DEAD box 1 (DDX1) Stabilizes Cytoplasmic mRNAs During Oxidative Stress

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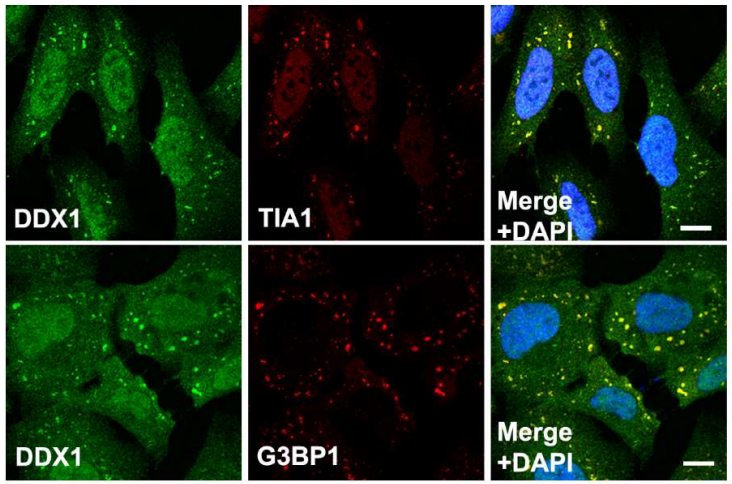
DDX1 localizes to stress granules



0.5 mM arsenite 45 min

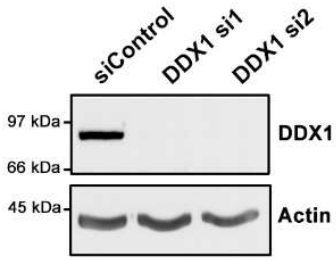
Cell lines:

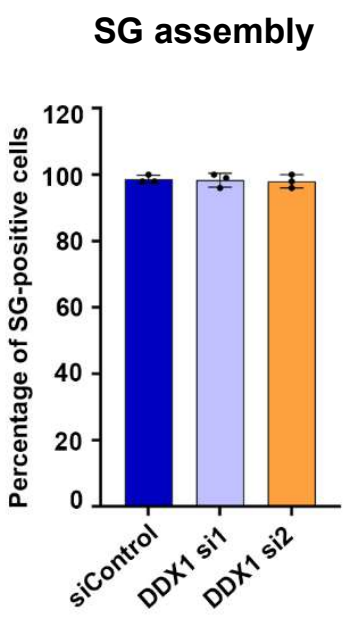
- U2OS
- HeLa
- BE(2)-C
- IMR-32
- MDA-MB-231
- MDA-MB-468
- HEK293

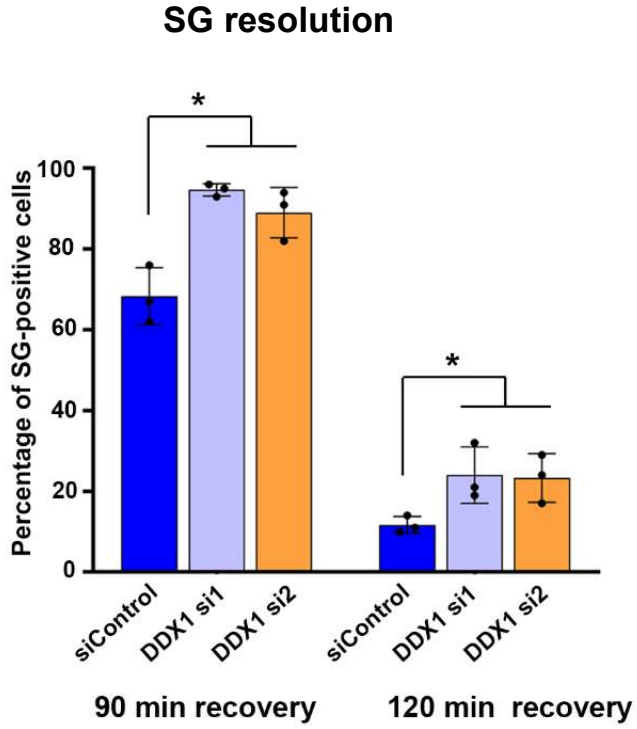
Type of stress:

- H_2O_2 (Oxidative)
- Paraquat (Oxidative)
- Heat shock
- Thapsigargin (ER stress)
- MG132 (proteasome stress)

DDX1 facilitates stress granule (SG) resolution during recovery

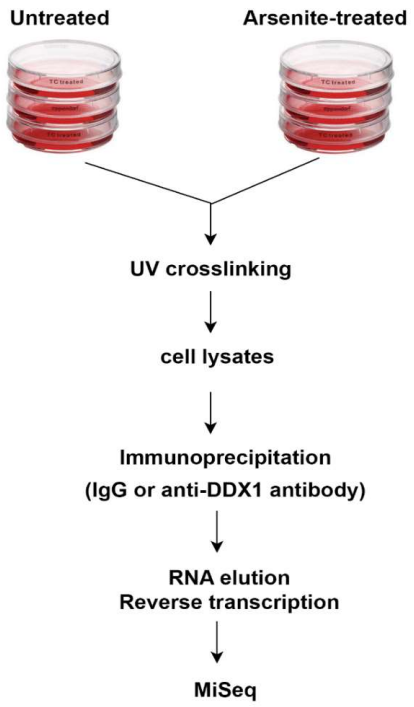




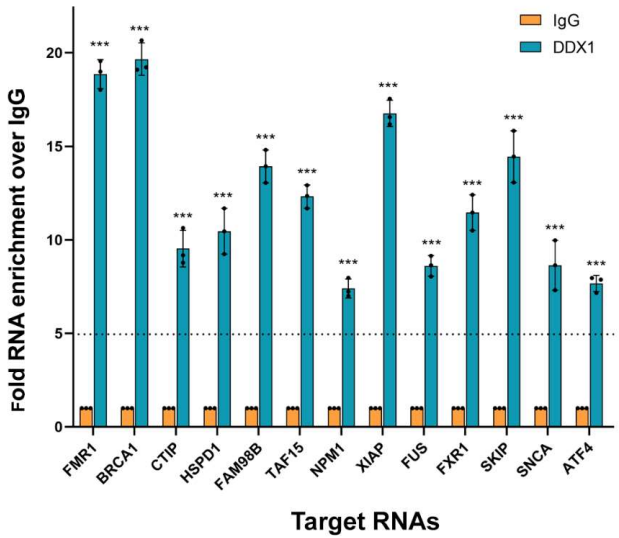


Identification of DDX1 target RNAs

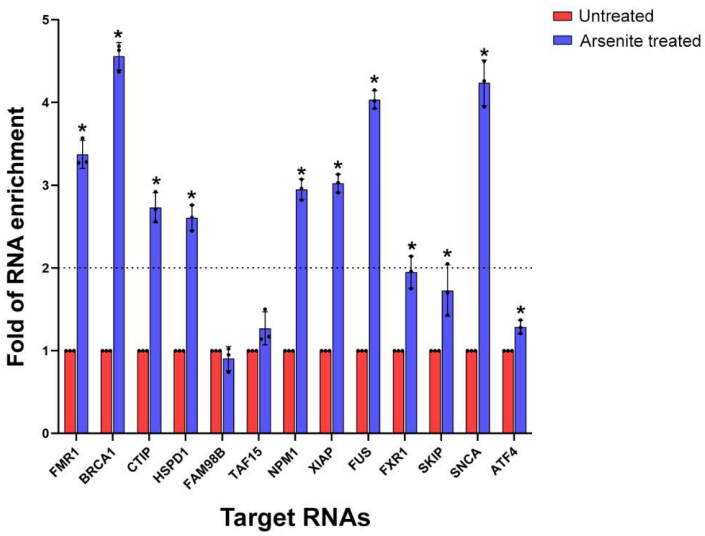
RNA immunoprecipitation sequencing (RIP-Seq)



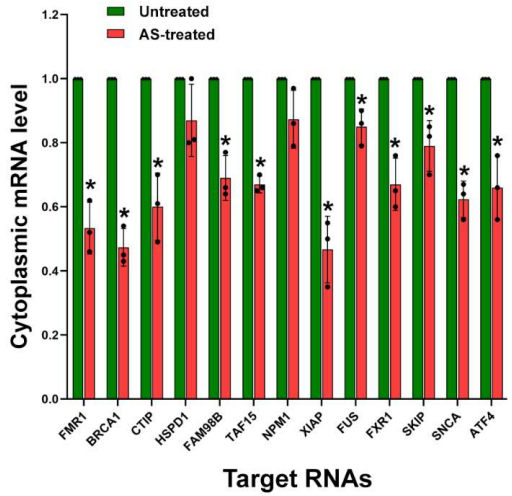
Confirmation of target RNAs by RT-qPCR

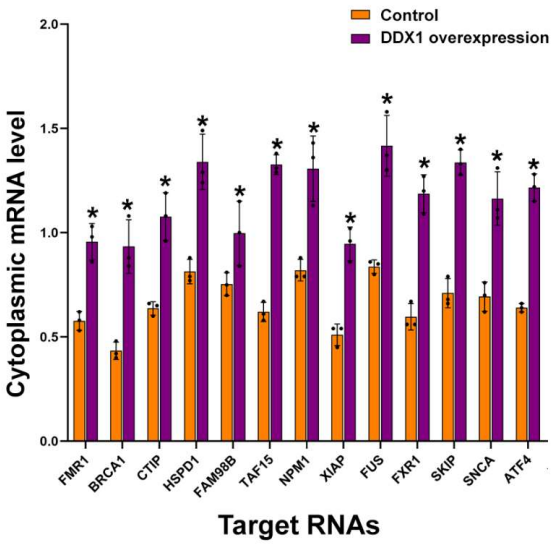


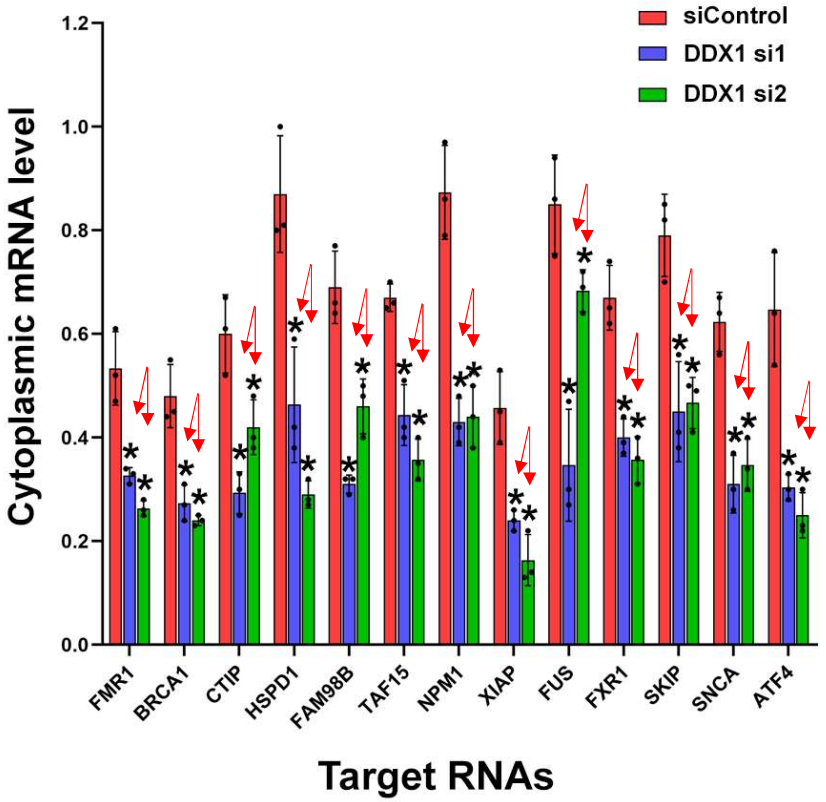
Enhanced binding during oxidative stress



DDX1 stabilizes target RNAs in the cytoplasm during stress





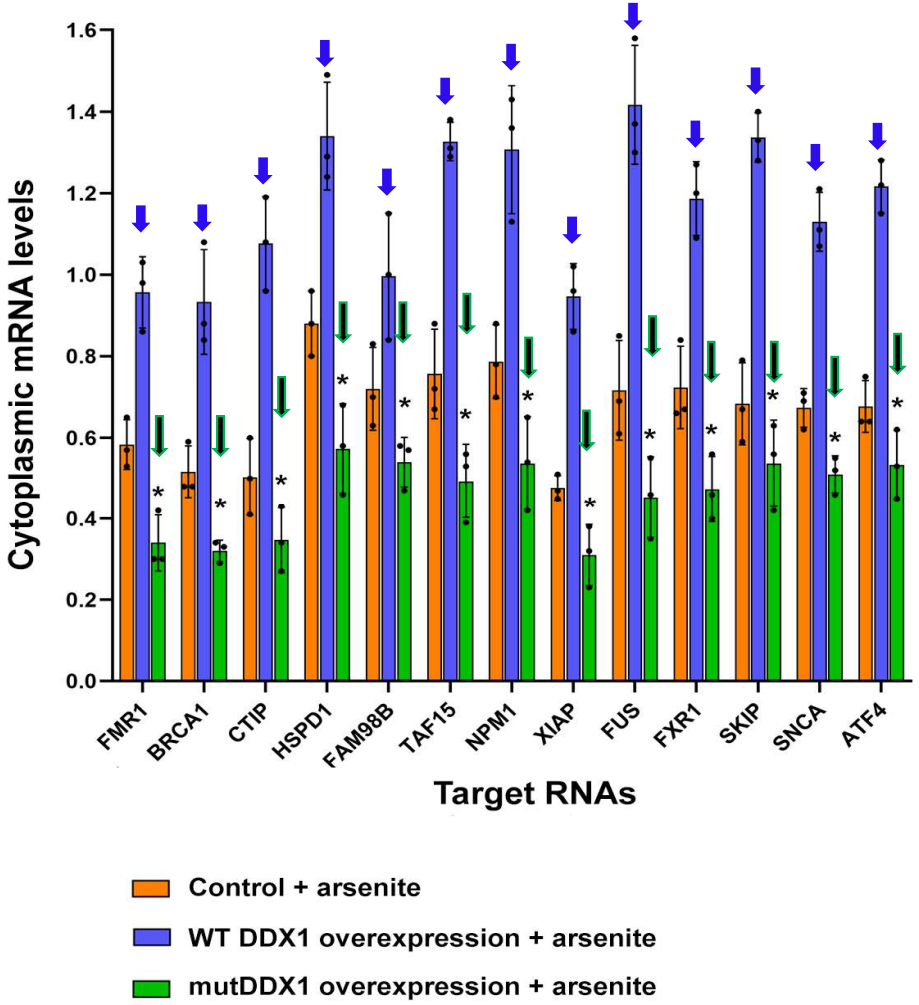


RNA binding is required for DDX1 to stabilize target RNAs

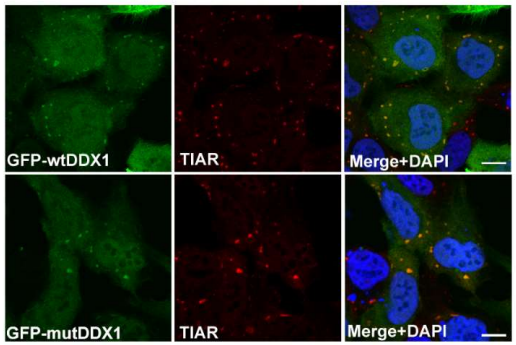
DDX1 mutant defective in RNA binding:

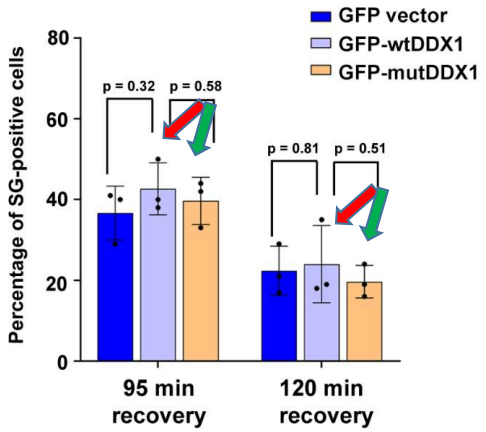
S295E/R296E/T515E/K516E

(Nucleic Acids Res 45, 4632-4641)

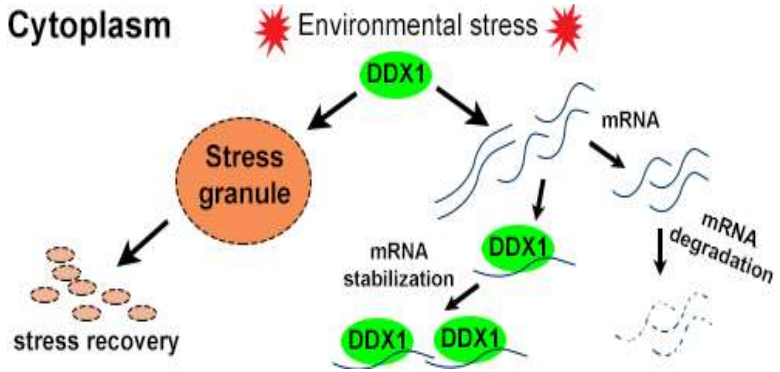


RNA binding is dispensable for DDX1 localization in stress granules and stress granule resolution





Dual roles of DDX1 during oxidative stress



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