Supporting information for

Plant VEL proteins contain unusual PHD superdomains without histone H3 binding activity

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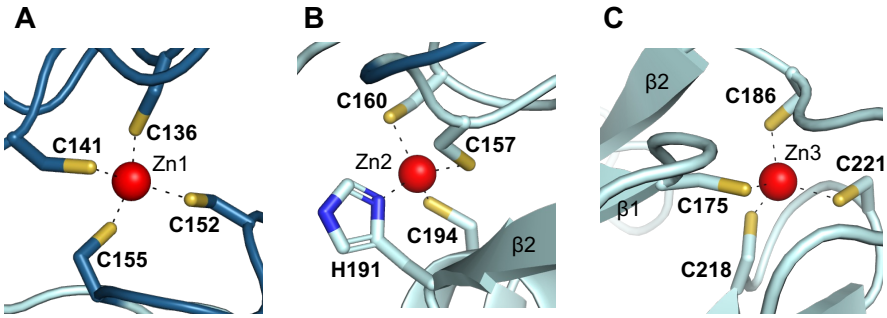

Figure S1. Zinc-binding sites of the VIN3 PHD superdomain. (**A-C**) Schematic representations of three Zn^{2+}-coordinating sites in *Pd* VIN3 superdomain in ZnF (Zn1) and PHD finger (Zn2 and Zn3); coordinating residues are shown in stick; *red balls*, Zn^{2+} ions.

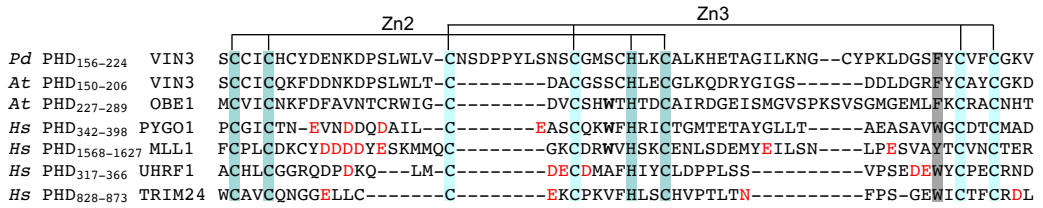

Figure S2. Sequence alignment of various PHD fingers. Sequence alignment of *Pd* and *At* VIN3 PHD fingers with H3K4me-binding PHD fingers, as indicated on the left (*Hs, homo sapiens*), with negatively-charged residues lining the histone-binding pockets in red; *bold*, tryptophane pocket divider residue (between K4 and A2 pockets) in H3K4me-binding PHD fingers; highlighted are Zn^{2+}-ligating residues (Zn2, *cyan*; Zn3, *light blue*) and aromatic PHD signature residue (*gray*).

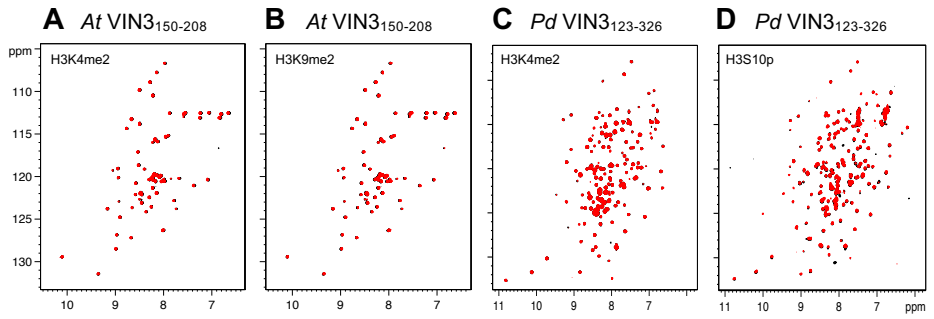

Figure S3. The VIN3 PHD finger does not bind to histone H3 tail. (**A, B**) Overlays of BEST-TROSY spectra of 50 mM ^{15}N-labeled *At* VIN3$_{150-208}$, alone (*black*) or incubated with 0.5 mM of H3K4me2 15-mer (*red*) or H3K9me2 15-mer (*red*) as indicated in panels. (**C, D**) Overlays of BEST-TROSY spectra of 50 mM ^{15}N-labeled *At* VIN3$_{123-326}$, alone (*black*) or incubated with 0.5 mM of H3K4me2 15-mer (*red*) or H3S10p 15-mer (*red*) as indicated in panels.

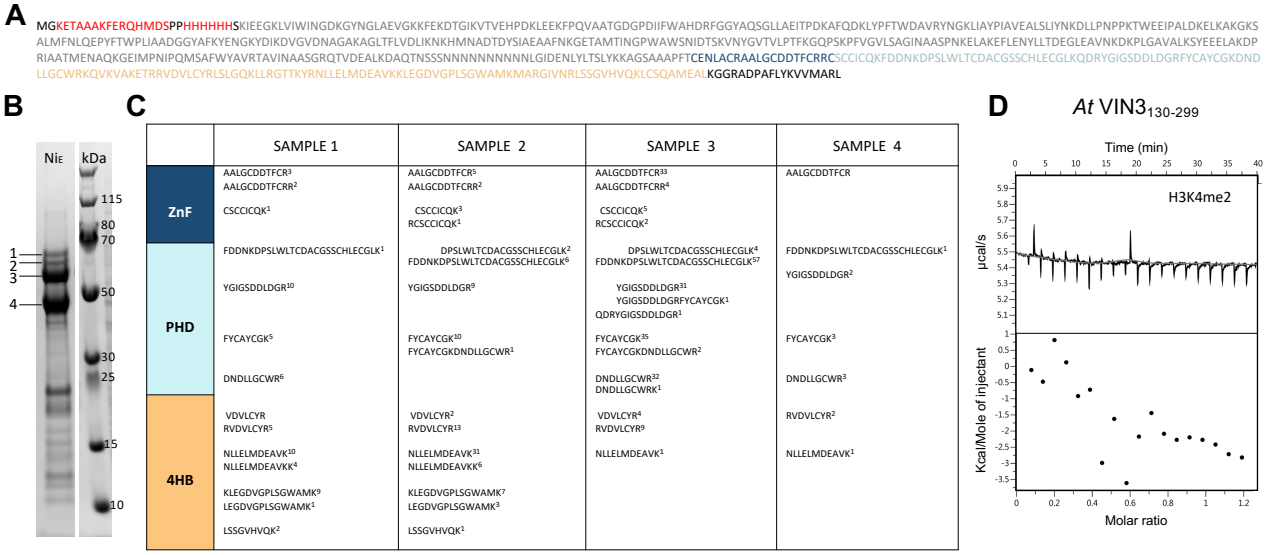

Figure S4. Purification of S-Tag-6xHis-MBP-VIN3$_{130-299}$. (**A**) Sequence of pVP13 (20,21) encoding *At* VIN3 PHD superdomain (S-tag-6xHis-MBP-VIN3$_{130-299}$), with sequences of ZnF, PHD and 4HB modules colored as in **Fig. 1**; *red*, S- and 6xHis-tags; *gray*, MBP tag plus C-terminal linker; *black*, additional 18 residues of unknown origin at the C-terminus of 4HB module. (**B**) Analysis of Ni-NTA-eluted material (Ni$_E$) by polyacrylamide gel electrophoresis, alongside molecular weight (MW) markers run on the same gel, revealing a minor fraction of full-length PHD superdomain (predicted MW 68.2 kDa) in addition to two major breakdown products. (**C**) Mass spectrometry results obtained from four products (1-4), as labeled in (**B**); peptide counts and origins of corresponding domains are indicated in table. (**D**) ITC profile of *At* VIN3$_{130-299}$ incubated with H3K4me2 15-mer, revealing lack of binding.