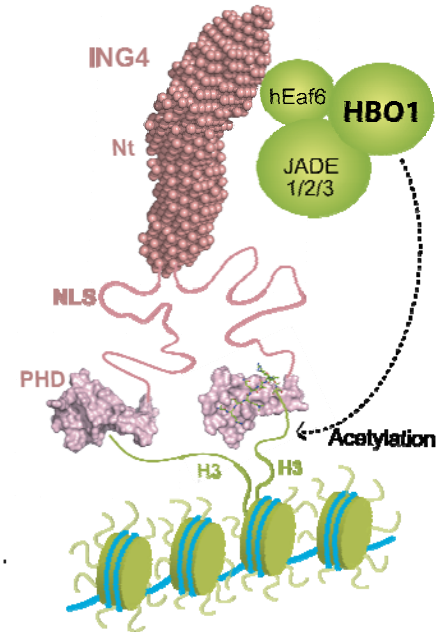
Structure of the Tumor Suppressor ING4

The tumor suppressor ING4 regulates gene transcription by recruiting chromatin remodeling complexes to active promoters. A team of CIC bioGUNE researchers have investigated the structure of ING4 and found that it forms dimers *in vitro* and *in vivo*. ING4 contains three different structural domains: Nt (dimerization domain), NLS (with the Nuclear Localization Signal), and a PHD finger. Therefore the ING4 dimer has two identical and independent PHDs that recognize the tails of histone H3 trimethylated at Lys4, a hallmark of active genes. Because the NLS region is flexible, ING4 could bind to two histone H3 tails belonging to the same or to different nucleosomes. These results show that ING4 is a bivalent reader of the chromatin H3K4me3 modification, and suggest a mechanism for enhanced targeting of the histone acetylase complex HBO1 to specific chromatin sites. This mechanism could be common to other ING-containing remodeling complexes.



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