-MP detected by anti-FLAG Ab and anti-LINC01503-MP Ab. The overlay of both blots showed that both antibodies detected the same fusion microprotein.

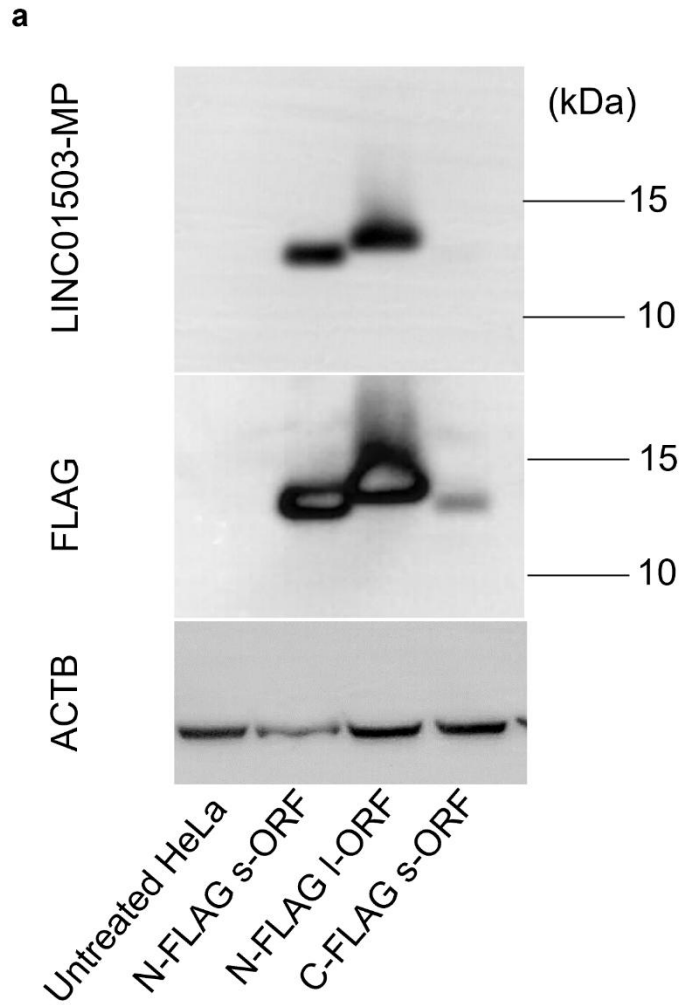


Figure S4 – N/C-terminus FLAG-tagged LINC01503-MP detection, related to Figure 1

- a. Western blotting of N-terminus and C-terminus FLAG-tagged LINC01503-MP in HeLa cells. Beta-actin (ACTB) is the loading control.

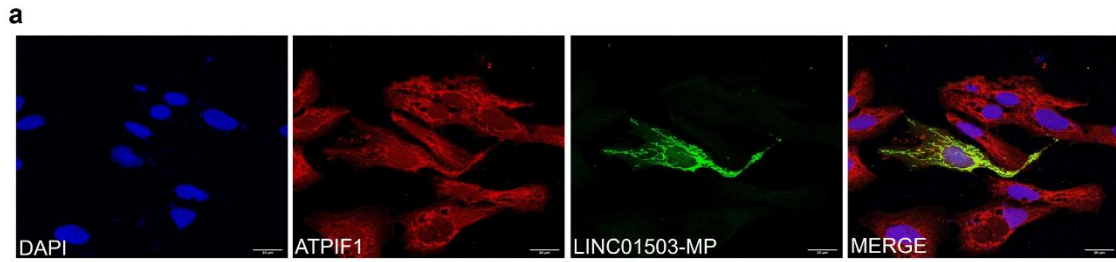


Figure S5 – Localization of overexpressed LINC01503-MP with mitochondria, related to Figure 3

- a. Immunofluorescence (IF) staining of overexpressed N-terminal FLAG-LINC01503-MP (green) co-localising with ATPIF1 (red) (a mitochondrial protein) in HeLa cells. Scale bar: 20μm.