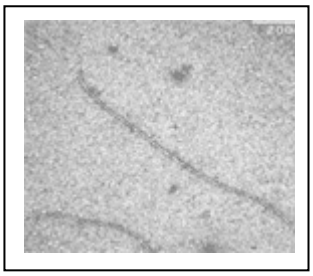
Pf1 - co-solvent phage for residual dipolar coupling

Analysis of residual dipolar coupling (RDC) data becomes increasingly popular among scientists in the NMR field. Reliable RDC data can best be obtained by using filamentous bacteriophages like the *Pseudomonas aeruginosa* phage Pf1 in RDC experiments.
The Profos AG is specialized in the use of bacteriophages in biotechnology. Our outstanding expertise in propagation, purification and handling of bacteriophages enables us to produce RNAse and protease free Pf1 phage of superior quality to a highly competitive price.



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To measure the Dipolar Coupling Interaction is a valuable source of structural information that contains both an angle and a distance component. Pf1 can be used to induce a tunable degree of alignment of proteins or nucleic acids. (Hansen, Mueller, Pardi, 1998).

Advantages of residual dipolar coupling (RDC):

- are structural quality indicators (structure validation)
- can be used for automatic NMR assignments (MARS)
- can be used to distinguish oligomeric states
- clearly identify which structure obtained by crystallography is representative of the solution conformation
- complement intramolecular NOE (Nuclear Overhouser Effect) constraints for backbone fold
- indicate the quality of the relative orientation of the subunits within a complex
- provide an accurate and simple means of identifying regions in a protein crystal structure with conformation significantly altered by crystal packing
- provide precise long-range orientation constraints
- replace many intermolecular NOEs traditionally needed to dock complexes

Advantages of filamentous phages in dipolar coupling experiments

- aligns stably in a wide temperature range
- degree of alignment can be easily tuned by changing the phage concentration
- easy to separate from the macromolecule of interest by ultracentrifugation
- extremely stable under physiological conditions
- no effect on the rotational correlation time of nucleic acids
- phage macromolecule system is stable for a long time

Relationship between Pf1 phage conc. and delta/Hz.