Supporting Information:

**Exploring the coordination abilities of 1,5-diisopropyl-3-(4’-carboxyphenyl)-6-oxoverdazyl.**

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**Figure SI 1.** FTIR spectra for the series **I***i*-Pr–M (M= Mn, Co, Ni, Zn)



**Figure SI 2.** FTIR spectra for **I***i*-Pr–Mn and **I***i*-Pr–Mg.



**Figure SI 3.** FTIR spectra for **I***i*-Pr–Mn and Ha**I***i*-Pr. (see also: Kumar, V.; Shova, S.; Maurel, V.; Novitchi, G.; Train, C. *Eur. J. Inorg. Chem.* **2018**, *2018* (3), 517–524.)



**FigureSI-4** Powder X-ray diffraction of **I***i*-Pr–Co red line and **I***i*-Pr–Zn yellow line. The blues line represent the theoretical simulated powder patent from results of single crystal X-ray analysis of **I***i*-Pr–Ni)



**Figure SI-5.** Field dependence of magnetization data of **I***i*-Pr–Ni at 2,3,4,5K. The solid lines correspond to best fits according to the model indicated in the text with the parameters indicated in the Table 3. For the anisotropic nickel(II) compound, the Zero Field Splitting (ZFS) parameters was first determined by the simultaneous fit of the field of the magnetization at 2, 3, 4 and 5K by the following anisotropic Hamiltonian (1) using the PHI program[1]:

$$\hat{H}=-2J\_{1}\left(\vec{\hat{S}\_{1}}\vec{\hat{S}\_{2}}\right)+μ\_{B}g\_{1}\vec{\hat{S}\_{1}}+μ\_{B}g\_{2}\vec{\hat{S}\_{2}}+ D\_{1}\left(\hat{S}\_{z,1}^{2}-\frac{1}{3}S\_{1}\left(S\_{1}+1\right)\right)+D\_{2}\left(\hat{S}\_{z,2}^{2}-\frac{1}{3}S\_{2}\left(S\_{2}+1\right)\right)$$

*S1=S2=1 ; g1=g2=gNi ; D1=D2=DNi*

[1] Chilton, N. F.; Anderson, R. P.; Turner, L. D.; Soncini, A.; Murray, K. S. *J. Comput. Chem.* **2013,** 34 (13), 1164-1175