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Crystal structure and function of the CRISPR-Lon protease

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We report the crystal structure of CRISPR-Lon, a type-III CRISPR related protease that is activated by cyclic oligoadenylates. The protein is a soluble monomer and contains a SAVED domain that accommodates cA4. Further, we show that CRISPR-Lon forms a stable complex with the 34 kDa CRISPR-T protein. Upon activation by cA4, CRISPR-Lon specifically cleaves CRISPR-T, releasing CRISPR-T23, a 23 kDa fragment that is structurally very similar to MazF toxins and is likely a sequence specific nuclease.

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