Supporting Information

Peptide-Intercalated Layered Metal Hydroxides:
Effect of Peptide Chain Length and Side Chain Functionality on Structural,
Optical and Magnetic Properties

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**Figure S0:** XRD patterns of the peptide grafted layered Cu(II) (A) and Co(II) hydroxides (B) showing the absence of significant diffraction lines above 30°. Sometimes, like in Cu-FVL (C) weak and broad lines are observed in the range 32-38 ° which can be assigned to hk0 planes. The numbers indicate the interlayer d spacing values in Å (001).
Figure S1: FTIR spectra of various peptides and their Cu-based hybrid; the enlarged view for the range 1800-1300 cm$^{-1}$ is shown in the right side: (a) YVL, (b) Cu-YVL, (c) FVL, (d) Cu-FVL, (e) YVLV, (f) Cu-YVLV, (g) VVD, (h) Cu-VVD, (i) VVE, and (j) Cu-VVE.
**Figure S2:** FTIR spectra of various peptides and their Co-based hybrid; the enlarged view for the range 1800-1300 cm$^{-1}$ is shown in the right side: (a) YVL, (b) Co-YVL, (c) FVL, (d) Co-FVL, (e) YVLV, (f) Co-YVLV, (g) VVD, (h) Co-VVD, (i) VVE, and (j) Co-VVE.
Figure S3: UV-vis absorption spectra of YVL, Cu-YVL and Co-YVL in acidic pH 3 and basic pH 9 (arbitrary absorbance units). The absorption band for Cu-YVL is broadened may be due the superimposition of tyrosine absorption and absorption due to the complex of the peptide with the dissolved Cu(II) ions.
Figure S4: Magnetic characterization of the Cu-YVL hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
**Figure S5:** Magnetic characterization of the Cu-FVL hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8K.
**Figure S6:** Magnetic characterization of the Cu-YVLV hybrids: (A) $\chi_T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
Figure S7: Magnetic characterization of the Cu-VVD hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
**Figure S8:** Magnetic characterization of the Cu-VVE hybrids: (A) $\chi_T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
Figure S9: Magnetic characterization of the Co-YVL hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
**Figure S10:** Magnetic characterization of the Co-FVL hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
Figure S11: Magnetic characterization of the Co-YVLV hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependent magnetization at 1.8 K.
Figure S12: Magnetic characterization of the Co-VVD hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.
Figure S13: Magnetic characterization of the Co-VVE hybrids: (A) $\chi T$ as a function of temperature, (B) Inverse of $\chi$ as a function of temperature, (C) Magnetic susceptibility as a function of temperature in an ac field, and (D) Field dependant magnetization at 1.8 K.