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Sommario	Thanks to continuous technical advances in the sequencing field nowadays we know that most of the mammalian genome is transcribed. This generates a vast repertoire of transcripts that includes protein-coding messenger RNAs (mRNAs), long non-coding RNAs (lncRNAs) and repetitive sequences, such as Short Interspersed Nuclear Elements (SINEs). A large percentage of ncRNAs is nuclear-enriched with unknown function. LncRNAs may be transcribed in antisense direction and may form sense/antisense pairs by pairing with an mRNA from the opposite strand to regulate chromatin conformation, transcription and mRNA stability. We have identified a nuclear-enriched lncRNA antisense to mouse Ubiquitin Carboxyterminal Hydrolase L1 (Uchl1), a gene expressed in dopaminergic cells and involved in brain function and neurodegenerative diseases. Antisense Uchl1 (AS Uchl1) increases Uchl1 protein synthesis at a post-transcriptional level. AS Uchl1 function is under the control of stress signaling pathways, as mTORC1 inhibition by rapamycin causes an increase in Uchl1 protein that is associated to the shuttling of AS Uchl1 lncRNA from the nucleus to the cytoplasm of dopaminergic cells. AS Uchl1 RNA is then required for the association of the overlapping sense protein-coding

	mRNA to active polysomes for translation. Moreover, AS Uchl1 activity depends on the presence of a 5’ domain overlapping Uchl1 mRNA and an inverted SINEB2 element embedded along its 3’ sequence. These features are shared by other natural antisense transcripts and among them a lncRNA antisense to Ubiquitously eXpressed Transcript (AS Uxt) increases Uxt protein expression in the presence of stable mRNA level similar to AS Uchl1. These data identified a new functional class of lncRNAs and reveal another layer of gene expression control at the post-transcriptional level. Furthermore, through the replacement of AS Uchl1 5’ overlapping region with an antisense sequence to Green Fluorescence Protein (GFP) we were able to redirect this upregulation of protein synthesis. In fact, the presence of a 5’ overlapping sequence and an embedded inverted SINEB2 element confer to this artificial AS lncRNA to GFP (AS GFP) the capability to induce GFP protein with stable mRNA levels both in cells and in vitro translation assay. Further experiments are needed to set up the in vitro translation assay and to understand the translation enhancement of AS lncRNAs.
Localizzazioni e accesso	http://memoria.depositolegale.it/*/http://hdl.handle.net/20.500.11767/3922