

(8) Applications – X nuclei in bioinorganic chemistry and biochemistry

Why are heteronuclei (metals!) of interest in biochemistry?

- Metals in biology - enzymes and materials
- Applications of NMR in biochemistry - metalloproteins

Armitage, *Biochem. Cell Biol.* **1998**, 76, 223.

Vogel, *Biochem. Cell Biol.* **1998**, 76, 210.

Sadler, *Chem. Rev.* **1996**, 151, 1.

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NMR-active elements – biological importance

- **Non-metallic** besides O, also lots of Cl, P and S
- **Bulk metals** (1100 g Ca, 170 g K, 100 g Na, 25 g Mg p. 75 kg)
- **Trace metals** <0.01% body weight (Fe 4-5 g, Zn 2-3 g, Cu 100 mg p. 75 kg)
- **Ultratrace metals** (Mn, Mo, Cr, Co)