

## Chemistry of Ion Coordination

Zhou, Y; Morales-Cabral, JH; Kaufman, A., MacKinnon, R. **Chemistry of ion coordination and hydration revealed by a K<sup>+</sup> channel-Fab complex at 2.0 Å resolution.** Nature, 2001 Nov 01, (414):43-48.

- *Basis for coordinating K<sup>+</sup> ions – the pathway*
- *Compensation for lipids in the center*
- *Selectivity for K<sup>+</sup> versus other ions*
- *Hydrophobic exit port*

### PAULING

1. Electric Potential across membranes
2. the selective filter
3. monoclonal antibody Fab fragments
4. central cavity, dielectric
5. four-fold coordination, four fold channel

### HODGKIN

1. K<sup>+</sup> concentration in the cavity
2. 1,3 and 2,4
3. Gly 79
4. Glu 71 – Asp 80

### Crick

1. atomic temperature factors
2. high K<sup>+</sup> v Low K<sup>+</sup>
3. the gate
4. crystals of a membrane protein