

'Houdini' Proteins: Discovery and Applications of Ultrafast Inteins

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Inteins are auto-processing domains found in organisms from all domains of life. These proteins are molecular escape artists that spontaneously excise themselves in a traceless manner from essentially any protein sequence in which they are inserted. Protein chemists have exploited various facets of intein reactivity to modify proteins in myriad ways for both basic biological research as well as potential therapeutic applications.

Here, I discuss our recent insights into how inteins catalyze protein splicing and how this has led to the development of new methods for the manipulation of protein structure in the test tube and in cells. These applications will be highlighted through specific applications in the area of chromatin biology.