

P029 RNA binding and protein complex formation by the neuronal *Drosophila* proteins ELAV and FNE

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We are studying a protein family with three RRM, whose founding member is the *Drosophila* gene *elav*. It encodes a nuclear protein required for normal differentiation and maintenance of all neurons and autoregulates via sequences present in the 3' UTR.

We used shift assays and SELEX to identify ELAV binding sites in the *elav* 3' UTR. ELAV binds with similar affinities ($K_D=20$ nM) to (1) a sequence (SSE) in the long 3' UTR of *elav* RNA and (2) a known ELAV binding site in *neuroglian* RNA. This data supports our model that *elav* autoregulation depends upon direct interaction between ELAV protein and its RNA. SSE is a U-rich, 20 nucleotide long sequence, where a G residue significantly contributes to the specificity of binding. The product of the *fne* gene (an *elav* paralogue interacting with *elav* and encoding a cytoplasmic neuronal protein) also binds SSE, and ELAV/FNE heterodimers form *in vitro*. These findings provide a molecular basis for the previously described interaction between *elav* and *fne*.