

Figure 1. Difference Fourier maps around residue 15, which is Leu in turkey and His in chicken lysozyme. The $F_o - F_c$ map is shown in green (positive) and red (negative), contoured at 3σ . A) Mono complete, B) Laue best, C) Laue small firsts, D) Mono small, E) Laue firsts, F) Laue single-crystal. The structure of turkey lysozyme, after refinement but before mutations, is shown as thick multicolored sticks; the corresponding part of chicken lysozyme, from PDB entry 1BWH, is shown as thin blue sticks. Maps and model were displayed using Coot.

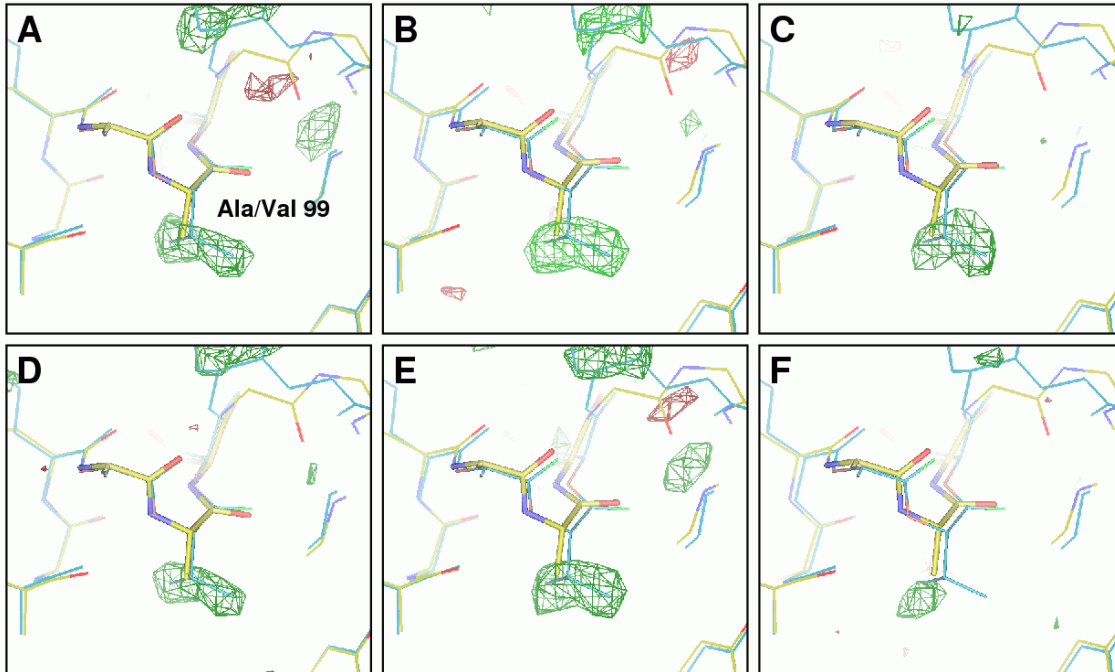


Figure 2. Difference Fourier maps around residue 99, which is Ala in turkey and Val in chicken lysozyme. The $F_o - F_c$ map is shown in green (positive) and red (negative), contoured at 3σ . A) Mono complete, B) Laue best, C) Laue small firsts, D) Mono small, E) Laue firsts, F) Laue single-crystal. The structure of turkey lysozyme, after refinement but before mutations, is shown as multicolored sticks; the corresponding part of chicken lysozyme, from PDB entry 1BWH, is shown as thin blue sticks, Maps and model were displayed using Coot.

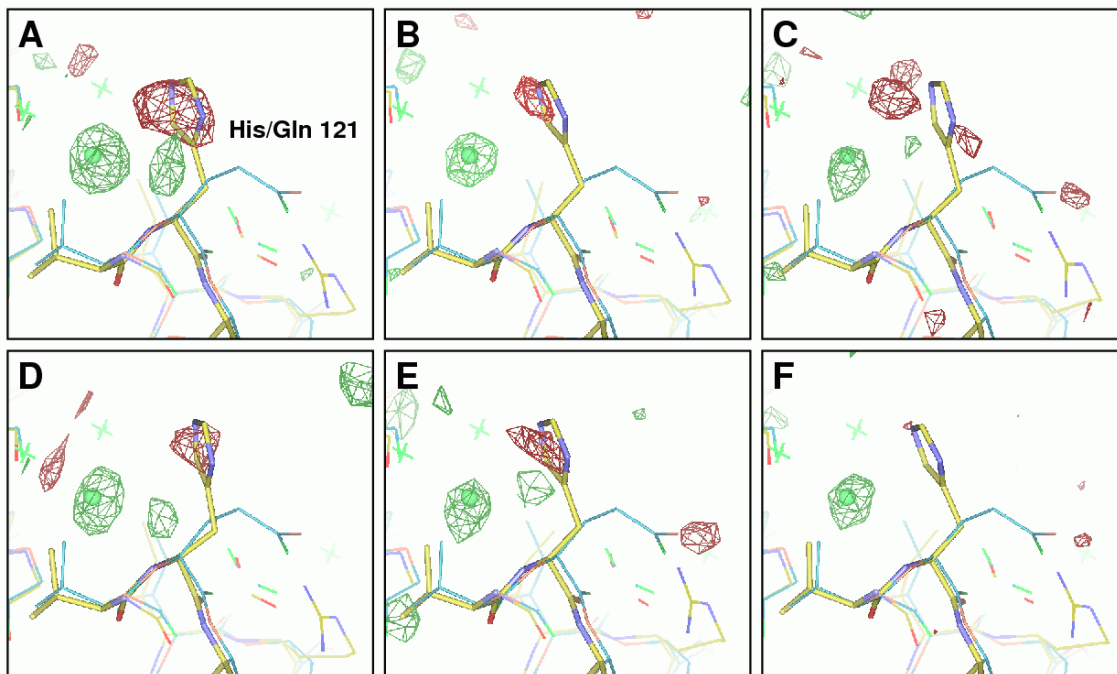


Figure 3. Difference Fourier maps around residue 121, which is His in turkey and Gln in chicken lysozyme. In HEWL (e.g. PDB structure 1BWH), the Gln sidechain is oriented very differently from the His, and a water molecule is located where the most obvious positive peak appears in the ΔF maps. The $F_o - F_c$ map is shown in green (positive) and red (negative), contoured at 3σ . A) Mono complete, B) Laue best, C) Laue small firsts, D) Mono small, E) Laue firsts, F) Laue single-crystal. The structure of turkey lysozyme, after refinement but before mutations, is shown as multicolored sticks; the corresponding part of chicken lysozyme, including water molecules, from PDB entry 1BWH, is shown as thin blue sticks (protein), a green sphere (closest H_2O), and green crosses (other H_2O 's). Maps and model were displayed using Coot.

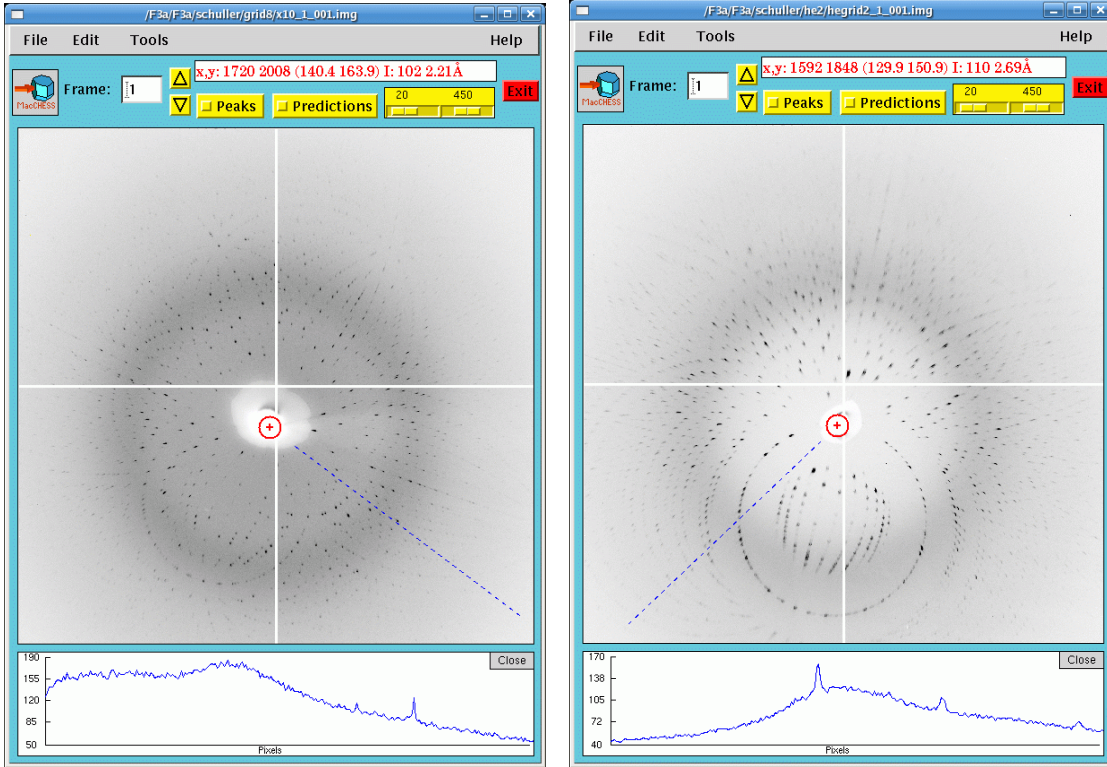


Figure 4. Comparison of Laue diffraction patterns taken with the crystal in air (left) and in helium (right). Radial scans of background, along the dotted blue lines, are plotted at the bottom of each image.