



Figure 5. Basic components of the DNA methylation machine of *Neurospora*. Chromatin associated with DNA substantially mutated by RIP (orange spiral decorated with pink mC moieties) is subjected to methylation of H3K9 by the histone methyltransferase DIM-5, whose localization and action depends on a multiprotein complex, DCDC (DIM-5/-7/-9, CUL4/DDB1 complex; Lewis et al. 2010a,b). The CUL4 subunit of the DCDC complex is associated with the small protein Nedd (N), which resembles the E3 ubiquitin ligase complex. Trimethylated H3K9 (K9me₃) is recognized by HP1, which is involved in at least three heterochromatin-associated complexes: (1) It recruits the DNA methyltransferase DIM-2 (Honda and Selker 2008); (2) it is required for localization and function of the HCHC silencing complex, which contains HP1, the chromodomain protein CDP-2, the histone deacetylase HDA-1, and a CDP-2/HDA-1-associated protein, CHAP (Honda et al. 2012); and (3) it is required to guide the DMM complex, which serves to block the spreading of heterochromatin into neighboring transcribed regions (Honda et al. 2010).