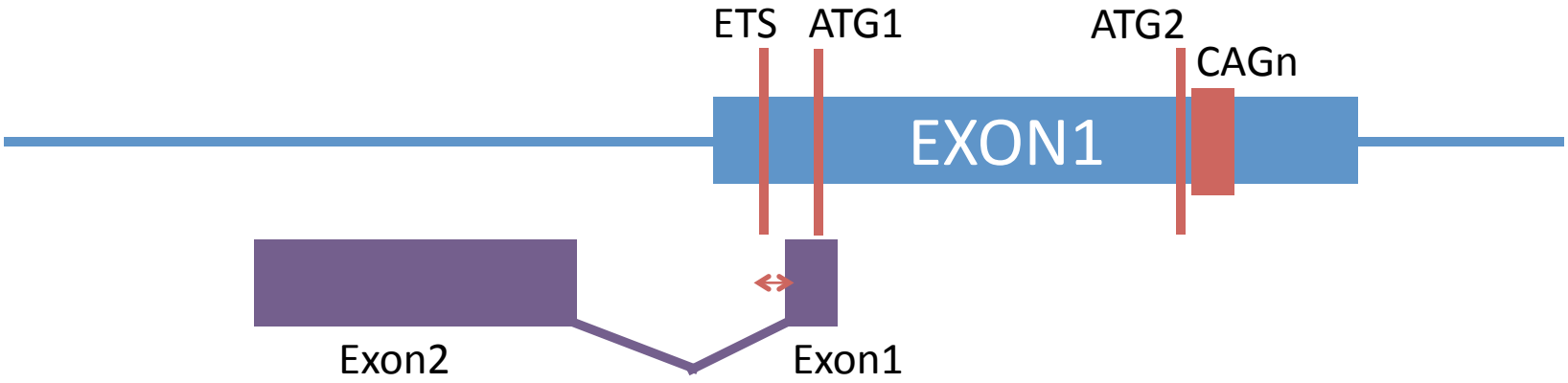
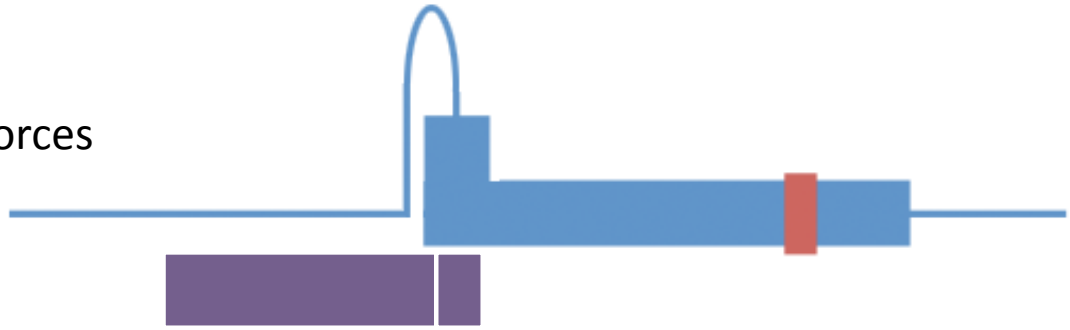
AN ANTISENSE REGULATORY MECHANISM FOR *ATXN2* EXPRESSION CONTROL



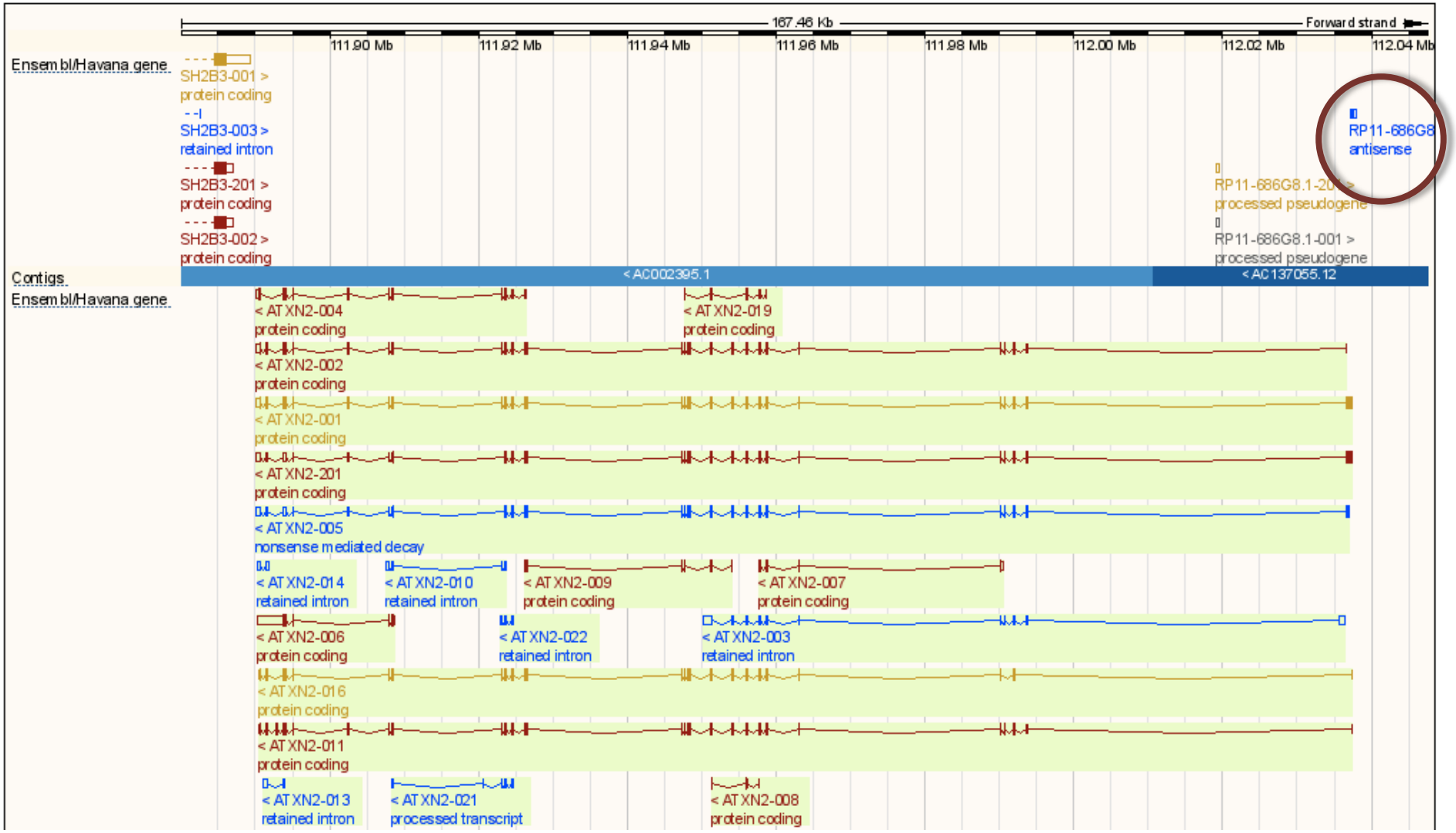
↔ 20 bp separates the ETS site from the end of Exon 1

Could ATG1 in the ATXN2 transcript be masked and that's why all our work indicated that only ATG2 is functional? But then why have exon2 complementary to so much upstream sequence?

Maybe the antisense transcript forces the ATXN2 gene into a preferred conformation for transcription:



Antisense transcript at *ATXN2* exon 1

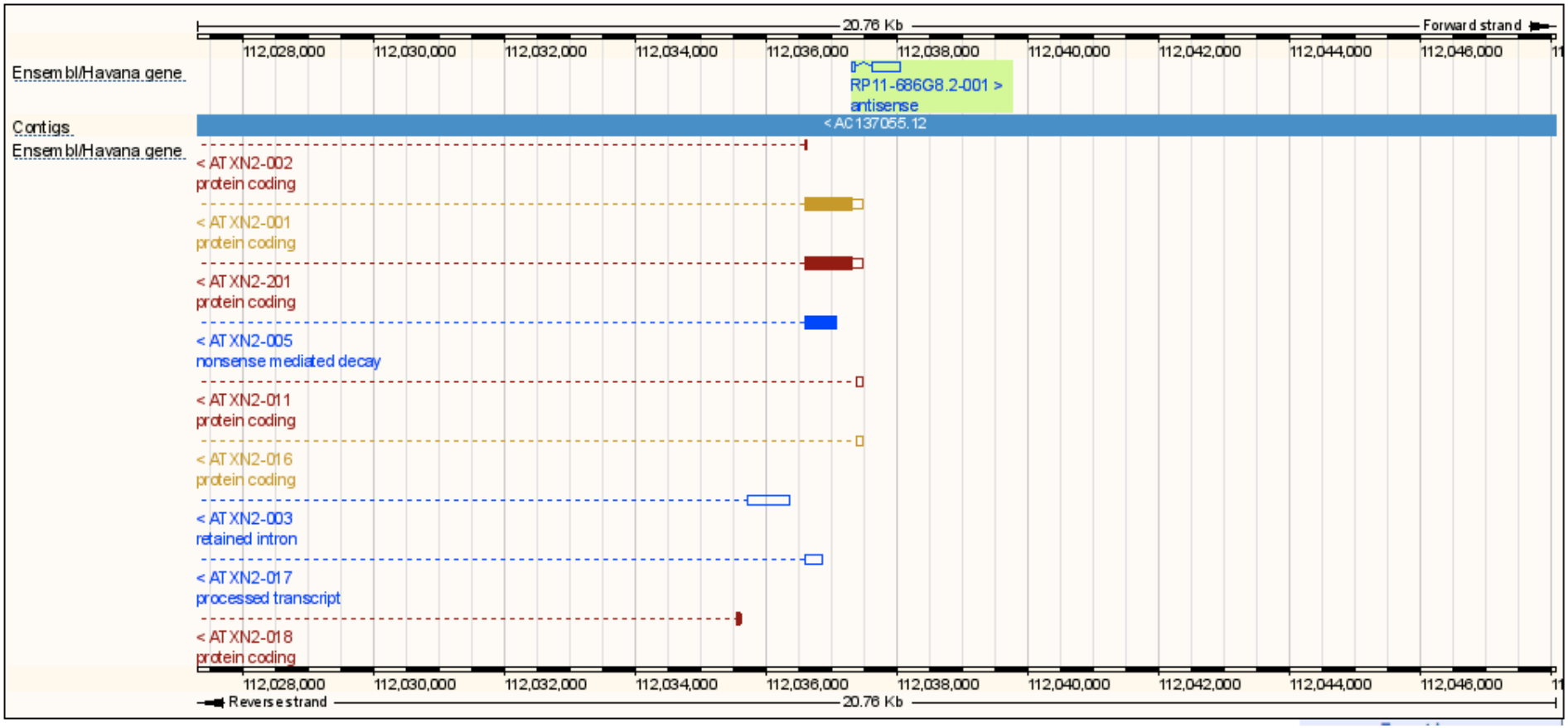


Zooming in shows 2 exons for the ncRNA in the *ATXN2* promoter

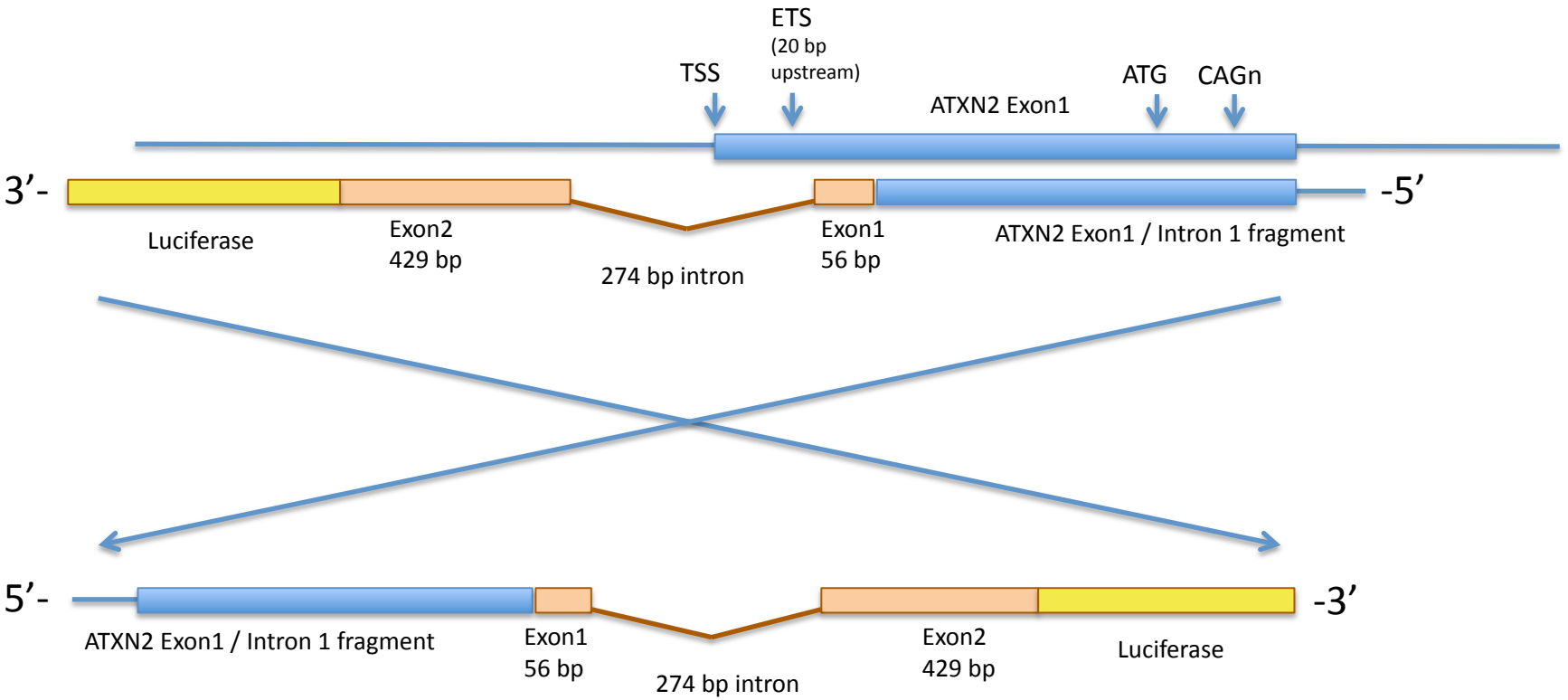
Show/hide columns

Filter

Name	Transcript ID	Length (bp)	Protein ID	Length (aa)	Biotype	CCDS
RP11-686G8.2-001	ENST00000547021	485	No protein product	-	Antisense	-

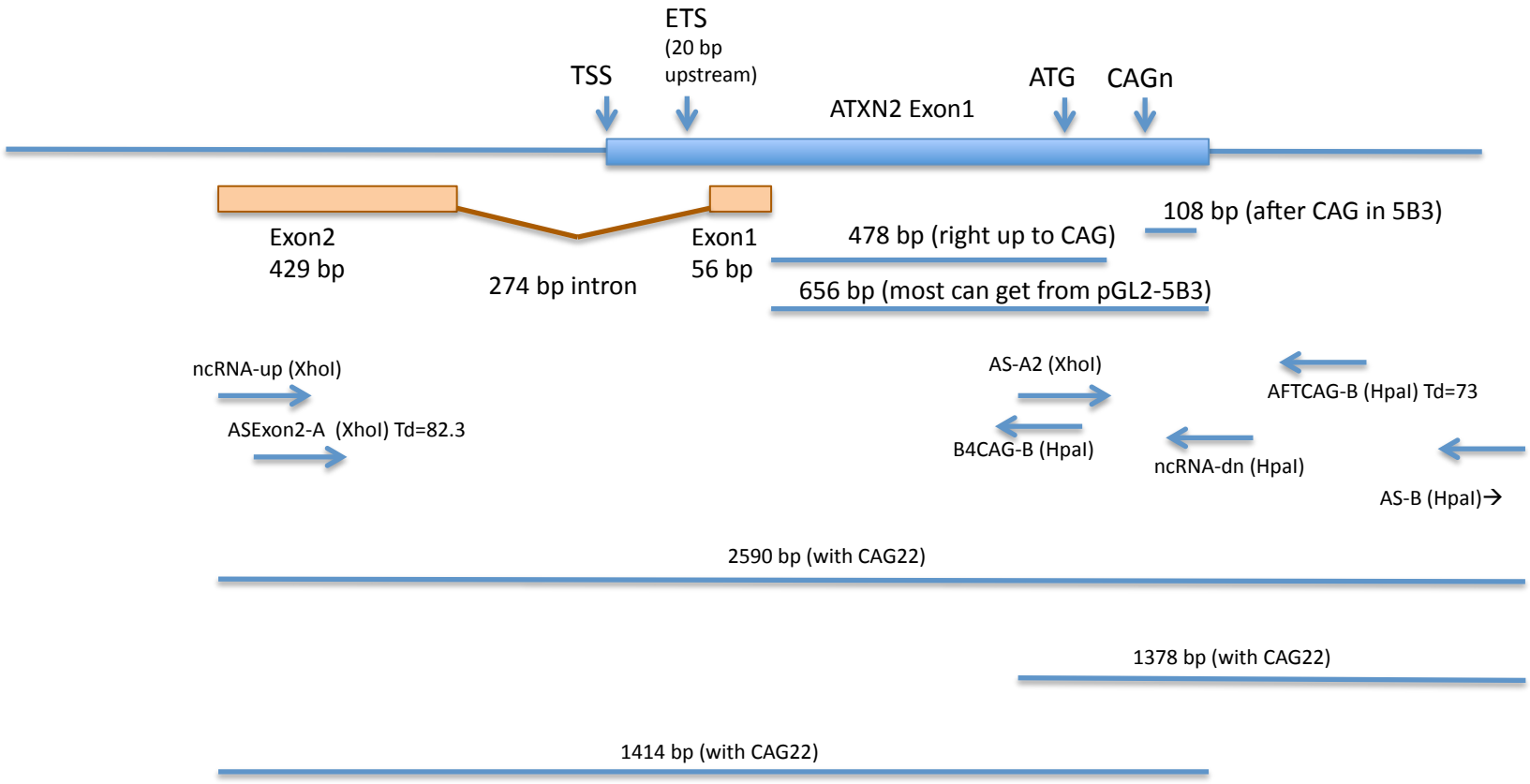


We are cloning this in the antisense orientation ahead of luciferase…



Noncoding antisense RNA transcript in the ATXN2 promoter

485 bp noncoding antisense RNA transcript
Transcript ID: ENST00000547021
Transcript name: RP11-686G8.2-001



CTCF Regulates Ataxin-7 Expression through Promotion of a Convergently Transcribed, Antisense Noncoding RNA

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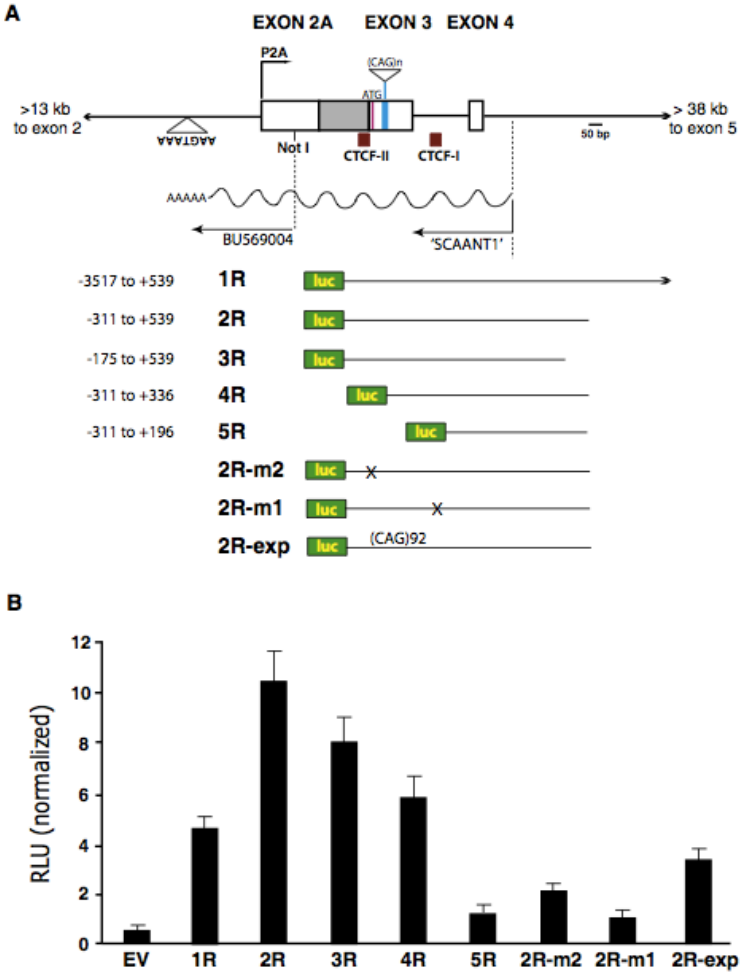
Neuron 70, 1071–1084, June 23, 2011 ©2011



multivalent transcription regulatory factor CTCF

Figure 2. Identification and Mapping of an Antisense ncRNA at the Human Ataxin-7 Locus

Study conclusions: CTCF mediated expression of SCA7ATN1 inhibits the expression of SCA7

What about other genes??

No similar ncRNAs for SCA1, SCA3, SCA7, SCA8 in *Ensembl*
One for HTT: