	Experiment title: **Gelsolin/actin complexes: Alwyn Jones BAG**	**Experiment number**: LS-2187
Beamline: ID29	**Date of experiment**: 07-08 March 2003	**Date of report**: 30/08/2004
Shifts:	**Local contact(s)**: Bill Shepherd	

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Report:

The special and temporal regulation of actin polymerization provides the force for cell locomotion. Gelsolin is an actin filament severing and capping protein that regulates the timing of actin polymerization through controlled capping or uncapping of filament ends. Gelsolin also contributes to regulating the total number of filaments through its severing function.

This trip led to us solving the following 3 structures:

Irobi, E., Burtnick, L. D., Urosev, D., Narayan, K. & Robinson, R. C. (2003) From the first to the second domain of gelsolin: a common path on the surface of actin? *FEBS Lett.* **552**, 86-90. ESRF data only.

Narayan, K., Chumnamsilpa, S., Choe, H., Irobi, E., Urosev, D., Lindberg, U., Schutt, C. E., Burtnick, L. D. & Robinson, R. C. (2003) Activation in isolation: exposure of the actin-binding site in the C-terminal half of gelsolin does not require actin. *FEBS Lett.* **552,** 82-85. ESRF data only.

L. D. Burtnick, D. Urosev, E. Irobi, K. Narayan & R. C. Robinson (2004) Structure of the N-terminal half of gelsolin bound to actin: roles in severing, apoptosis and FAF. EMBO J. **23,** 2713–272. ESRF data only.

These structures have honed our understanding of the activation of gelsolin through calcium binding or cleavage. The structures have also imposed limits to the possible conformations of the actin filament.