

NMR assignment of the *E. coli* type 1 pilus protein FimF

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Type 1 pili are filamentous adhesion organelles of uropathogenic *E. coli* strains, which consist of up to 3,000 non-covalently connected protein subunits. Each subunit features an immunoglobulin-like fold, in which one of the seven β -strands is donated by the preceding subunit (Vetsch et al. 2005). For an NMR structure determination, a 179-amino acid construct of the type 1 pilus subunit FimF was engineered, which contains a C-terminal extension that acts as the complementing donor strand. Sequence-specific resonance assignments for the backbone nuclei H^N , $^{13}C^\alpha$, $^{13}C^\beta$ and ^{15}N were obtained using the peak lists from 4D APSY-HNCOCA and 4D APSY-COHNCA experiments (Hiller et al. 2005) to support the analysis of a 3D HNCACB spectrum. This novel strategy was found to greatly improve the efficiency of interactive backbone

resonance assignment. Side chain assignments were supported by the automated routine ASCAN (Fiorito et al., to be published). Assignments were obtained for the residues 2–155 and 166–179, including all H^N , H^α , H^β , $^{13}C^\alpha$, $^{13}C^\beta$ and backbone ^{15}N and H^N atoms, 89% of the $^{13}C'$ atoms, 97% of the side chain $^{13}CH_n$ moieties, 96% of the Asn and Gln $^{15}NH_2$ groups, and 3 of the 6 Arg $\epsilon^{15}NH$ groups. (BMRB accession Nr. 15032). Financial support by NCCR Structural Biology.

References

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