Fig. S11 Dimer of neighbouring \([\text{Mn}((R)-\text{salmen})(\text{CH}_3\text{OH})_2]^+\) complexes linked through hydrogen-bonds in the structure of \((R)-2\). Hydrogen-bonds are blue-dashed lines. (Mn (green) C (black), N (blue), O (red)).
Fig. S12 Projection of the oxalate network of 3 in the 011 plane. (Cr (pink), Mn (green) C (black), N (blue), O (red)).
Fig. S13 Projection of the oxalate network of 3 in the 01-1 plane. (Cr (pink), Mn (green) C (black), N (blue), O (red)).
**Fig. SI4** Dimer of [Mn(salpn)(CH$_3$OH)$_2$]$^+$ and [Mn(salpn)(CH$_3$CN)(CH$_3$OH)]$^+$ molecules linked through two hydrogen bonds. Hydrogen-bonds are blue-dashed lines. (Mn (green) C (black), N (blue), O (red)).
**Fig. S15** Projection of 4 in the $ac$ plane. (Cr (pink), Mn (green) C (black), N (blue), O (red)). Hydrogen atoms have been omitted for clarity.
Fig. S16 Temperature dependence of the product of the molar magnetic susceptibility with temperature ($\chi T$) at 0.1 T for compounds 3 (full circles) and 4 (empty circles).
Fig. S17 Temperature dependence of the in-phase AC susceptibility ($\chi'$) (filled symbols) and the out-of-phase AC susceptibility ($\chi''$) (empty symbols) for (R)-2.
**Fig. S18** Temperature dependence of the in-phase AC susceptibility ($\chi'$) (filled symbols) and the out-of-phase AC susceptibility ($\chi''$) (empty symbols) for (S)-2.
Fig. S19 Temperature dependence of the in-phase AC susceptibility ($\chi'$) (filled symbols) and the out-of-phase AC susceptibility ($\chi''$) (empty symbols) for 3.
Fig. S110 Temperature dependence of the in-phase AC susceptibility ($\chi'$) (filled symbols) and the out-of-phase AC susceptibility ($\chi''$) (empty symbols) for 4.
Fig. SI11 Field dependence of the magnetization (M) for compounds (R)-1 (full circles) and (S)-1 (empty circles).
**Fig. SI12** Field dependence of the magnetization (M) for compounds \((R)-2\) (full circles) and \((S)-2\) (empty circles).
Fig. SI13 Field dependence of the magnetization (M) for compounds 3 (full circles) and 4 (empty circles).