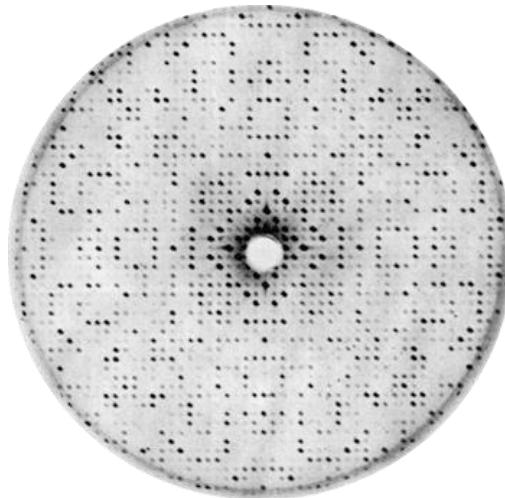
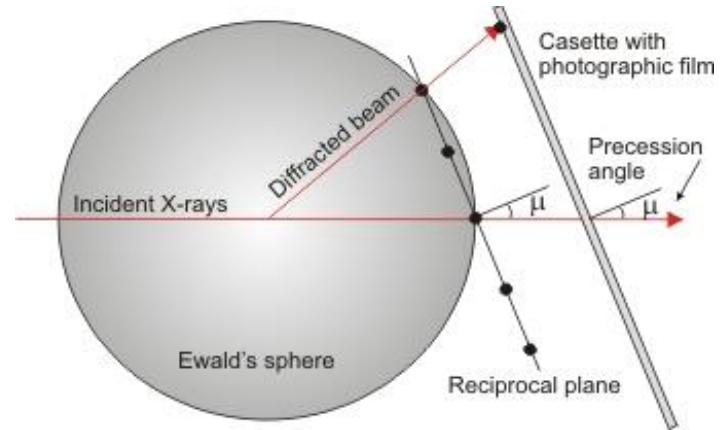
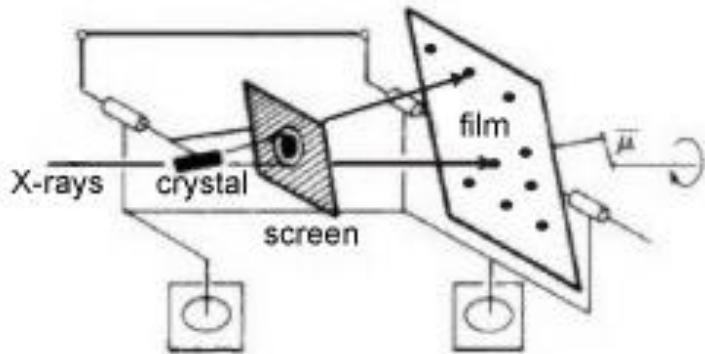




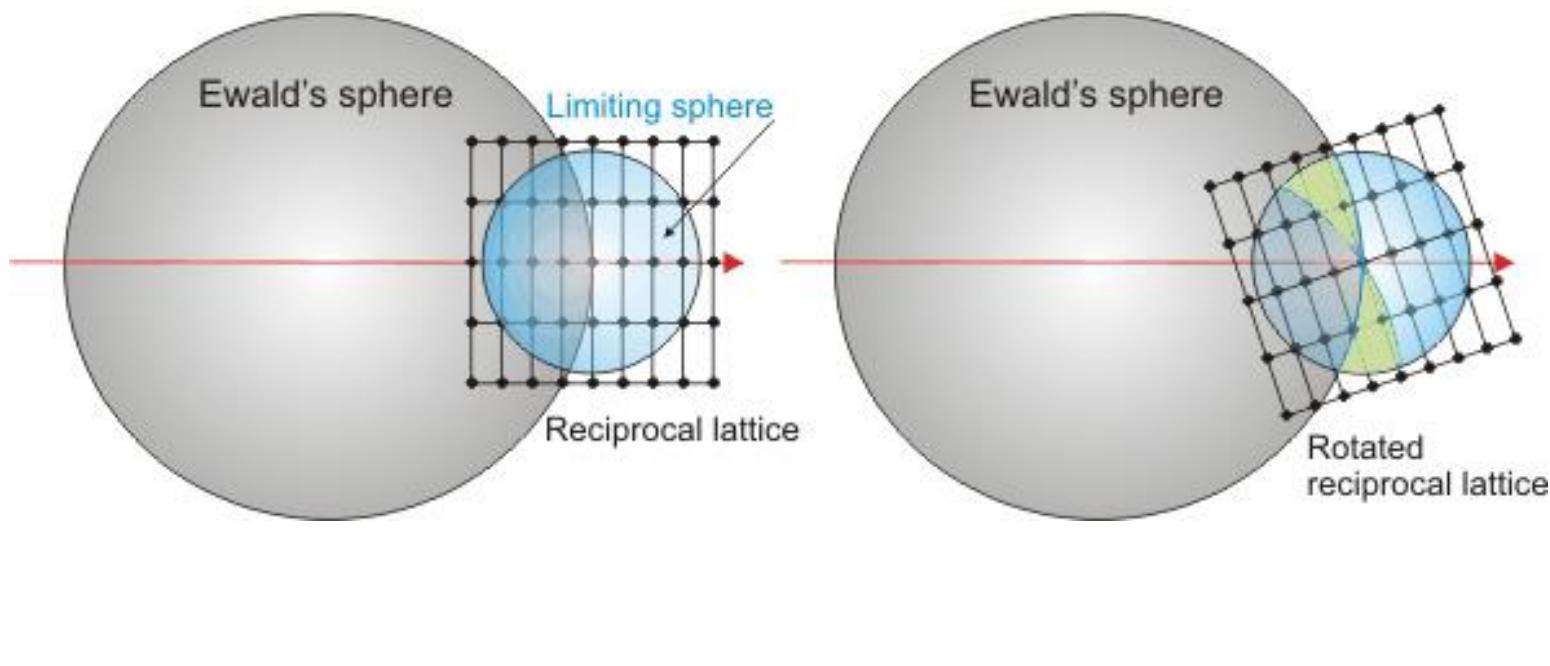
Rui Zhao (1992-1996)

University of Colorado Anschutz Medical Campus

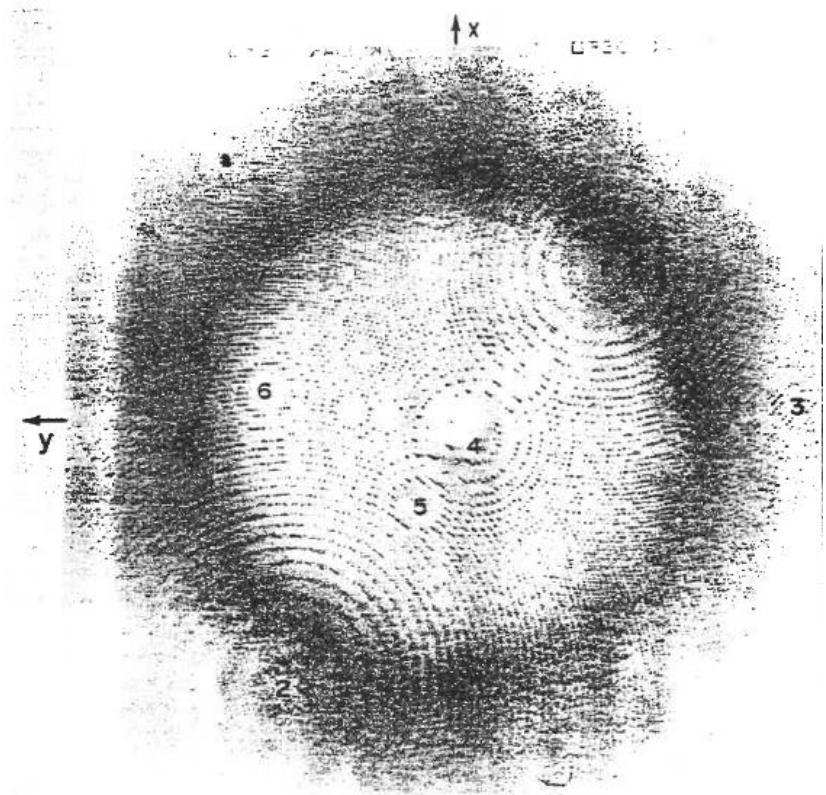
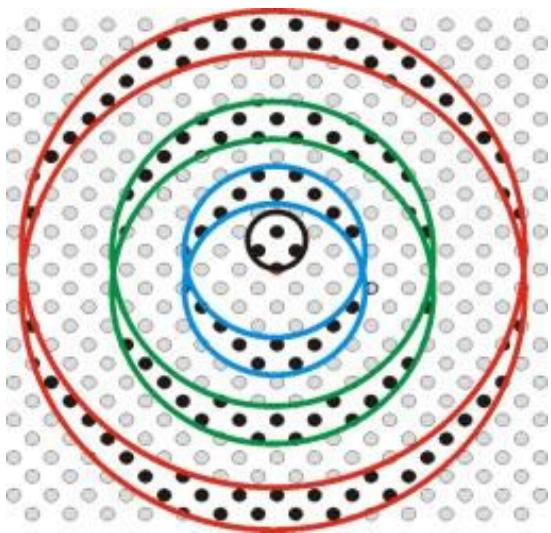
The Precession Method



The Oscillation Method



Auto-indexing: The American Method

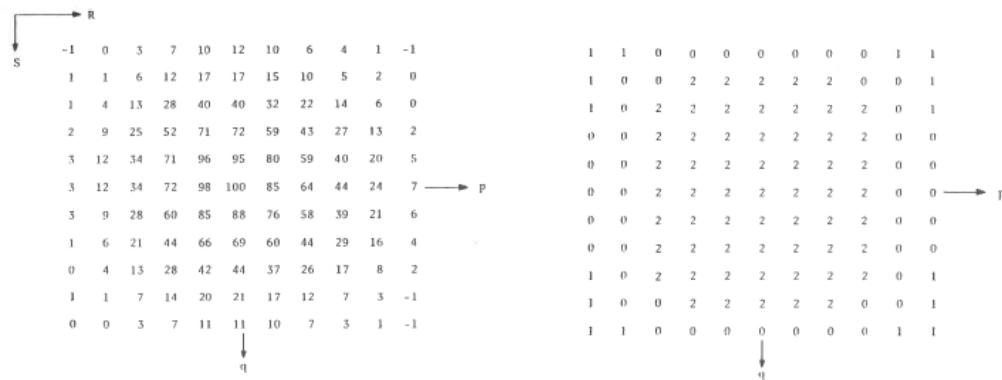


Mengo Virus, 0.3° oscillation photograph

Rossmann and Erickson. 1983. Oscillation photography of radiationsensitive crystals using a synchrotron source. *J. Appl. Crystallogr.* 16:629-636.
Vriend and Rossmann. 1987. Determination of the orientation of a randomly placed crystal from a single oscillation photograph.

Data Processing in the Oscillation Method

Integration



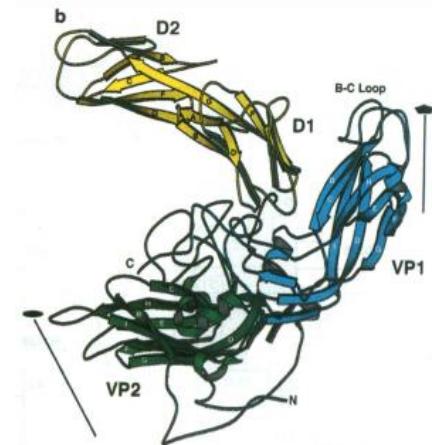
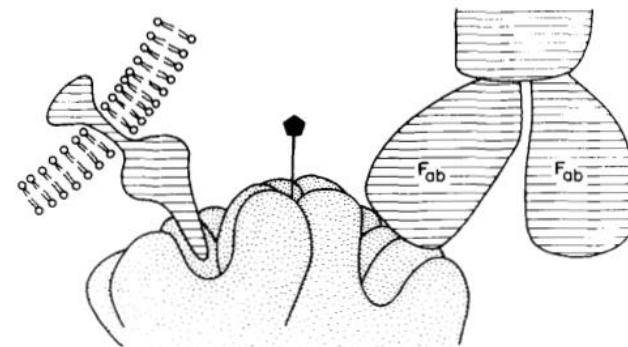
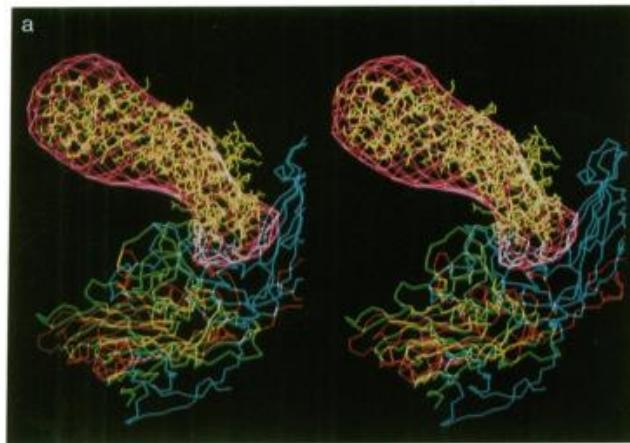
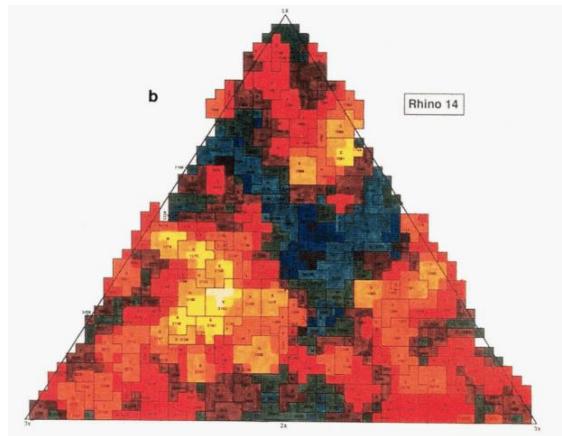
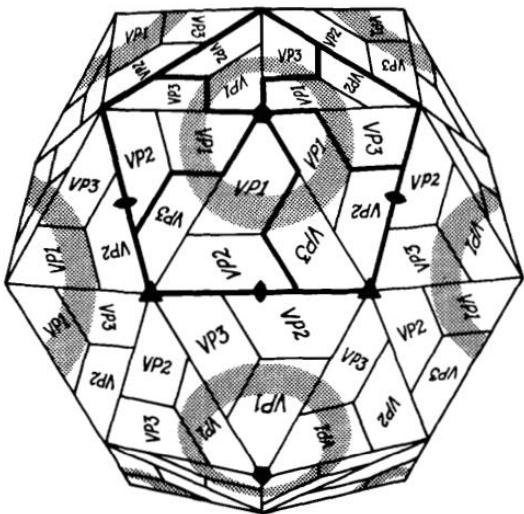
Post-refinement

Refine crystal setting parameters, partial reflections, assess errors, reject reflections, scaling

Rossmann, M. G. 1979. Processing oscillation diffraction data for very large unit cells with an automatic convolution technique and profile fitting. *J. Appl. Crystallogr.* 12:225-238.

Rossmann, M. G., A. G. W. Leslie, S. S. Abdel-Meguid, T. Tsukihara. 1979. Processing and post-refinement of oscillation camera data. *J. Appl. Crystallogr.* 12:570-581.

Human Rhinovirus: The Canyon Hypothesis

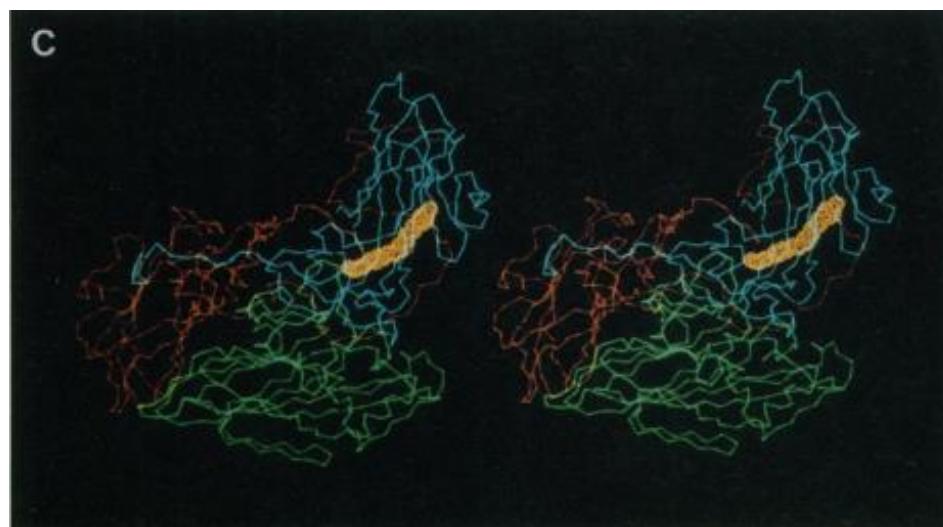
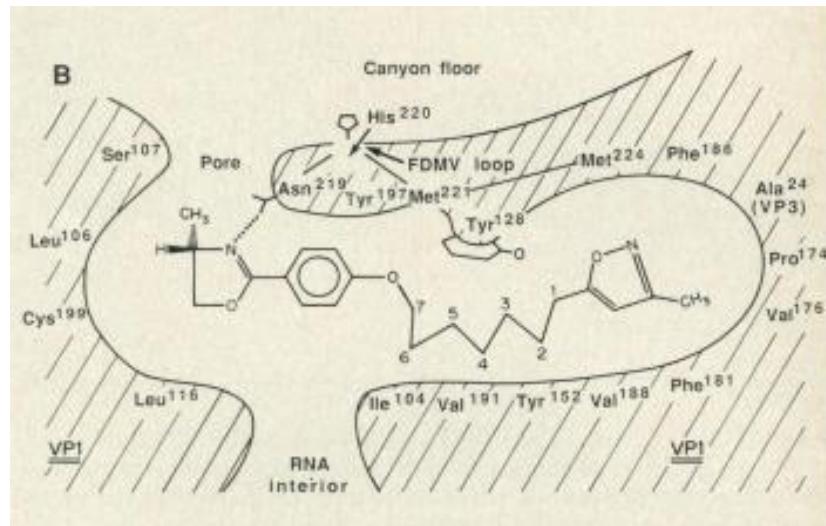
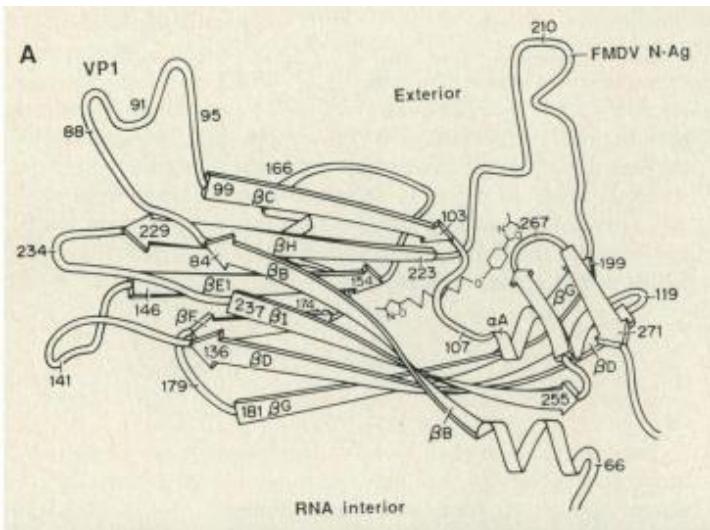


Rossmann, M. G. et al. 1985. Structure of a human common cold virus and functional relationship to other picornaviruses. *Nature (London)*. 317:145-153.

Rossmann, M. G. 1989. The canyon hypothesis. Hiding the host cell receptor attachment site on a viral surface from immune surveillance. *J. Biol. Chem.* 264:14587-14590.

Olson, N. H et al. Structure of a human rhinovirus complexed with its receptor molecule. *Proc. Natl. Acad. Sci. U.S.* 90:507-511.

Anti-Rhinovirus Drugs



Smith, T. J., M. J. Kremer, M. Luo, G. Vriend, E. Arnold, G. Kamer, M. G. Rossmann, M. A. McKinlay, G. D. Diana, M. J. Otto. 1986. The site of attachment in human rhinovirus 14 for antiviral agents that inhibit uncoating. *Science*. 233:1286-1293.

