

Antibody Fab Fragments and their Crystal Organization

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Medical research continues to expand its use of antibodies for the development of new and specifically targeted molecular strategies. This research has produced a wide array of crystal structures including antibodies, their fragments, and complexes. Here we survey this structural family, focusing on Fabs, and examine in detail the crystal packing in the structure 5K8A of the Fab fragment of the NIST reference antibody RM8671. This well refined 2.0 Å structure provides a basis for comparisons with relevant precedents and structural neighbors. Comparisons reveal several themes and recurring patterns, especially in the contact-forming surface regions. These patterns, along with crystal conditions data, carry implications for mechanisms of crystallization, antibody aggregation and the development of further antibody engineering strategies.